

ANTIGUA AND BARBUDA

GENERAL SITUATION AND TRENDS

Socioeconomic, Political, and Demographic Overview

The nation of Antigua and Barbuda comprises the islands Antigua and Barbuda, and the uninhabited island of Redonda. Located at the center of the Eastern Caribbean's Leeward Islands group, the country is 440 km² in area, with Antigua occupying 64% of the land mass and containing 98% of the population.

Antigua has relatively flat topography characterized by central plains and volcanic hills rising in the southwest (reaching altitudes of 400 m), all of which strongly influence the island's hydrology. To the north and east, the soil is mainly calcareous limestone. Annual rainfall is low, averaging 40 inches, and droughts occur every 5 to 10 years. There are no rivers and very few streams. A desalination plant supplies approximately 50% of the water needs of the island.

Antigua and Barbuda became independent in November 1981. It is governed by an elected parliament representing majority and opposition parties, with elections occurring at least every five years. The country is divided into 17 administrative constituencies, which include Barbuda. Executive authority is vested in a cabinet that is headed by a Prime Minister and comprises 10 Ministers.

Population

Table 1 shows results of the most recent national population census conducted in mid-1991 and mid-year estimates for 1995. Life expectancy at birth is 70 years for males and 74 years for females. The 1995 estimated mid-year population was 64,353, representing a 1% increase from the estimated 1988 mid-year population that was recalculated at 63,683. The number of registered live births varied over the past sev-

TABLE 1
Population by age group and sex in 1991 and estimated mid-year population in 1995, Antigua and Barbuda.

Age group	Population by age group and sex, 1991				Estimated mid-year population by age group and sex, 1995			
	Total	Total population (%)	Male	Female	Total	Total population (%)	Male	Female
0-4	6,152	10.4	3,080	3,072	6,670	10.4	3,339	3,321
5-14	11,925	20.1	5,961	5,964	12,929	20.1	6,462	6,467
15-44	28,653	48.3	14,874	13,779	31,066	48.3	14,940	16,126
45-64	7,740	13.0	3,671	4,069	8,391	13.0	3,979	4,412
65+	4,885	8.2	2,121	2,764	5,297	8.2	2,300	2,997
Total	59,355	100	28,612	30,743	64,353	100	31,020	33,333

Source: Population and Housing Census—1991, Antigua and Barbuda Ministry of Health, Health Statistics Department.

eral years, peaking at 1,347 in 1995. The birth rate also peaked in 1995 at 20.93 per 1,000 population.

According to the 1991 census, approximately 91% of the population was of African origin, 3.7% of mixed race, and 2.36% white. There were small groups with Syrian, Lebanese, Chinese, East Indian, and Portuguese ancestry.

Antigua and Barbuda attracts immigrants from many countries. Foreign-born residents came primarily from Dominica, the Dominican Republic, Guyana, Jamaica, Montserrat, Saint Kitts and Nevis, Saint Lucia, and Saint Vincent and the Grenadines. There was a noted increase in Spanish-speaking residents, which had an impact on the delivery of health and education services. In addition, a number of expatriate retirees and their offspring returned from the United Kingdom and the United States of America. The number of work permits granted to foreign workers in 1993 was 2,278 compared to 3,417 in 1994, and 3,657 in 1995. CARICOM citizens accounted for 68.6% of these permits in 1993, 74.7% in 1994, and 77.7% in 1995.

Economy and Education

The country's economy depends primarily on tourism, which, with related services, accounts for 65% of the GDP. Other major contributors were government services, wholesale and retail trade, construction, communications, real estate, and housing. The Government continues to focus on further developing the tourist industry and diversifying the economy through expansion of the financial and information sectors.

There was a steady increase in GDP at factor cost in constant prices from 1992 to 1995, averaging US\$ 403 million. In 1995, tourism, finance and information sector activities, and agriculture contributed US\$ 59.2 million, US\$ 30.5 million, and US\$ 13.6 million, respectively. The contribution from tourism declined substantially, dropping from US\$ 70.8 million in 1994, in part because of damage caused by Hurricane Luis. Contributions from agriculture showed only slight increases, with an average of US\$ 14 million, while banks and financial institutions averaged US\$ 28 million over the period. Per capita GDP in constant prices was US\$ 2,399.1 in 1994 and US\$ 2,288.1 in 1995, compared to US\$ 2,192.0 in 1991.

