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# CAYMAN ISLANDS

## GENERAL SITUATION AND TRENDS

### Socioeconomic, Political, and Demographic Overview

The Cayman Islands is a British Dependent Territory comprising three islands: Grand Cayman, Cayman Brac, and Little Cayman. The islands cover an area of about 250 km<sup>2</sup> in the western Caribbean Sea, about 240 km south of Cuba and 290 km west of Jamaica. George Town, the capital city, is located on Grand Cayman, the largest and most populous island. The islands are generally low-lying, with the exception of a massive limestone bluff rising on Cayman Brac. Cayman Brac and Little Cayman are located about 145 km northeast of Grand Cayman. At the end of 1995, the population of the Cayman islands was estimated to be 33,600, an increase of 5% over the previous year.

A Governor, who represents the Queen and presides over the Executive Council, heads the territorial Government. The elected Legislative Assembly designates Ministers to sit on the Executive Council. A 1993 amendment to the Constitution established a new Ministry of Health, Drug Abuse Prevention, and Rehabilitation. Ministers delegate policy implementation and department administration to Permanent Secretaries.

Political stability and a strong economy characterize the Cayman Islands. The exchange rate remained constant over the past two decades at C\$ 0.80 to US\$ 1.00. The gross domestic product almost doubled between 1988 and 1994, when it was estimated to be \$US 906 million. Average per capita GDP was an estimated at US\$ 28,900. The revenue almost doubled in seven years: it was US\$ 101.2 million in 1988, US\$ 130.4 million in 1991, and US\$181 million in 1995. Overall economic growth for 1995 was an estimated 5%, and both inflation and unemployment recorded historically low levels. Inflation averaged about 5% annually in recent years, but stood at 2.3% in 1995. The average unemployment rate during the 1992–1995 period was 6.1%, and in

1995 was 4%, the lowest rate since the 1989 census. The labor force was about 16,830 in 1994, of whom 6,821 (40.5%) were foreign work permit holders. Growth in the economy was fueled largely by successes in finance and tourism, the two main sectors of the economy. In the financial sector, the mutual funds industry achieved remarkable growth. In the tourism sector, visitor arrivals amounted to over 1 million in 1995.

The annual recurring Government expenditure nearly quadrupled in the last decade. In 1986 it was US\$ 58.9 million and in 1995 it reached US \$211.9 million. In 1995, education was allocated 10.7% of the budget; health, 9.6%; tourism, 9.6%; and social services, 3.6%.

### *Population*

In 1995, the estimated mid-year and year-end populations for the Cayman Islands were 32,500 and 33,600, respectively. According to the 1989 census, 22.7% of the population was under 15 years of age and 6.3% was 65 years and older. A 1993 survey estimated these figures to be 24.9% and 8.6%, respectively. The dependency ratio was 33.5 in 1993.

The annual average crude birth rate has remained almost static during the last decade at 17.6 per 1,000 population; the lowest rate was 14.9 in 1995. The annual average death rate over that period was 4.7 per 1,000 population; the lowest rate was 3.4, also in 1995. The average annual growth rate was 4.6%, with variations from 2.1% to 6.7%. In 1994, 63% of the population was Caymanian, a reduction from 69% in 1988. This is attributed to the rapid increase in the number of foreign work permit holders and their dependents (10,017 in 1995) living in the Cayman Islands.

Births totaled 520 in 1992, 531 in 1994, and 485 in 1995. There was a small increase in live births to mothers 35 years and older (9.5% in the 1988–1991 period and 10.7% in the 1992–1995 period). There were no live births to mothers 45

years old and older during these periods. There has been a slight increase in the percentage of unmarried mothers (37.8% in the 1988–1991 period, and 39.3% in the 1992–1995 period).

According to national sources, life expectancy at birth in 1989 was 77.1 years. Estimates for 1995 were 77.5 years, 75.0 years for males and 79.0 years for females. The average age at death during 1994 and 1995 for both sexes was 71 years, 66 years for males and 76 years for females.

School is free and compulsory for all children between 5 and 16 years old. Health care is provided free of charge to all school children. Adult literacy rate is about 98%.

### Mortality Profile

The registration of deaths occurring in the Cayman Islands is 100% complete. Mortality data reported here exclude deaths of visitors (approximately 10% of total deaths) whenever possible to avoid bias. Data are not available on residents who die overseas. As comparisons can be misleading due to the small population size, data were grouped for the 1988–1991 and 1992–1995 periods.

Deaths of residents average approximately 100 per year. During the 1992–1995 period, 469 deaths were recorded, compared with 460 deaths from 1988 to 1991 (14 visitors' deaths were included in the 1991 data). The average annual crude death rate for the 1988–1991 period was 4.6 per 1,000 population, and 4.3 during the 1992–1995 period. The number of infant deaths varied from 2 to 7 per year over the 1988–1995 period. The average infant mortality rate during the 1989–1991 period was 8.8 per 1,000 live births, and 8.6 per 1,000 in the 1992–1995 period. The neonatal mortality rate was 7.3 per 1,000 live births during the 1992–1995 period, and 7.7 during the 1988–1991 period. The average stillbirth rate was 12.0 per 1,000 births from 1988 to 1991, compared with 4.3 per 1,000 births during the 1992–1995 period. There was only one maternal death between 1984 and 1995.

