Bermuda occupies a group of more than 100 small islands that spread over roughly 53 km² in the Atlantic Ocean. The closest landmass is the state of North Carolina (United States), some 1,000 km to the northwest. Town Hill is the highest point on the islands, at approximately 79 m. The subtropical climate is mild, with temperatures ranging from 18°C to 31°C, and an average annual rainfall of 1,400 mm.

Bermuda is the oldest self-governing British Overseas Territory and is governed through the Westminster model of parliamentary democracy. The government consists of a governor, deputy-governor, cabinet, and legislature. The territory is divided into nine parishes: Sandys, Southampton, Warwick, Paget, Pembroke, Devonshire, Hamilton, Saint George’s, and Smith’s. The capital city of Hamilton is located in Pembroke, which is the most densely populated parish. The largest seven islands are linked by bridges.
Bermuda’s per capita gross domestic product (GDP) was US$ 86,875 in 2009 (1), one of the highest in the world. Its real GDP grew by an estimated 33% between 2000 and 2008, but the economy underwent a general downturn during the global recession. Real GDP fell from US$ 4.2 billion in 2008 to US$ 3.8 billion in 2009, and per capita GDP fell by 6.3% in that period.

The 2010 census reported Bermuda’s population to be 64,327, a 9.9% increase over the 1991 census (2). The population 65 years old and older represented 13.5% of the population in 2010, an increase of 60.9% over 1991; 16.4% of the population was under the age of 15 years in 2010, compared to 19.5% in 1991. The trend of growth in the elderly population and decline in the population under age 15 continued between 2000 and 2010. The annual population growth rate continued to be 0.56% up to 2010 (3). Life expectancy at birth was 77.9 years in 2000, rising to an estimated 80.6 years (83.9 years for women and 77.4 years for men) at the end of 2010 (4). Figure 1 shows the distribution of the population by age group and sex for 1991 and 2010. In 2007, potential years of life lost (before the age of 70 years) were 6,954 in males per 100,000 population and only 1,886 in women (4).

According to preliminary analysis of 2010 census data, 54% of the population self-identified racially as Black; 31% as White; 8% as mixed race (“Black and White,” “Black and other,” and “White and other”); 4% as Asian; and 2% as “other.” Seventy-nine percent of those participating in the census had Bermudian status; 69% of the population stated they were born in Bermuda and 29% reported they were foreign-born. Nearly half of the population stated they belonged to a church: Anglican (16%), Roman Catholic (15%), African Methodist Episcopal (9%), and Seventh Day Adventist (7%).

**HEALTH DETERMINANTS AND INEQUALITIES**

In 2007, an estimated 11% of all households earned less than US$ 36,605 annually, which is below low-income threshold levels (5). It was estimated that in 2007 costs of health care ranged from US$ 2,270 for a single adult to US$ 3,404 for a two-parent household with two children. These costs included a standard cost for health insurance and out-of-pocket costs for over-the-counter health items (such as vitamins, bandages, and aspirin). The range of costs for food and personal care items in 2007 was estimated at US$ 3,326 for a single adult and US$ 7,912 for a family of four.

![Figure 1. Population structure, by age and sex, Bermuda, 1991 and 2010.](source)


* Each age group’s percentage represents its proportion of the total for each sex.
The Bermuda dollar is pegged to the U.S. dollar on an equal basis. The consumer price index in 2010 was 112.2 (April 2006 = 100.0). Inflation was estimated at 2.9% per annum between 2006 and 2010 with a peak of 4.8% in 2008. The tourist industry accounted for an estimated 28% of GDP, but there has been a shift in reliance on tourism to international finance. Almost all consumable goods were imported. Public expenditure per capita grew from US$ 8,150 in 2000 to US$ 14,413 in 2008, an increase of 76.9%. The share of nominal GDP represented by public expenditure also rose in the same period, from 14.5% in 2000 to 15.5% in 2008. Annual inflation, as measured by the Bermuda consumer price index (CPI) averaged 3.2% from 2006 to 2010. The Health and Personal Care Price Index rose by an average of 6.8% annually from 2006 to 2010.

Education is compulsory to the age of 17 and is free in public schools. A 2006 study of adult literacy and life skills found that 62% of adults in Bermuda scored at or above an adequate level for prose literacy, 54% for document literacy, and 46% for numeracy. In 2010, school enrollment for primary school (% gross) was 92% (6). In 2006 (last estimate), the literacy rate was 98.5% (98% in males and 99% in females) (7).