The external debt was approximately US \$340 million in 1995, an increase from US\$ 270 million in 1992. In 1993, the Government imposed a home-grown structural adjustment program that includes the satisfaction of Government debt obligations and other financial commitments. Debt repayment (domestic and external) totaled 19.2% of actual expenditure in 1995. The inflation rate in 1994 was 3.5% (IMF Interim Index), down from 7.0% in 1990.

Since 1973, Antigua and Barbuda has had a free and compulsory system of education for children 5–16 years old. In 1994–1995, there were 12,059 students enrolled in 30 public and 12 private primary schools; 4,646 children were enrolled in 9 public and 4 private secondary schools. The percentage of males attending decreased at higher education levels in the 1994–1995 period. While male attendance at the primary level was slightly higher than female attendance, at the state college level it was 2% less. A survey done in 1993 by the Antigua Literacy Program found that 15.6% of the adult population was illiterate.

The education system's infrastructure was badly damaged by Hurricane Luis, and intensive effort has been concentrated on repairs. The quality of both academic and technical tertiary level education at the State College continued to improve. The local center for the University of the West Indies (an institution jointly operated by the English-speaking Caribbean Governments) provided continuing education through the distance teaching system that links the University's centers in different Caribbean locations through satellite. Private institutions provided technical and secretarial education courses.

Mortality and Morbidity Profile

Death certificates completed by physicians generate mortality data. The crude death rate remained at approximately 7 per 1,000 population in 1995 compared to 6.3 per 1,000 in 1990.

Malignant neoplasms remained the leading cause of death in Antigua and Barbuda. The other leading causes of death include cerebrovascular and heart diseases, hypertensive diseases, and diabetes mellitus. Unfortunately, "signs, symptoms, and ill-defined conditions" were recorded for almost 6.6% of all deaths, reflecting the lack of attention paid to details of death certification.

Infant mortality rates have declined steadily since 1988. In 1995, the infant mortality rate decreased to 17.1 per 1,000 live births compared to 22.7 in 1991. The yearly average during the period was 20.3 per 1,000 live births, compared to 24.6 for 1988–1991. The most frequent cause of infant mortality is prematurity, reported in 57 of 109 (52.3%) deaths in 1991–1995.

In 1995, the most frequently reported communicable diseases were influenza and respiratory infections, gastroenteritis (notifiable only for children under 5 years old), chickenpox, conjunctivitis, syphilis and other venereal diseases, and foodborne illness.

The leading conditions for which persons sought treatment in the community health centers were hypertension (24.7% in 1994 and 32.9% in 1995, compared with 31.1% in 1992), dia-

betes mellitus (9.8% in 1994 and 12.2% in 1995), and accidents and injuries (3.5% in 1994 and 4.6% in 1995). Other common conditions included arthritis, heart disease, acute respiratory infections, alcohol and drug abuse, gastroenteritis, bronchial asthma, mental illness, and sexually transmitted diseases.

SPECIFIC HEALTH PROBLEMS

Analysis by Population Group

Health of Children and Adolescents

According to the 1991 census, the age group 0–4 years old accounted for 10.4% of the total population, with a male-female ratio of 1:1. During the period 1992–1995 there were 5,012 live births, an average of 1,275 births annually. The average birth rate was 19.8 per 1,000 population. In 1995, 90% (1,216) of the 1,347 live births took place in Holberton Hospital, Anguilla's main hospital. Seven percent (96) of births occurred at the Adelin Medical Center (a private hospital), and 2.6% (35) took place outside of the secondary care system. There was no clear reason for this trend, as the Government's policy sought to maximize the number of births taking place in institutions. The health sector was well equipped with adequate facilities, including a special care unit for premature and other infants requiring intensive care. Twenty of the 21 stillbirths occurring in 1995 were in Holberton Hospital, with one in the district service.