Symptoms and ill-defined conditions accounted for 1.5% of deaths during the 1988–1991 period, while 3.2% of registered deaths were due to ill-defined conditions during the 1992–1995 period. The leading causes of death in the 1988–1991 period were diseases of the circulatory system (39.5%, or 179 deaths), malignant neoplasms (22.3%, or 101 deaths), and external causes, about 11% (50 deaths). During the 1992–1995 period, diseases of the circulatory system comprised 41.9% of total deaths, followed by malignant neoplasms (20.9%). During the same period, external causes were responsible for 7.9% of the deaths. The decline in this category is attributed to a recent decline in deaths due to motor vehicle accidents.

### SPECIFIC HEALTH PROBLEMS

Because the Cayman Islands are small territories with similar demographic and socioeconomic profiles, there is no significant variation in health problems due to geographical location. Mortality data during the 1992–1995 period, Georgetown Hospital discharge data for 1995, and data from notifiable disease records were used to describe specific health problems in the Cayman Islands. Data for Georgetown Hospital, which serves 95% of the population, indicated that there were a total of 3,417 discharges in 1995 (105 per 1,000 population). The major causes for admission were: diseases of the digestive system (404 cases, or 11.8%); diseases of the genitourinary system (336 cases, or 9.9%); injuries (305 cases, or 8.9%); diseases of the respiratory system (265 cases, or 7.8%); and diseases of the cardiovascular system (254 cases, or 7.4%). Normal deliveries accounted for 421 admissions (12.3%).

### Analysis by Population Group

#### *Health of Children*

The number of infant deaths varied from 1 to 7 per annum during the past 10 years, with 2.8 deaths per 1,000 live births being the lowest rate, and 14.0 per 1,000, the highest. The annual average infant mortality rate during the 1991–1995 period was 8.7; nearly 85% of infant deaths were neonatal deaths. Of the 18 infant deaths occurring during the 1991–1995 period, 9 were attributed to prematurity, and 4 to congenital heart disease. Hypoplastic left heart syndrome was responsible for three infant deaths during this period. Fifteen of the infant deaths were among females (83%), and nine of these deaths were due to prematurity. The stillbirth rate declined from 12.0 per 1,000 births in the 1988–1991 period to 4.3 per 1,000 births in the 1992–1995 period. In 1990 and 1991, 11.2% of infants had low birthweights. This figure decreased to 4.5% in 1995; the average during the 1992–1995 period was 6.4%.

In 1995, 86 admissions to the Georgetown Hospital were for children under 1 year of age (excluding 421 healthy live-born infants), an admission rate of 156 per 1,000 children under 1 year old. This is the second highest age-specific rate after that of the 65 and older age group. The leading causes of admission among this age group were diseases of the respiratory system (27 cases) and diseases of the digestive system (19 cases). There were 9 cases of bronchitis (10.5%), 8 of gastroenteritis (9.3%), and 6 of asthma (6.8%).

There were no deaths among children 1 to 4 years of age during the 1992–1995 period. Three occurred during the 1988–1991 period, two due to accidental drowning and one

from accidental poisoning. There were 259 admissions to the Georgetown Hospital for this age group, for a rate of 106 per 1,000 population. The leading specific causes for admission were gastroenteritis (31 cases), asthma (28 cases), and convulsions (17 cases). These represent 11.4%, 10.2%, and 6.2%, respectively, of all admissions in this age group.

One death occurred in the 5–9-year-old age group during the 1992–1995 period due to a traffic accident. A total of 112 children in this age group were admitted to the hospital in 1995, for a rate of 52 per 1,000 population. The most common causes for admission were diseases of the respiratory system (26 cases) and diseases of the digestive system (25 cases, or 12 per 1,000).

### *Health of Adolescents*

During the past decade, there were between 1 and 2 live births to females under 15 years of age, a rate of 2.2 per 1,000 births during 1988–1991, and 2.5 in 1992–1994. No births were recorded in 1991 and 1992 for this group. One death due to Sanfilippo syndrome occurred among 10–14-year-olds during the 1992–1995 period. In 1995, 68 children in this age group were admitted to the hospital, or 35 per 1,000 population. The main causes for admission were injuries (19 cases, or 28%), diseases of the respiratory system (10 cases, or 15%), and diseases of the digestive system (10 cases, or 15%).