**THE ENVIRONMENT AND HUMAN SECURITY**

**Access to Clean Water and Sanitation**

Although there is universal access to clean water and sanitation in Bermuda (8), all private dwelling units and apartment complexes are required by law to collect and store rainwater in water tanks. Given Bermuda’s limestone-rock base, it is not feasible to pipe in drinking water (except in some commercial areas) nor is there any central sewage system servicing households; all domestic homes must rely on deep cesspits that are periodically cleaned out by private companies (9). Water quality is monitored by the Environmental Health section of the Department of Health and the Central Government Laboratory.

**AIR POLLUTION**

According to a green paper on national energy policy issued by the Ministry of Energy in 2009, Bermuda ranked 15th in the world in per capita carbon emissions, producing 11 tons per capita, more than industrialized nations such as Germany and the United Kingdom. Bermuda depends almost exclusively on oil for the production of electricity, and generates an estimated 751 g of carbon dioxide per kilowatt hour of electricity sold (compared to 422 g in the United Kingdom). The territory’s electricity expenditures also are among the highest in the world, and cost 42.5 cents per kilowatt hour in 2008, with 48% of that being the fuel adjustment cost. Vehicle density is estimated at 2,300 per square mile. Fuel economy and carbon dioxide emissions are not factored into import duty and relicensing fees, and there are few incentives to drive fuel-efficient automobiles.

**ROAD SAFETY**

According to the Bermuda Health Council’s 2011 “Health in Review” report, the age-standardized rate of traffic fatalities per 100,000 population was 28.2 in Bermuda, compared to 9.2 in countries belonging to the Organisation for Economic Cooperation (OECD). For males, the rate was 59.0 in Bermuda compared to 14.9 for OECD countries. Between 2006 and 2010 the average number of traffic accidents reported annually was 2,534, with 872 road injuries and 14 road fatalities. Between 2006 and 2010, persons in the 31–40 and the 41–50 age groups were involved in the largest number of accidents, at a rate of 21% for each age group.

**VIOLENCE**

The total number of crimes recorded for 2010 in Bermuda was 4,575, which represents the lowest number of crimes reported since 2000. In fact, total crime for 2010 was 14% lower than the previous
Despite the reduction in overall crime figures, violent crimes continued to be a concern for public health and safety officials and the island’s general population. There were 36 sexual assaults in 2010, compared to 55 in 2006 and 28 in 2009. There were 114 serious assaults and 516 other assaults recorded in 2010, compared to 135 serious assaults and 426 other assaults in 2006, and 110 serious assaults and 592 other assaults in 2009. According to the 2006 Health Survey of Adults and Children, 8.4% of adults reported being physically abused by an intimate partner in their lifetime.

**Disasters**

Bermuda has been spared from major natural disasters since Hurricane Fabian hit the islands in 2003, causing four deaths and serious damage. The most severe events between 2006 and 2010 were three Category 1 hurricanes (Hurricane Florence in September 2006, Hurricane Bill in August 2009, and Hurricane Igor in September 2010) and Tropical Storm Bertha in July 2008; Bermuda also experienced other severe weather events with wind gusts exceeding 50 knots. There were no reported injuries or major infrastructural damages as a result of these events.

**Climate Change**

Data from the Ministry of Health’s Department of Environmental Health for 2008 indicate that there were 564 reported cases of environmentally related diseases in Bermuda, most of which (483 cases, or 86%) were classified as respiratory diseases.

**Food and Nutritional Security**

Bermuda has become increasingly dependent on foreign sources of food to meet its needs, importing 80% of its food. The Environmental Health Office of the Ministry of Health ensures food safety through inspection and licensing of food establishments, dairy farms, pasteurization plants, and abattoirs and through the promotion of good handling practices in establishments serving food. Food handling courses are offered in conjunction with Bermuda College.

**Health Conditions and Trends**

**Health Problems of Specific Population Groups**

**Maternal and Reproductive Health**

There was an average of 824 births per year between 2006 and 2009, down slightly from the average of 833 births per year registered in hospitals between 2000 and 2004. The total fertility rate was constant at around 1.76 children per woman, which is below population replacement level. Between 2006 and 2010, there was only one maternal death. It is estimated that the percentage of pregnant women receiving antenatal care and the percentage of births attended by skilled personnel are above 99%. The number of stillbirths remained stable between 2006 and 2009, averaging 2.5 per year.