There were no substantial changes in the percentages of low-birthweight infants based on standards of the Caribbean Food and Nutrition Growth Chart; figures remained at approximately 4.9%. There was a decline in the number of infants considered underweight and overweight in the under-1 year category: a decline from 2.3% to 1.4% in the underweight category and from 9.3% to 8.5% in the overweight category. Similar decreases were seen in the 1–4-year age group.

The most common health problems seen among infants and in the 1–5-year age group attending health clinics are acute respiratory infections, diarrheal diseases, injuries, and skin infections. In the 1988–1991 period, the leading cause of admission to Holberton Hospital among children under 1 year old was gastrointestinal infection; for those 1–4 years old it was respiratory tract infections. In the 1992–1995 period, bronchial asthma replaced gastroenteritis and neonatal jaundice as the leading cause of child hospitalization.

During the 1992–1995 period, there were 103 deaths of infants under 1 year old, with 43% occurring on the day of birth. There was, however, a decline from 27 day-of-birth

deaths in 1991 to only 6 deaths in 1995. In 1995 there were no marked differences between the death rates for male and female infants.

Perinatal deaths declined from 38.4 per 1,000 deliveries in 1991, averaging 28.2 over the 1992–1995 period and 27.8 per 1,000 in 1995. Perinatal mortality seemed related to two factors: birthweight of infant and age of mother. During the 1991–1995 period, 95% of all infants born weighing less than 1,001 g died (49% of those who weighed 1,001–1,500 g and 20% of those 1,500–2,000 g). Only 3% of infants born weighing over 2,500 g died.

In 1995, births to women aged 35 and older represented 11.2% of total births. The percentage of stillbirths to mothers in this age group for the period 1991–1994 was 18.6% while the same age group contributed 9.94% of all live births. Percentage contributions to stillbirths markedly exceed contributions to live births in this age group.

Regular child health sessions screened for developmental and other problems and provided parents with child care guidance and counseling. More than 60% of infants attended clinics at or before the age of 6 weeks in 1994, and over 70% attended in 1995.

Children 5–19 years old comprise 30% of the total population. School-aged children periodically receive screening by family nurse practitioners for vision, hearing, speech, dental health, mental health, hemoglobin levels, weight/height, etc. Family life education was not officially introduced into the school curriculum, but family nurse practitioners and family life educators worked in the schools through invitation from the principals.

Ninety-three percent of school entrants (5 or more years old) had complete immunizations (DTP, DT, polio, and MMR) before beginning school. In 1995, it was estimated that there were 1,733 first visits to clinics by school-aged children and adolescents.

Respiratory illness accounted for 80% of the conditions presented by school-aged children who attended clinics for the first time in 1995. Dental and vision problems were the next two reasons for visits to community clinics in this age group.

Births to women under 20 years of age represented 15.8% of total births in 1995, a figure that has remained constant over the period.

The United Nations Fund for Population Activities (UNFPA) funded a peer counseling and youth health services project that ended in 1996. Part-time staff, including a nurse with training in adolescent health, a family nurse practitioner, and a gynecologist managed the school-based program. They addressed the social and health care needs of adolescents by providing health assessments and ongoing treatment, guidance and counseling, education on AIDS and other sexually transmitted diseases, substance abuse aware-

ness, family life education and family planning, Pap tests, and other services.

Health of Adults

Fifty percent of the estimated mid-year 1995 population was between 20 and 59 years old; 52% was female. In 1994 and 1995, twice as many females as males made first time visits to clinics. Hypertension and diabetes accounted for the majority of cases seen at community health clinics. Persons in this age group also made substantial numbers of visits for accidents and/or injuries, respiratory infections, and heart disease.

The leading causes of death in the age group 15–64 years old in 1995 were diseases of the circulatory system and neoplasms. Males accounted for more than twice as many deaths as females. Women in this age group were targeted for maternal health interventions. In 1995, women in this age group accounted for 84.2% of all births, a figure consistent with the average over the 1991–1994 period. No maternal deaths were recorded.