During 1992–1994, 12.9% of births (204 of 1,578) were to mothers between 15 and 19 years old, compared with 17.5% during the 1988–1991 period. From 1992 to 1995, three deaths occurred among the 15–19-year-old age group, two due to motor vehicle accidents and one to homicidal injury. A total of 155 hospital admissions were recorded in 1995, a rate of 82 per 1,000 population in this age group. Females accounted for 121 admissions (78%). The most common causes for admission among females were normal delivery (40 admissions, or 33%); obstetric causes (22 cases, or 18.2%), genitourinary diseases (9 cases, or 7.4%), and diseases of the digestive system (10 cases, or 8.3%). Thirty-four males were admitted in this age group in 1995, accounting for 11 admissions due to injuries (32.4%) and 7 due to diseases of the digestive system (20.6%). Of the 244 clients seeking drug counseling, 21% were under 19 years of age.

### *Health of Adults*

The total fertility rate declined from 381 in 1990 to 335 in 1994. There were no births to women above 50 years of age between 1986 and 1995. Between 1992 and 1994, 89% of live births were to mothers between the ages of 20 and 44, compared with 79% in the 1988–1991 period. In 1995, 98.8% of

pregnant women saw trained personnel during the prenatal period, and trained personnel attended all deliveries. The average number of prenatal visits per pregnancy was 11.8. A survey revealed that 27% of mothers were solely breast-feeding at four months, and 12% were solely breast-feeding at six months. Forty-nine percent of babies were partially breast-fed at six months.

There were 96 deaths among the 25–64-year-old age group (25% of total deaths) in the 1992–1995 period. The most common causes for death were diseases of the circulatory system and malignant neoplasms. In 1995, 61.3% (1,801 of 2,936) of hospital admissions were in the 20–64-year-old age group, a rate of 84 per 1,000 population. Seventy percent (1,258) were females. The main causes for admission for women were normal delivery (208, or 16.5%), obstetric causes (214, or 17%), genitourinary diseases (151, or 12.0%), and diseases of the digestive system (109, or 8.7%). Among males the main causes for admission were injuries (117 admissions, or 21.5%), diseases of the digestive system (91, or 16.8%), diseases of the circulatory system (56, or 10.3%), and mental disorders (49, or 9%).

### *Health of the Elderly*

In 1993, it was estimated that 6.6% of the population was 65 years old and older, a slight increase over 1989, when it was 6.3%. A recent survey revealed that 29% of the elderly are employed. About 36% indicated that they do not have any fears or problems related to aging, while 32% are concerned about their health. The Social Services Department assists those in need, and the Government offers free medical care for elderly who cannot afford treatment.

During the 1992–1995 period, 345 of all deaths (73.5%) occurred in this age group; the most common causes were diseases of the circulatory system and malignant neoplasms. In 1995, 455 (15.5%) of hospital admissions were for persons 65 years and older, representing the highest age-specific rate (212 admissions per 1,000 population). Females accounted for 57% of admissions in this age group. The main causes for hospital admission among females were diseases of the circulatory system (68 cases, or 26%), diseases of the digestive system (33 cases, or 13%), diseases of the musculoskeletal system (23 cases, or 9%), and endocrine and metabolic disorders (18 cases, or 7%). Among males, the main causes were diseases of the circulatory system (48 cases, or 25%), diseases of the digestive system (31 cases, or 16%), diseases of the respiratory system (19 cases, or 10%), and diseases of the genitourinary system (19 cases, or 10%). Of the diseases of the circulatory system, ischemic heart disease accounts for 40% of male admissions, followed by diseases of the pulmonary system (27%), and cerebrovascular diseases (21%).

### Family Health

The marriage rate has declined from 10.7 per 1,000 population in 1988, to 7.6 in 1994. The divorce rate declined from 5.56 per 1,000 in 1991, to 2.20 in 1994. During the 1992–1995 period, 39.3% of live births were to unmarried mothers, compared with 37.8% during the 1988–1991 period. A program for young parents was started in 1995 to help develop skills in young mothers. All deliveries are conducted in health facilities.

### Workers' Health

All Government employees are offered free health care. While many businesses provide health insurance coverage to their employees, a recently approved National Health Insurance Law will enable all employees and their dependents to have health insurance. Drug and smoking policies are in place in many organizations. Compulsory schooling precludes employment of children under 16 years old.

### Health of the Disabled

Special education facilities are available for handicapped and impaired children. More than 60 children attend the Lighthouse School, which caters to the special education needs of disabled children. Data on blindness are not available. In 1992, the prevalence of mental retardation was estimated at 0.08%.

## Analysis by Type of Disease or Health Impairment

### Communicable Diseases

**Vector-Borne Diseases.** Vector-borne diseases such as dengue, yellow fever, and malaria are not endemic in the Cayman Islands. *Aedes aegypti* mosquitoes were eradicated from the islands about 20 years ago. Sporadic re-infestations are dealt with immediately by the Mosquito Research and Control Unit.

There have been between two and four cases of imported malaria cases per year, reaching eight in 1995; most malaria cases were imported from Honduras. During 1995, four dengue cases were imported. Whenever malaria or other vector-borne illnesses are detected, the Mosquito Research and Control Unit is notified for appropriate measures.