**Infants (under 1 year old)**

The infant mortality rate fluctuated between 2006 and 2009, with 3.8 deaths per 1,000 live births in 2006, 4.7 in 2007, 4.9 in 2008, and 1.2 in 2009 (three deaths in 2006, three in 2007, four in 2008, and one in 2009). The five leading causes of death in infants during this period were respiratory and cardiovascular disorders specific to the perinatal period (26%), disorders relating to length of gestation and fetal growth (20%), sudden infant death syndrome (13%), congenital anomalies (13%), and maternal complications of pregnancy (7%). Over half of the infant deaths in this period were neonatal deaths.

In 2009, the vaccination coverage was 96% for DPT3+Hib3, 96% for polio 3, and 95% for MMR1. The proportion of low-birthweight babies was 2.2% between 2006 and 2008 (8, 10).
**Children (1–14 years old)**

There were two deaths of children under age 5 between 2006 and 2010. Also during this period there were 760 reported cases of fever and respiratory symptoms and 769 reported cases of gastroenteritis in children under age 5. The leading reasons for hospitalization in this age group were diseases of the respiratory system (38% of all hospitalizations); injury, poisoning, and other external causes (10%); and infectious and parasitic diseases (7%). There were three deaths among children 5–14 years old in the reporting period. These deaths were due to metabolic disorders, diseases of the digestive system, and assault.

**Adolescents (15–19 years old)**

From 2006 to 2009, there were 10 deaths in the 15–19-year age group, all males. The leading causes of death in this age group were road traffic accidents and assaults. From 2006–2010, the main reasons for hospitalization of males in this age group were injury, poisoning, and other external causes (50%); mental and behavioral disorders (10%); and diseases of the respiratory system (7%). For females in the same age group the main reasons for hospitalization were pregnancy and childbirth (41%); injury, poisoning, and other external causes (11%); diseases of the respiratory system (11%); and mental and behavioral disorders (7%).

**Adults (20–64 years old)**

From 2006 to 2009, there were 329 deaths among adults 20–64 years old. Of these, 233 (71%) were males, giving a male–female mortality ratio of 2.4:1. The main causes of death among males were external causes (primarily traffic accidents), diseases of the circulatory system, and malignant neoplasms. Among females, the main causes of death were malignant neoplasms and diseases of the circulatory system.

Hospitalizations in this age group from 2006 to 2010 varied by gender; the leading reasons among males were injury, poisoning, and other external causes (23%), mental and behavioral disorders (18%), and diseases of the digestive system, while the leading reasons for females were pregnancy and childbirth (45%), diseases of the digestive system (8%), injury, poisoning, and other external causes (6%), and neoplasms (6%).

**The Elderly (65 years and older)**

In 2009, the average age at death was 75.3 years for females, 68.0 years for males, and 71.4 years overall. Diseases of the circulatory system; malignant neoplasms; diseases of the respiratory system; and endocrine and nutritional and metabolic diseases, such as diabetes, were the leading causes of death in persons over 60. In 2009, the leading reasons for hospitalization in this age group were diseases of the circulatory system (25%), of the digestive system (10.6%), and of the respiratory system (9.4%).

**The Family**

The number of marriages among residents of Bermuda remained relatively stable while the number of divorces increased slightly in the reporting period. The majority of divorces occur within 5 to 9 years of marriage and among couples in the 25–44-year age group.

**Workers**

In 2009, a total of 58 workplace incidents were reported, resulting from a variety of causes, including slips, trips, and falls; electrical shock; and workplace violence. Slips, trips, and falls accounted for 31% of these incidents. Three fatal, work-related injuries were reported between 2006 and 2010.

**The Disabled**

In the 2006 Health Survey of Adults and Children in Bermuda, 10.7% of respondents reported having a limiting condition or disability. Of those surveyed, 11.6% of women reported a disability and 9.8% of men reported a disability. Thirteen percent of survey respondents aged 55–64 years and 14.2% of those over age 65 reported that they had a disability,
compared to 4.8% of adult respondents between 18 and 34 years old (11).