Community health records indicate that the condom was the preferred contraceptive method among new family planning acceptors. Among active users, however, there appeared to be equal preference for oral contraceptives and injectables. Increasing awareness about AIDS and other sexually transmitted diseases (STDs) among all age groups suggests that the use of contraceptives increased significantly since 1988. Contraceptives were procured primarily through the private sector, so community health clinic figures are not necessarily indicative of the national situation.

Health of the Elderly

The 1995 estimated mid-year population indicated that 7,114 persons were age 60 or older; 4,000 (56%) were female. In 1995, there were 296 deaths in the 65 and older age group, representing 69.5% of all deaths.

Most of the health problems affecting the elderly were due to chronic, noncommunicable diseases. Hypertension and diabetes accounted for the majority of cases seen in clinics. Malignant neoplasms, heart disease, cerebrovascular disease, hypertensive disease, and diabetes mellitus were the main causes of death in this group. The community program for adults and the elderly served 4,164 patients in 1995; 1,759 of them were over 65 years old. Many had risk factors related to obesity, alcoholism, and smoking.

The Citizens Welfare Division of the Ministry of Home Affairs introduced a home help program for the elderly. A number of small private homes for the aged emerged to supplement services provided by the Fiennes Institute, a Government institution.

Family Health

According to a 1991 report, approximately 58% of all households were headed by women, who constituted about 52% of the labor force. There is no specific program for family health. The Citizens Welfare Division provided a variety of services including advice regarding probation and rehabilitation; foster care placement and monitoring; counseling on parenting; and reporting on court investigations.

Issues related to the situation of abused, neglected, and abandoned children are a priority on the national policy agenda. A Sexual Offences Act passed in 1995 provided severe penalties for statutory rape and incest. The Citizens Welfare Division and the Collaborative Committee for the Promotion of Emotional Health in Children works closely with the police to monitor parental neglect and abuse. In the 1991–1995 period, 103 cases of sexual abuse were reported to the police, with 24 occurring in 1994 and 19 in 1995.

Workers' Health

There was no specific workers' health program, but the workman's compensation legislation applies to most workers. All employed persons are required to participate in the medical benefit and social security schemes through monthly contributions of a fixed percentage of salary. The medical benefits scheme provides medication, laboratory, X-ray, and other services to persons diagnosed with certain chronic diseases including hypertension, diabetes, cancer, glaucoma, and mental illness. Social security benefits include grants for disability, maternity, and pension.

Health of the Disabled

The Council for the Handicapped, which coordinates activities for the disabled, was revived in 1995. Special programs for the visually handicapped included general education and technical and craft training, which are organized by non-governmental organizations with some support from the Government. Hemiplegia and blindness due to cataracts, glaucoma, and diabetes were common causes of disability among the elderly.

Analysis by Type of Disease or Health Impairment

Communicable Diseases

Vector-Borne Diseases. There were no recent outbreaks of vector-borne illnesses. Dengue is endemic in the Caribbean and the *Aedes aegypti* mosquito, vector of dengue and yellow

fever, is present in the island. While there is constant surveillance to prevent the importation of malaria, two imported cases were detected in 1995.

Ciguatera poisoning is associated with locally caught barracuda and other fish. There were 322 cases reported in 1995 and 330 in 1994. Many cases go unreported because they are commonly treated with home remedies.

Vaccine-Preventable Diseases. In 1994 and 1995, there was approximately 100% coverage for infants under 15 months for diphtheria, tetanus, and pertussis (DTP) and polio (OPV), and 94% coverage for measles, mumps, and rubella (MMR). Between 1993 and 1995 an average of 40% of pregnant women were immunized against tetanus.

The most recent case of tetanus was recorded in 1993. There have been no cases of diphtheria or pertussis in recent years, and there were no confirmed cases of measles in 1994–1995. No cases of typhoid fever have been reported in the last 10 years. In the first quarter of 1995, meningitis was suspected in one death. Five cases each of hepatitis B were identified in 1994 and 1995.