**Vaccine-Preventable Diseases.** There were no reported cases of polio, diphtheria, whooping cough, or tetanus during the 1986–1995 period. The last cases of polio occurred in

1957, and there was one case of diphtheria in 1966. During the 1986–1989 period, there were from 1 to 3 cases of measles reported annually. In 1990, 27 cases were reported. Since 1991 there have been no cases of measles. Presently a two-dose schedule of measles, mumps, and rubella vaccine (MMR) is in effect. A national campaign was organized to immunize school-aged children with the second MMR dose. Mumps is estimated to be underreported. On average, 2 to 4 cases are reported each year; in 1991, 8 cases were reported. All blood for transfusions is screened for HIV, venereal disease, and hepatitis B and C.

**Cholera and Other Intestinal Diseases.** The threat of cholera in the Region in 1991 and 1992 put the Cayman Islands on alert for cholera prevention and control. Reported cases of gastroenteritis among children under 5 years of age have been less than 100 per year, but have fluctuated widely. There have been sporadic cases of food poisoning, especially due to ciguatera poisoning. The incidence of ciguatera fluctuated widely: there were 10 cases in 1990, 18 in 1993, and 2 cases in 1995. A few cases of trichuriasis and ascariasis were identified. Hookworm and amebiasis are not endemic in the Cayman Islands.

**Chronic Communicable Diseases.** The incidence of tuberculosis varied from 0 to 3 cases per year during the past decade, with 6 cases during the 1988–1991 period, and 8 cases during the 1992–1995 period. Leprosy is not endemic in the Cayman Islands, and there have been no reported cases in the past 15 years.

**Acute Respiratory Infections.** During the 1988–1991 period, 29 of 460 deaths (6.3%) were due to acute respiratory tract infections. Twenty-five of these deaths (86%) were among persons 75 years and older. During the 1992–1995 period, only 4% (19 of 469) deaths were due to these conditions; 95% (18 of 19) occurred in the age group 75 years old and older. In 1995, 7.8% of hospital admissions were due to diseases of the respiratory system. Of 265 admissions for this condition, 108 were for children under the age of 5; 74 admissions were for persons between 20 and 64 years old; and 39 admissions were for those 65 years and over.

**Rabies and Other Zoonoses.** Rabies and other zoonoses are not prevalent in the Cayman Islands.

**AIDS and Other Sexually Transmitted Diseases.** While cases of HIV infection may be underreported, there is little or no underreporting of overt AIDS cases. The first case of AIDS in the Cayman Islands was reported in 1985. One case was detected each year between 1985 and 1989. Four new cases were reported annually in 1991, 1992, and 1994, but there were no

new cases in 1993 or 1995. These variations in incidence are attributed to the return of residents from abroad after having tested HIV-positive. Through December 1995, there had been 19 persons identified with AIDS, 16 of whom died. These figures are not consistent with mortality data, since some deaths occurred overseas. At the end of 1995, there were 3 persons living with AIDS, and 18 known HIV-positive cases. Initially, most HIV-infected persons were homosexual, but in 1995, 57% (21 of 37) were heterosexual. Sixty percent of persons infected with HIV (22 of 37 cases) were in the 25–34-year age group; 20 were males (54%). There were two cases of perinatal transmission of HIV, representing 5.4% of all cases.

Sexually transmitted diseases are underreported. Data on the incidence of gonococcal diseases shows a decline from 164 cases in 1992 (57 per 10,000 population), to 81 cases in 1995 (25 per 10,000 population). The incidence of syphilis shows a similar trend: from 249 cases in 1990 (95 per 10,000 population) to 146 cases in 1995 (45 per 10,000 population).

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

**Nutritional Diseases.** The percentage of newborns weighing less than 2,500 g at birth declined from 11.2% in 1990 and 1991 to 4.5% in 1995. There is not a significant presence of moderate or severe protein-energy malnutrition levels in children. Obesity among children and adults is starting to cause concern, but there are no current data on its prevalence. There have been no cases showing evidence of iodine deficiency disorders.

Most foods are imported from the United States, so Caymanians benefit from food fortification applied in that country. Vitamin supplements are routinely provided to pregnant women and preschool children. A campaign promoting nutrition guidelines is under way, and the Agriculture Department promotes local food production.

**Cardiovascular Diseases.** During the 1992–1995 period, diseases of the circulatory system were responsible for 41.9% of deaths (190 of 454), for a death rate of 15.4 per 10,000 population. In the 1988–1991 period, these conditions accounted for 39.5% of deaths (179 of 453), a death rate of 17.5 per 10,000 population. They constitute 39.5% of deaths among males, and 43.9% among females. Ischemic heart disease caused 42.6% of these deaths, and cerebrovascular disease 23.7%. In 1995, 8.5% of hospital admissions (254 of 2,996) were related to these conditions (55 per 10,000 population). Most of the cases (191, or 75%) were among people 50 years old and older. Of 455 hospital admissions for persons over the age of 65, 106 (23.2%) were related to diseases of the circulatory system. Of the total admissions, 55.5% (141 of 254) were

females. Prevalence data on hypertension in the Cayman Islands are not available.