**Mortality**

In 2009, the crude death rate in Bermuda was 714.9 per 100,000 population. Sixteen percent of deaths occurred in the 65–69 age group, followed by 13.8% in the 80–84-year age group.

Between 2000 and 2007, the general mortality rate decreased from 8.0 per 1,000 population (8.6 in males and 7.6 in females) to 7.0 (7.7 in males and 6.3 in females). Those rates decreased mainly between 2000 and 2002, subsequently remaining relatively stable (4).

Diseases of the circulatory system and malignant neoplasms were consistently the leading causes of death in Bermuda for both males and females. In 2007, 47.4% of deaths were caused by diseases of the respiratory system, 25.1% by cancer, 11.4% by external causes (4.3% by transport accidents), and 5.5% by communicable diseases. That same year, the adjusted mortality rate for cancer was 18.5 in men and 10.2 in women (almost half of deaths by cancer were of the digestive and respiratory system and intrathoracic organs). External causes (including traffic fatalities, homicides, and suicides) were the leading cause of death, with an adjusted mortality rate of 31.8 deaths per 100,000 population (59.5 in men and 6.5 in women). The adjusted mortality rate due to communicable diseases was 8.6 deaths per 100,000 population (13.3 in men and 4.6 in women) (12).

**Morbidity**

**Communicable Diseases**

**Vector-borne Diseases**

Bermuda has had sporadic cases of malaria and dengue, all of which were imported. Bermuda does have the species of mosquito capable of carrying the dengue viruses. Surveillance and investigation of all suspected cases of dengue and malaria and control of the mosquito population are vital in preventing local transmission. From 2006 to 2010 there were five imported cases of malaria and four imported cases of dengue fever. There were no cases of any other vector-borne diseases during the period under review.

**Vaccine-preventable Diseases**

The incidence of diseases preventable by immunization is zero or very low. There were no confirmed cases of tetanus, neonatal tetanus, or diphtheria in 2006–2010. Measles has not been reported since 1991, and poliomyelitis has not been reported for more than 25 years. However, between 2006 and 2010 there were two confirmed cases of mumps, two confirmed cases of rubella, and two confirmed cases of pertussis, some of which were associated with travel.

**Zoonoses**

There were no reports of zoonotic diseases, including rabies, during the period under review.

**Neglected Diseases and Other Infections Related to Poverty**

There was one imported case of leprosy in 2007.

**HIV/AIDS and Other Sexually-transmitted Infections**

The HIV/AIDS epidemic was first recognized in Bermuda in 1982. Between 1982 and the end of 2010, 733 cumulative HIV cases, 555 cumulative AIDS cases, and 438 deaths among persons with HIV/AIDS had been recorded. At the end of 2010, HIV/AIDS prevalence was estimated at 0.46%, with an estimated 295 persons living with HIV/AIDS. The majority of HIV/AIDS cases and deaths have occurred among Black males between 25 and 44 years old. Cumulatively, men having sex with men (MSM), heterosexual contact, and injection drug use each account for around 30% of all HIV infections. Sexual contact has been the most prevalent route of transmission since the late 1980s, and from 2006 to 2010, heterosexual contact was the main reported risk among Black males, with very few new cases reporting injection drug use. The majority of persons
living with HIV/AIDS are male, aged 45–64, Black, Bermudian, and reporting risk as heterosexual contact. The risk patterns among females in Bermuda are the same regardless of race or age, with heterosexual contact as the main reported risk. No case of mother-to-child transmission or of transmission resulting from exposure to blood or blood products has been reported since 1998. Universal screening of all pregnant women has been in place since 1988.

Sexually-transmitted infections (STIs) remain a major public health challenge in Bermuda. In 2004 an improved test was made available for chlamydia, and rates peaked at 540 cases in 2007. Rates have since declined and the annual number of chlamydia cases between 2008 and 2010 averaged 424. In 2010, there were 31 reported cases of gonorrhea diagnosed, a reduction of 52% from 2005. This decrease was seen across all age groups and genders. Syphilis diagnoses decreased significantly from 2005 to 2010 (down 70%).

Tuberculosis

Tuberculosis is not endemic in Bermuda. From 2006 to 2010 there were eight imported SS+ (smear positive) TB cases.