Cholera and Other Intestinal Infectious Diseases. A cholera plan was prepared and enforced. No cases were identified in Antigua.

Chronic Communicable Diseases: Tuberculosis and Leprosy. There were 10 patients with leprosy on the national register. The Leper Home was closed since the lepers did not require active treatment.

Six cases of tuberculosis (four suspected and two confirmed) were reported in 1995. BCG vaccine was not routinely given as part of the immunization program. The increase in cases of AIDS and its relationship to tuberculosis were causes for concern.

Acute Respiratory Infections. Acute respiratory infections ranked as the leading communicable disease in the last two years, with a sizeable increase from 1994 to 1995. Pneumonia was the sixth leading cause of death in 1994 (19 deaths at a rate of 3 per 10,000 population, or 4% of all deaths).

Rabies and Other Zoonoses. The veterinary authority and the Ministries of Health and of Agriculture are responsible for the inspection of local and imported meat and animal products. There were no problems with rabies or other zoonoses in Antigua and Barbuda.

AIDS and Other Sexually Transmitted Diseases. According to the AIDS Secretariat of the Ministry of Health, since AIDS was first identified in 1985 through 31 December 1995, 70 AIDS cases were reported, including 6 children. Of

the 64 adults infected, 55 were male and 9 were female (6:1 ratio). There were 56 deaths.

In the same period, 77 persons tested HIV seropositive (37 adult males, 36 adult females, and 4 children under the age of 13). Heterosexual spread seemed to be the recent pattern of HIV infection. Intravenous drug abuse was uncommon in Antigua and Barbuda. All blood donors are screened for HIV.

Of other STDs, there were 70 cases of gonorrhoea and syphilis reported in 1994, and 60 in 1995. Of particular concern is the recurrence of cases of congenital syphilis. Non-gonococcal urethritis was the most commonly reported STD; there were 37 cases in 1994 and 62 cases in 1995.

Noncommunicable Diseases and Other Health-Related Problems

Nutritional Diseases and Diseases of Metabolism. In 1995, 24 infants (under 1 year) and 25 1–4-year-olds were diagnosed with mild to moderate protein-calorie malnutrition as determined by weight-for-age on the Caribbean Growth Chart. The national rate for mild/moderate malnutrition was less than 0.87%. Only one child was diagnosed with severe malnutrition in 1995.

In 1993, the Ministry of Health estimated a prevalence of 2.5% for iron deficiency anemia in children under 5 years old. This rate was derived from abnormal hemoglobin test results obtained from public health clinics. A prevalence of 6.3% was estimated among pregnant women.

Approximately 95% of new mothers were breast-feeding on discharge from the hospital. In 1995, the Ministry of Health estimated that 26% of infants were solely breast-fed for six weeks, 68% breast-fed partially for six weeks, and 87% breast-fed continually at three months.

A 1993 Ministry of Health survey identified a national rate for obesity of 4.6%. Sixty percent of women over 40 years were obese; of these, 33% were grossly obese (>140% standard weight). Twenty-five percent of men over 40 years were obese.

Cardiovascular Diseases. Diseases of the circulatory system accounted for 146 (37.7%) of all deaths in 1995, and 164 (38.8%) of all deaths in 1994. This disease category includes heart disease, cerebrovascular disease, and hypertensive disease. In 1995, these three disease groups were among the five leading causes of death in Antigua. There was a relatively high prevalence of hypertension and heart disease among first-time visits to public health clinics.

Malignant Tumors. The leading cause of death in Antigua and Barbuda was malignant neoplasms. In 1995, there were 66 deaths from malignant neoplasms compared to 87 in 1994. Of the 33 deaths in men, 14 (42%) deaths were from prostate cancer. Of 33 cases of malignant neoplasms in women, 7 (21%)

deaths resulted from breast cancer. In 1991, the respective figures for deaths related to prostate cancer were 14 of 37 (38%), and for breast cancer, 5 of 26 (19%).