**Malignant Tumors.** During the 1988–1991 period, malignant neoplasms caused 101 deaths, for a mortality rate of 9.8 per 10,000 population. This rate declined to 7.7 per 10,000 in the 1992–1995 period. Malignant tumors comprised 25% of all deaths among males, and 16% among females. Neoplasms accounted for only 2.6% of hospital admissions in 1995, probably because much of the care was conducted through outpatient departments. Of the 86 admissions relating to tumors, 47 were for management of malignant tumors, and 39 for benign tumors. In the 1988–1991 period, malignant neoplasms of digestive organs and peritoneum (excluding stomach and colon) accounted for 19 deaths; trachea, bronchus, and lung cancers for 18 deaths; female breast cancer for 16 deaths; and prostate cancer, 10 deaths. Malignant neoplasms of the trachea, bronchus, or lung accounted for 18 deaths, female breast cancer for 13 deaths, and prostate cancer for 12 deaths in the 1992–1995 period.

**Accidents and Violence.** There were 17,427 vehicles registered in 1995, or nearly 1 for every 2 people, an increase of 23% over 1990. However, the traffic accident rate per 1,000 vehicles decreased from 33 in 1990, to 23 in 1995. There was also a decline in traffic fatalities (1.4 per 1,000 vehicles in 1990 and 0.5 in 1995) and serious injuries (3.7 per 1,000 vehicles in 1990, and 2.9 in 1995). Accidents not involving vehicles decreased from 61 per 1,000 population in 1990, to 43 in 1995. The incidence of assaults stood at 6.9 per 1,000 population in 1990, compared with 4.2 in 1995. The improvement in these rates are concurrent with public education efforts of the Health Services and Police Department, as well as enhanced enforcement measures.

External causes were responsible for 11% of deaths among residents during the 1988–1991 period, compared with 7.9% in the 1992–1995 period. While the proportions of deaths due to external causes among males were similar during 1988–1991 (14.7%) and 1992–1995 (13.0%), there has been a more dramatic decline, from 7.0% to 3.3%, among females. In 1995, 10.2% of hospital admissions (305 of 2,996) were due to external causes (injuries, poisoning, and burns). One-third (102 cases) were among those under 19 years of age, and one-half (154 cases) among persons between 20 and 59 years of age. Intracranial and internal injuries accounted for 68 of hospital admissions (22.3%); 45 of these cases were among males. Poisoning and toxic effects accounted for 50 hospital admissions; 37 of these cases were females (74%).

**Behavioral Disorders.** Based on data on hospital patients and a survey done by district public health nurses, the prevalence of mental illness in the population was estimated to be

5.5% in 1992. The prevalence of schizophrenia was estimated to be 0.61%; depression, 0.17%; and manic depression, 0.19%. Almost all persons suffering from schizophrenia, depression, and manic depression have been in contact with the Mental Health Services.

**Oral Health.** In November 1995, at the request of the Cayman Islands Government, the Pan American Health Organization carried out a comprehensive survey of oral health and dental disease in the territory. Over 1,000 people were examined, a sample that corresponded to about 11.6% of all schoolchildren and 7% of adults.

Dental health was measured using indices for decayed, missing, or filled teeth (DMFT). The 1989–1990 survey indicated a DMFT rate of 4.6 for 12-year olds. The 1995 DMFT for the same age group was 1.7, a very significant improvement. Ninety-seven percent had no fluorosis; 3% had questionable, mild, or very mild scores. There was no severe fluorosis. Slightly over half of those surveyed needed no dental treatment, and approximately one-third needed routine, non-urgent treatment. Eight percent had decay, and required prompt attention. Areas of high treatment urgency included Cayman Brac and children in Government schools in Georgetown. Only 3.7% of 6- and 7-year-olds needed fillings, but the need was greater in middle-aged adults. A relatively low number of adults needed crowns. Approximately 20% of younger children needed sealants. In 1981, 28% of children in primary schools, 39% in middle school, and 46% in high schools were decay-free. In 1995, the figures had improved significantly: 66.8% of 5-year-olds, 60% of 12-year-olds, and 60% of 16-year-olds were decay-free.

Results from the survey among children are encouraging, but there is room for improvement in the adult population, particularly regarding gum disease and preventive care. With the limited resources available, the strategy would be to target children and reinforce preventive measures.

**Other Emerging and Re-emerging Diseases.** Emerging and re-emerging diseases such as meningococcal meningitis, hantavirus, and Venezuelan equine encephalitis are not endemic in the Cayman Islands.