Emerging Diseases

During the 2009 H1N1 pandemic, Bermuda submitted 112 specimens for testing at overseas reference laboratories. Of these, 32 (28.6%) tested positive for the H1N1 virus, which included two classified as "overseas" cases and two cases among nonresidents (visitors). There have been no cases of cholera reported in Bermuda for many years. Surveillance for cholera increased following the 2010 earthquake in Haiti as many Bermudians traveled to Haiti to offer assistance.

Chronic, Noncommunicable Diseases

Cardiovascular Diseases

Cardiovascular diseases are the leading cause of death among females and males in Bermuda and affect the older adult population at much higher rates. Between 2006 and 2008, 39% of all male deaths and 38% of all female deaths were due to cardiovascular diseases. The majority were due specifically to ischemic heart disease, followed by cerebrovascular diseases. The average age at death for cardiovascular diseases was 77 years (73 years for males and 82 years for females). Cardiovascular disease corresponds to a large number of hospital days, second only to mental and behavioral disorders. It represented 10% of all hospital admissions: 9% of all admissions among females and 12% of all admissions among males.

Malignant Neoplasms

The number of deaths due to malignant neoplasms was surpassed only by that for cardiovascular diseases. From 2006 to 2008, malignant neoplasms accounted for 23.0% of all deaths. For males, the malignant neoplasms that caused the most deaths were those of the respiratory system and intrathoracic organs, followed by those of the digestive system, and then those of the genital organs. For females, the leading causes of death due to malignant neoplasms were those of the digestive system, followed by malignant neoplasms of the breast, and then those of the respiratory and intrathoracic organs. According to the 2006 Health Survey, breast cancer was a leading cause of cancer mortality among women. In the same survey, 76.6% of men aged 40 years and older reported being screened for prostate cancer with a prostate-specific antigen (PSA) test or through a digital rectal exam.

Diabetes

It has been estimated that approximately 8,000 persons (12.7% of the population) have diabetes and another 8,000 are considered at risk for developing diabetes in Bermuda. The 2006 Health Survey revealed that twice as many Blacks (15.9%) reported that they had been diagnosed with diabetes as Whites (8.2%). Of those surveyed, 23.4% of persons over age 65 reported that they had been diagnosed with diabetes, compared to 7.8% in the 35–54-year
age group. Education was also a determining factor: 17.0% of those with a secondary education or less reported having diabetes, compared to 9.1% of those with a higher education. Diabetes accounted for 5% of all deaths (3% of all male deaths and 7% of all female deaths).

Chronic Respiratory Diseases

The 2006 Health Survey of Adults and Children in Bermuda (11) showed that 13.1% of the adult population had suffered from asthma at some time in their lives and that 9.3% reported suffering from it at the time of the survey. More women reported having asthma at the time of the survey than men (11.9% compared to 6.4%) and more people between the ages of 18 and 34 (13.7%) reported having asthma than other age groups. Diseases of the respiratory system account for 6.0% of all deaths. These deaths were mostly due to pneumonia in the elderly, followed by chronic lower respiratory diseases.

Hypertension

One-quarter of adults surveyed in the 2006 Health Survey reported they had high blood pressure. The condition was reported more frequently by Blacks (29.5%) than by Whites (20.4%), and was more common in persons older than 65 (45.5%) than for those between 35 and 54 years old (15.7%). Prevalence was related to education level: 31.2% of persons with a secondary education or less reported having hypertension compared to 20.6% among those with a higher education. Higher incidence also correlated with lower income: 38.7% of adults in households with incomes below US$ 50,000 reported suffering from hypertension compared to 23.2% of adults from middle-income households and 16.9% from high-income households.

Nutritional Diseases

Metabolic disorders were responsible for 381 hospitalizations (230 females and 151 males). The majority of these (82%) were for disorders of fluid, electrolyte, and acid-base balance. In addition, there were 74 hospitalizations for gout and 48 hospitalizations for overweight, obesity, and other hyperalimentation. From 2006–2008, there were five deaths of which the underlying cause was morbid obesity.

Micronutrient Deficiencies

From 2006 to 2010 there were 14 hospitalizations for nutritional deficiencies, 8 among males and 6 among females. These hospitalizations were mainly among older persons—the average age overall was 66 years, 58 years for females and 73 years for males—and were due mainly to protein-calorie malnutrition.