Accidents and Violence. Deaths caused by traffic accidents averaged 10 per year for the last three years (13 in 1993, 10 in 1994, and 7 in 1995). Many injuries resulted in long periods of hospitalization. There was increased vigilance of drivers by the police traffic department.

Behavioral Disorders. The treatment of behavioral disorders was a priority health initiative during the period. Activities took place through a community mental health program that also provided follow-up care for clients discharged from the Mental Hospital.

Use of crack cocaine, cocaine, and marijuana and alcohol abuse were causes for concern. A rehabilitation program for drug abusers was developed, and services were offered through the Mental Hospital and the community mental health program.

Oral Health. Three dentists, a dental nurse, a hygienist, and two assistants working in a three-chair dental unit in the community health services provided dental care. In 1993, a fluoride rinse program was carried out in public schools, treating an estimated 12,000 students.

Natural Disasters. Hurricane Luis devastated Antigua (along with the neighboring islands St. Maarten and the U.S. Virgin Islands) in September 1995. Two deaths and 165 reported injuries resulted. Ninety percent of homes were damaged (40% sustained major damage); 60% of Government facilities were damaged, including 75% of schools and 50% of Holberton Hospital. Approximately 2,000 persons became unemployed. The Government suffered a shortfall in revenue collection of US\$ 10 million to US\$ 12 million.

The National Organization of Disaster Services, a body established within the Ministry of Home Affairs to coordinate disaster mitigation, prevention, preparedness, response and recovery, was severely tested by this event. There was a regional call for the development of a "vulnerability index" to be factored into the evaluation of need for preferential aid and trade arrangements for countries like Antigua and Barbuda that lie in the hurricane belt.

RESPONSE OF THE HEALTH SYSTEM

National Health Plans and Policies

A health policy drafted in 1994 committed the Government to understand health as a "human right," adopt the pri-

mary health care approach, and support all national, regional, and international activities necessary to achieve "health for all by the year 2000." Attempts were made to redefine policy and planning goals to meet the aims and objectives of both the Caribbean Cooperation in Health agreement and the Caribbean Charter for Health Promotion.

Strategies and Programs for Health Sector Reform

Reorganization of the health system was a high priority, and several initiatives were undertaken during 1996. A five-year development plan was drafted for the Ministry of Health that included recommendations for the hospital sector. The recommendations address the direction and development of all hospital services, financing, human resources development, community participation in management and evaluation of services, private participation in the delivery of hospital services, and relations with public and private sectors (national and regional). Specific legislation was proposed for governing the organization and management of Holberton Hospital. A training component was devised that complemented the Ministry's main development plan. It details training requirements in management, professional, and technical areas, including training activities for all levels of management (dependent on availability of financing). Finally, proposals were made for alternative health financing mechanisms.

Organization of the Health Sector

Institutional Organization

The Ministry of Health provides leadership in public health care, regulation, and the delivery of services. The system is financed through public taxation or levies in support of the medical benefit scheme. The participation of private insurance in health financing is minimal and will be the subject of further examination during reorganization attempts.

The Minister of Health is a Cabinet member and delegates authority to a Permanent Secretary for management of the Ministry. Technical and administrative staff assists the Permanent Secretary in achieving the Government's health goals and objectives. The Chief Medical Officer is the technical advisor to the Ministry and is responsible for coordinating health services delivered in hospitals and health centers.

Antigua is divided into seven geographically determined medical districts. Each is served by a government-appointed district medical officer responsible for providing medical services to district residents. Primary health care services in the districts include: maternal and child health, health education, management of common health problems, environmental

sanitation, community mental health care, nutrition, diabetic and hypertensive care, communicable disease control and surveillance, home visitation, and referral services.

Organization of Health Regulatory Activities

The legislative framework directing public health activities in Antigua and Barbuda was last revised in the mid-1950s, and is now considered inadequate. It was recognized that new regulatory standards are required to meet the expansion of private and public provision of health services. Legislation has been drafted on the administration and management of health institutions, a new Medical Act, and revision of the Pharmacy and Midwifery Acts.