**Natural Disasters and Industrial Accidents.** There are no major industries using heavy equipment in the Cayman Islands, and there have been no major accidents in the construction industry. The last natural disaster to threaten the Cayman Islands was Hurricane Gilbert in 1988. An Emergency Medical Relief Plan is in place in the event of a hurricane or other natural disaster. A National Health Coordinator ensures that the plan is updated each year, that essential supplies are available, and staff is allocated. An Intersectoral Committee oversees the Emergency Medical Relief Plan, which forms part of the National Hurricane Plan.

## RESPONSE OF THE HEALTH SYSTEM

### National Health Plans and Policies

It is the Government's policy to provide community-based health care services with advanced and effective central support. The development of new health centers in all districts was initiated in 1993, and all districts will have new health centers in operation by August 1997. An 18-bed hospital was commissioned in Cayman Brac in 1993, and a 128-bed hospital construction project in Grand Cayman began in 1994, with construction to be completed by the end of 1998. The Government recognizes that it is neither cost-effective nor efficient to provide tertiary care in the Cayman Islands, and maintains a formal contract for such care with the Baptist Hospital in Miami, Florida (USA), as well as arrangements with other institutions in Miami and with the University of the West Indies.

To lessen the burden of escalating health care costs, the Government enacted legislation in June 1997, making it mandatory for all employers to provide health insurance coverage for employees and their dependents. The Government will regulate the provision of health insurance by private carriers.

### *Strategic Plan for Health Services*

There have been significant developments in defining the strategies for health care delivery in the Cayman Islands. A planning committee consisting of 25 members drawn from the health professions, the community at large, nongovernmental organizations, and Members of Parliament was established in 1994 to develop the Strategic Plan for the Health Services. The Plan consists of eight strategies that address the following: development of community-based services; staff participation in decision-making; community involvement in health promotion; maintenance of legislative support and accountability of Ministry departments; alternative approaches to health financing; collaboration between public and private sectors in providing health services; establishment of standards to facilitate health staff development; and assurance that quality of health facilities, equipment, supplies, personnel, and procedures meet international standards.

### *Institutional Organization*

In 1992, the Health Services Authority was established to oversee the day-to-day management of health services. In 1994, it was instituted as a department within the Ministry of Health and Human Services. In March 1994, the new Ministry of Health, Drug Abuse Prevention, and Rehabilitation was established with overall responsibility for health care in the

Cayman Islands. The Health Services Department is responsible for all Government health care services, including public health services. The Health Practitioners Board licenses and disciplines health professionals in the Cayman Islands.

The Director of Health Services reports to the Permanent Secretary of the Ministry of Health, Drug Abuse Prevention, and Rehabilitation and is assisted by the Chief Medical Officer, Medical Officer of Health, Chief Nursing Officer, Senior Dental Officer, Health Service Accountant, and Manager of Ancillary and Support Services.

The primary health care system provides primary care services through the district health centers. When Georgetown Hospital is completed in 1998, it will provide emergency care, specialist services, and inpatient care. While the referral system is in place, specialist services are sought directly, due to the small size of the Cayman Islands.

Constraints to decentralizing responsibility exist because of central Government control of financial and administrative procedures. These issues are being addressed.

The Government operates the 59-bed Georgetown Hospital in Grand Cayman, and the 18-bed Faith Hospital in Cayman Brac, the only two inpatient facilities. In 1995, there were 24 public sector doctors, including two based on Cayman Brac. There were 24 doctors in full-time private practice, providing family health or specialized treatment on a regular basis. Private physicians use hospital services as needed.

#### *Organization of Health Regulatory Activities*

There is no specific legislation providing for regulation of health care or facilities. There are, however, regulations in place that allow health practitioners to use only medical equipment or drugs approved for use in the United States and United Kingdom. The Environmental Health Department monitors the food safety program and controls nuisances under public health law.

### **Health Services and Resources**

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

**Health Promotion.** The national Strategic Plan for Health empowers the community to take responsibility in maintaining personal and community health. Recognizing the importance of health promotion as part of this strategy, the Government created a full-time position for a Health Promotion Officer in 1994. Health promotion activities target disease prevention, healthy lifestyle, health skills, and the environment, and are conducted with intersectoral cooperation. Public education programs are disseminated using radio, television, and newspapers; the recent availability of cable

television has assisted efforts to raise awareness about health among the public. Churches and businesses are other conduits for public awareness programs. Educational materials are produced and widely distributed. Public education programs are organized around special efforts such as the colon cancer screening program, health programs carried out during the Batabano Carnival and Pirates' Week, and the National Trust Fair, as well as the observance of such events as "Health Week," "Choose To Be Drug-Free Week," "World No-Tobacco Day," and "Breast-feeding Week."

**Disease Prevention and Control.** The Cayman Islands Government offers free immunization program to all resident children. High coverage (above 90%) of polio immunization has been maintained over the years, and consequently, no special campaigns are conducted. The Acute Flaccid Paralysis surveillance is 100% complete, and is effective because of the small population. Ninety-eight percent of infants reaching their first birthday were fully immunized with polio and DPT vaccines.