The Medical and Nursing Councils continue to regulate eligibility to practice medicine and nursing.

Health Services and Resources

Organization of Services for Care of the Population

Immunization coverage with DTP and OPV was estimated at approximately 100% for infants under 15 months of age. In 1994 and 1995, coverage for measles, mumps, and rubella was about 94%.

The vector control program focused on the control and eradication of mosquitoes, particularly *Aedes aegypti*, the vector for both dengue fever and yellow fever. The control program consists of fogging, community education, inspection, treatment, and provision of larvae-eating fish for water storage facilities. The house infestation index was 11.1 in 1995, down from 15.3 in 1994.

Efforts to strengthen the Health Statistics Division continued through the provision of equipment, trained staff, and adequate physical facilities.

The responsibility for distributing potable water lies with the Antigua Public Utilities Authority. In 1995, it was estimated that about 60% of households had piped potable water connections; the remaining 40% used standpipes or private collections (drums and cisterns) as their source. Barbuda is supplied from a central well. The Central Board of Health monitored the quality of both drinking water and coastal waters.

The Authority and international consultants developed a project for a central sewerage system for St. John's (the capital city). Because of damage caused by Hurricane Luis, it was estimated that the percentage of homes without sanitary facilities increased from 8% in 1993 to at least 12%. Septic tanks and soakways served approximately 60%–65% of the population. The majority of the remaining population was served by pit latrines and pail closets that are removed by the night soil

service of the Central Board of Health. Holberton Hospital and coastal hotels have private sewage plants.

The Central Board of Health maintains responsibility for solid waste management. This function will be assumed by a National Solid Waste Management Authority recently established by the Government (November 1995) with responsibility for solid waste storage, collection, treatment, and disposal. Work began in 1996 to engineer the existing dumpsite into a sanitary landfill. All other official dumpsites were closed, although a number of unofficial sites have yet to be shut down.

Efforts to control littering continued through public education and awareness programs. Enforcement of the 1983 Litter Control Act was reviewed.

The Central Board of Health conducted intense inspection of restaurants and other food-shops. No outbreak of food-borne illness occurred in the 1992–1995 period. The proliferation of itinerant roadside food vendors was a matter of increasing concern. Discussions took place between the Ministries of Health and Civil Service Affairs and the Small Vendors Association to address location problems and health concerns. The Central Board of Health embarked on education programs for staff in food establishments as well as for independent operators.

Organization and Operation of Personal Health Care Services

Both Government and private health facilities provided personal health care services. The medical benefits scheme provided pharmacy service to its beneficiaries.

Holberton Hospital is central to the health system, since it is the only public acute care health institution. General and specialist services are provided in medicine, surgery, obstetrics and gynecology, pediatrics, radiology, and pathology. In addition, private sector or foreign specialists provided services in otolaryngology, ophthalmology, orthopedics, neurology, and radiology. In 1995, there were 4,271 discharges from the general hospital; the average length of stay was 8 days. The hospital was damaged by the 1995 hurricane, and its bed component was reduced to 135 beds from 200 beds in 1991. Plans are under way to build a 200-bed acute care hospital to replace Holberton Hospital.

There are two long-stay facilities, the Mental Hospital with 150 beds (average occupancy in 1995 was 85 patients) and the Fiennes Institute, which serves 100 geriatric patients. Springview Hospital in Barbuda serves mainly as an outpatient facility. A private secondary care facility, the 15-bed Adelin Medical Center provides outpatient and inpatient care. There were two group practice medical centers with private physicians and dental offices.

Community health services are provided through a network of nine health centers and 18 satellite clinics or subcen-

ters linked to the health centers. These facilities are evenly distributed across the country. Teams that include the district medical officers (physicians), family nurse practitioners, public health nurses, district nurse-midwives, community health aides, and clinic aides provide services in the health centers. District nurse-midwives and clinic aides provide services at the subcenters with support from health center teams.

The commitment to decentralize health services as a basis for developing local health districts did not yield the expected results. The system is still centrally managed. Patients from rural areas continue to travel to St. John's for X-ray, laboratory, and drug services. In 1994, 82,988 visits were made to all services in the clinics, with approximately 20% for child health services, 17.6% for hypertension, and 9.1% for diabetes.

All resident medical specialists, including the Government consultants and district medical officers, had private practices in the capital city. In addition, there were four private ophthalmology/ophthalmic centers, two private laboratories, and a private physical therapy center. Blood banking is centrally provided in Holberton Hospital and the Adelin Center.

Inputs for Health

All drugs, immunobiologicals, reagents, and equipment were imported.

Human Resources

In general, there was an adequate supply of health personnel: 309 worked in the public sector and 58 in the private sector. In 1995, there were 11 physicians (1.7 per 10,000 population) and 218 trained nurses (34 per 10,000). Specialists among the physicians included two gynecologists, two ophthalmologists, and two pediatricians. Of the 218 nurses, 31 were district nurse-midwives, and 10 were public health nurses. In addition to the local health personnel, Caribbean and other nationals as well as returning residents supplemented the cadre. There were large numbers of staff vacancies in the health establishment and nationals filled many of these positions.

The only certified program for the education of health personnel is the School of Nursing. The Government transferred the School from its hospital base to a community college setting at the Antigua State College, and allocated funding for its first year of operation. Difficulties existed in attracting qualified and motivated entrants to the nursing program. Training for other allied health personnel was accessed through regional training institutions. Continuing education was provided both locally and abroad through the efforts of the Min-

istry of Health, professional organizations, and international and regional agencies.

Research and Technology

Commitments to conduct national health research projects resulted in small retroactive studies on utilization of health services and specific diseases. However, these studies were more reflective of individual interests than program objectives.

Over the last five years there has been a marked increase in the availability of new technology. Holberton Hospital received mammography, fluoroscopy, and CAT scan equipment, and a well-equipped Intensive Care Unit.

Expenditures and Sectoral Financing

Both the actual amounts spent on health care and the percentage of the national budget continue to increase, from US\$ 96 million (11.9% of the budget) in 1991 to US\$ 141.2 million (13.9% of budget) in 1995. Per capita expenditure on health increased in nominal terms from US\$ 186.8 in 1991 to US\$ 305.6 in 1995, an increase of about 64%.

In 1995, 45% of the health budget was spent on institutional services that include Holberton Hospital, the Mental Hospital, and Fiennes Institute (the geriatric facility), and approximately 45% on environmental health and community health services. This percentage allocation remained constant over the period.

Sectoral Expenditure

Despite the decline in economic growth in recent years, the health sector maintained high priority in the Government, and garnered 13.9% of the Government's expenditure budget in 1995. In 1996, 13% of the national budget was allocated to the Ministry of Health and Home Affairs (about 12% for health). Financing for the health sector comes from general revenue and the medical benefits scheme.

Improved efforts at recovering costs at Holberton Hospital have resulted in the collection of EC\$ 2.96 million in 1993, but this still represents a small percentage of potential revenue from user fees. Improvements in monitoring the accounting system are expected to increase this revenue.

For 1996, EC\$ 400,000 has been allocated for capital expenditure on district clinics and EC\$ 750,000 for additional equipment for Holberton Hospital. About EC\$ 300,000 is earmarked for expenditure on equipment for the solid waste management sector.

The recurrent expenditure estimated for health activities for 1996 is EC\$ 40.47 million, with EC\$ 12.4 million going to

the Central Board of Health and ECS 17.06 million to Holberton Hospital. ECS 1.14 million is allocated to the public health, medical, and sanitary services in Barbuda.

External Technical and Financial Cooperation

Antigua and Barbuda participated in regional programs and projects for drug procurement, health service develop-

ment, information systems improvement, environmental protection, solid waste management, and disaster preparedness. Benefits such as cost savings, training, consultant services, and, in some cases, direct investment were received. Official development assistance from the Development Assistance Committee of the Organization for Economic Cooperation and Development, multilateral organizations, and Arab countries fell in 1993 to US\$ 3.0 net million from US\$ 7.0 net million in 1991.