There were no cases of adult or neonatal tetanus in the 1986–1995 period. Tetanus toxoid is offered to all pregnant women attending public health facilities, and it is estimated that 90% of infants are protected from neonatal tetanus at birth.

There have been no reported cases of measles since 1991. Even though there have been fluctuations, vaccination coverage has been maintained above 90%, sometimes reaching 95%–99% during the past decade, due to small population size.

There have been a few significant changes in the immunization policies and activities during the last five years. *Haemophilus influenzae* B vaccine was introduced into the national immunization schedule in 1992. BCG vaccine was given at the age of 1 year until 1992, when it was changed to 6 weeks (postnatal visit). BCG coverage at times has been low because foreign parents, particularly those from the United States, Canada, and the United Kingdom, decline the vaccine when it is not given nationally to infants in their countries of origin. High-risk groups such as health care workers, police, prison officers, and fire service officers receive hepatitis B vaccine.

**Epidemiological Surveillance.** The Health Information System has an early warning system to detect communicable diseases of public health importance. The hospital laboratory serves as a public health laboratory and is equipped to diagnose common infectious diseases. An overseas referral system is used for specialized diagnosis. Qualified staff is available to unusual disease occurrences.

**Environmental Health Services.** Development in the Cayman Islands has proceeded rapidly in the last two decades, with attendant effects on the environment. Growth in the urban and suburban population has been greater than the in-

frastructure can comfortably support. The results are increased traffic with accompanying air pollution; increased demand for potable water and sewage treatment and disposal; pollution of groundwater (now unfit for human consumption in most urban areas); and increasing noise pollution.

In 1996, the Department of Environmental Health was given departmental status in the Ministry of Agriculture, Environment, Communications and Works. A priority of the newly formed department was to draft legislation, standards, and guidelines on environmental health. The Department of Environment Health is responsible for water quality surveillance, meat and food inspection, monitoring food handling establishments, oversight of solid waste management, and review of building plans.

Certain requirements must be satisfied before licensing is granted to food vendors. Such licenses are renewed on an annual basis. Food is inspected at the port of entry and may be condemned by the food inspector because of improper storage or handling conditions, appearance, or faulty temperature control. All food inspectors are trained in hazard analysis critical control points (HACCP) evaluation.

There are two piped water supply systems in Grand Cayman, both fed by desalinated water, which provide water to approximately 70% of the island's population and all its major hotels. Apart from these systems, rainwater is typically collected from roofs and cisterns, or water is pumped from groundwater sources for drinking and domestic use. Private water trucks transport water from the Water Authority Works to supplement individual rain- and groundwater supplies. Within the next three to five years, the entire population is expected to have access to piped water supply.

The quality of drinking water is routinely monitored throughout the Cayman Islands, with emphasis on public water supplies, public facilities, day-care centers, retirement homes, schools, health care facilities, restaurants, and tourist accommodations.

Solid waste is collected at a minimum of three days per week on Grand Cayman. There are sanitary landfills on all three islands for solid waste disposal. These government-managed landfills are the only legal disposal sites in the Cayman Islands. A major achievement in 1995 was a 10% reduction in the solid waste processed at landfills, achieved through the introduction of a number of recycling strategies. Cardboard, aluminum, and automotive batteries are the main recyclable items being exported to suitable markets. There is great potential for further development of these and other recycling programs, and these will be the subject of increased promotion.

A central sewerage treatment plant serves the main tourist hotel area of Georgetown. All other sewage treatment and disposal is carried out on a site-by-site basis, utilizing septic tanks with deep well injection or soakway fields. Larger apartments, office buildings, and hotels outside the public sewerage

service area operate private treatment plants. Adequate excreta disposal facilities are available to 99.5% of the population.

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

The Government operates the 59-bed Georgetown Hospital, which includes 7 nursery beds in the maternity ward, and a 7-bed extended care unit at the Pines Retirement Home on Grand Cayman. On Cayman Brac, health care is dispensed from Faith Hospital, an 18-bed facility. Primary health care is also provided through four district health centers in Grand Cayman.

Specialist services are available locally in the fields of surgery, gynecology and obstetrics, pediatrics, internal medicine, anesthesiology, public health, orthopedics, ophthalmology, otolaryngology, and periodontology. Visiting specialists provide services in dermatology, cosmetic surgery, maxillofacial surgery, and urology. The surgeon from Faith Hospital (Cayman Brac) conducts an outpatient clinic in urology on Grand Cayman every two weeks. Baptist Hospital, in Miami, Florida (USA), provides tertiary care. A visiting team of orthopedic surgeons from Canada provides care through the Cayman Medical Center and has provided coverage at Georgetown Hospital. Dental care is available through three government dental officers, and privately from six dentists, two orthodontists, and one resident and one visiting periodontist. Oral surgery services are available once weekly from a visiting dental consultant. The ambulance service had a staff of 18, including 3 paramedics in 1995. Emergency and non-emergency calls totaled 1,508 and 743 respectively, a 14% increase over 1994.

In 1995, Georgetown Hospital admissions totaled 3,622, a 2% increase over 1994. Outpatient and casualty visits increased 4.3%, totaling 48,265 in 1995. Faith Hospital had 391 admissions and 6,645 outpatient visits. District health centers accounted for 33,115 visits, an increase of 8.9% over the previous year. Public health nurses made 8,163 home visits in 1995, a 2% increase over 1994. A decompression chamber for diving emergencies is located at the Hospital and is operated by a volunteer group. Eighty-four treatments were given to 43 patients in 1995.

Mental health services are provided in a comprehensive, community-based fashion. Services are delivered via visits to homes, prison, geriatric and day-care facilities, and district health centers. A psychiatrist, psychiatric social worker, and two community mental health nurses comprise the staff.

Health centers in Grand Cayman are located in West Bay, Bodden Town, East End, and North Side. The district health centers offer both preventive and curative services, functioning as an extension of the hospital's outpatient department and public health service. With only a few exceptions, the centers provide all of the services offered by the Public Health

Department in Georgetown. In addition to full-time staff at the health centers, visiting staff include physicians, a public health officer, psychiatric social worker, social worker, medical social worker, nutritionist, health educator, pharmacy technician/pharmacist, community mental health nurse, and counseling center staff. Services offered through district health centers include daily treatment by nurses, and clinics by doctors on specified days in the areas of general practice, psychiatry, nutrition counseling, child welfare, health education, and drug counseling.

The public health services on Cayman Brac and Little Cayman are provided by a public health nurse. All services offered on Grand Cayman are available on these two islands, but on a smaller scale. The Cayman Brac Health Services serve few Cayman Island residents.

### *Inputs for Health*

There is no local production of drugs, vaccines, reagents, or equipment. These are imported from approved companies, mainly from the United States. Vaccines are obtained through the Pan American Health Organization's Expanded Program on Immunization Revolving Fund.

All essential drugs are available at public health care facilities. There are no "remote facilities" in a country the size of the Cayman Islands, but formulary drugs, essential and non-essential, are requisitioned from the central pharmacy store-room by the appropriate section of the health services department. The formulary contains all drugs deemed essential by WHO guidelines, in addition to other pharmaceuticals.

The primary action being taken to ensure access of all to essential drugs is the expansion of district clinics into health centers. The considerable increases in size and quality of the facilities, as well as extended hours, have been of significant benefit to patients residing in the districts. The addition of pharmacists to the staff of health centers during 1997 will increase the level of pharmaceutical care available in the districts, resulting in improved utilization of essential and other drugs. There are no constraints currently affecting accessibility of essential drugs.

### *Human Resources*

The Health Practitioners Board is responsible for registration of health practitioners for the private sector. Government workers are registered automatically and are subject to Civil Service General Orders.

While there has been an increase in the number of health professionals during the last decade, the rapid increase in population caused a decline in the ratio of health workers to

population. Among all health professionals, the rate was 8.4 per 1,000 population in 1988, declining to 7.9 in 1995. There were 4.9 nurses per 1,000 population in 1988 compared with 4.3 in 1995. The physician/population ratio also has declined: from 1.6 per 1,000 in 1988 to 1.4 in 1995. According to 1995 data, human health resources available in the Cayman Islands per 10,000 population are: 14.3 physicians; 4.5 midwives; 38.4 nurses (excluding midwives); 3.9 pharmacists; 3.6 dentists; and 18.2 other health care providers (including community health workers).

Approximately 95% of physicians and 70% of other health care professionals (nurses, pharmacists, etc.) are contracted officers from overseas. Although the Government supports the training of Caymanians as health professionals, there is a shortage of available personnel.

### *Research and Technology*

Health research is not routinely undertaken in the Cayman Islands. Projects in cooperation with the Mailman Center for Child Development in Miami organized research on gene localization of non-progressive cerebella ataxia and Usher Syndrome. An oral health survey was conducted in 1995 with the help of PAHO. Even though the territory's small population and budgetary and staffing constraints limit the scope of research, efforts are being made to strengthen this component.

### *Expenditures and Sectoral Financing*

Due to the small population size of the Cayman Islands, it is not feasible to describe expenditures according to regions and social groups. Data on private sector financing and expenditure on health are not available. While there has been a steady increase in the Government budget for health care services over the last decade (US\$ 6.8 million in 1986, US\$ 12.7 million in 1990, and US\$ 20.2 million in 1995), recurrent expenditures out of total Government expenditures for health care dropped from 11.5% to 9.5% during the same period. Per capita Government health expenditure in 1995 was US\$ 623. Data on total national health expenditure as a percentage of GNP and percentage of national health expenditure devoted to local health care are not available.

### *External Technical and Financial Cooperation*

Technical and financial assistance from international agencies is limited to that provided by PAHO/CAREC in the form of fellowships and workshops. This amounts to approximately US\$ 25,000.