Mental Disorders

Mental and behavioral disorders accounted for 6% of all hospitalizations in the reporting period, 4% of all admissions among females and 10% of all admissions among males. The leading causes of hospitalizations among males were disorders related to psychoactive substances (31%); schizophrenia, schizotypal, and delusional disorders (30%); and disorders due to alcohol abuse (14%). For females, the leading causes were mood/affective disorders (29%); schizophrenia, schizotypal, and delusional disorders (25%); and alcohol abuse (10%). Mental and behavioral disorders also accounted for the most patient days and the second highest average length of stay, second only to diseases of the nervous system (13).

Other Health Problems

Oral Health

Bermuda’s decayed, missing, and filled teeth (DMFT) index has been very low, and decreasing during the period under review. In 2009, 12-year-old children had only 0.54 decayed, missing, or filled teeth (4).

Ocular Health

The number of inpatient cataract surgeries declined significantly between 1997 and 2010, attributed to improved techniques and an aging population. A
total of 346 inpatient cataract surgeries were performed in 1997/1998 and only 9 in 2009/2010; however, day case surgeries were performed in 2009/2010. In recent years, there has been increase in the number of outpatient cataract surgeries performed.

Risk and Protection Factors

Smoking

In the 2009 National Drug Consumption Survey conducted by the Department of National Drug Control (14), it was observed that almost half (49.3%) of all respondents aged 16 to 65 reported having smoked cigarettes at least once in their lifetime. According to the 2007 Communities That Care Youth Survey 21.9% of Bermuda students reported lifetime use of cigarettes (15). The 2007 Bermuda Youth Tobacco Strategy Survey reported that of those who ever smoked, about 19% had used cigarettes on one or two days and 13% had one or two puffs on those days during the month prior to the survey (16). Non-smoking policies have been in place for all enclosed, public spaces since 2007.

Alcoholism

The 2009 National Drug Consumption Survey indicated that 89.2% of respondents aged 16 to 65 years reported they had drunk an alcoholic beverage at least once in their lifetime. This was reported by 90.0% of males and 87.5% of females surveyed. From 2006 to 2010 there were 137 hospitalizations for excessive alcohol use (ranging between 15 and 81 years old), with males accounting for 77% (14).

Illegal Drugs

According to the 2009 National Drug Consumption Survey, 37% of respondents reported using marijuana at least once in their lifetime and 7.5% stated that they currently used marijuana. Of those surveyed, 10.7% stated they had used hashish, 4.6% had used cocaine, 2.8% had used morphine, 1.7% had used stimulants, and 1.0% had used inhalants (0.1% reported current inhalant use) (14).

Physical Activity

Of residents surveyed in the 2006 Health Survey of Adults and Children in Bermuda, 17.6% of adults responded that they were sedentary (i.e., did not engage in moderate physical activities for even 10 minutes at a time during a typical week); this was the case for more men (19.5%) than women (15.8%). Blacks (21.7%) and Asians and other races (27.3%) were more sedentary than Whites (11.4%).

Obesity

In the 2006 Health Survey, 64% of respondents stated they were above normal body weight (40% overweight and 24% obese), representing an increase over the survey conducted in 1999, when 57% reported above normal body weight. Men were more likely to be overweight while women were more likely to be obese. The rate of overweight was 47.5% in males and 33.0% in females; the rate of obesity was 20.1% in males and 27.6% in females. Only 27% of Blacks reported normal weight compared to 45.6% of Whites and 57.6% of Asians. The survey reported that body mass index was normal for 70.7% of children; however, 5.5% were underweight, 3.5% were overweight, and 20.3% were obese. Girls (28.0%) were more likely to be overweight or obese than boys (19.7%) (11).

HEALTH POLICIES, THE HEALTH SYSTEM, AND SOCIAL PROTECTION

Health Policies and the Health System’s Stewardship Role

The Ministry of Health’s mission statement is: “To promote and protect the physical, mental and social well-being of the community, and to ensure that individuals and groups have access to appropriate services and support necessary to maintain or attain optimal physical, mental or social well-being.” The
health regulatory framework that protects and promotes the population’s health is provided for through the Public Health Act of 1949, the Health Insurance Act of 1970, the Bermuda Hospitals Board Act of 1970, and the Bermuda Health Council Act 2004 and a range of regulations in support of these acts, including regulations for health professionals.

The Bermuda Hospitals Board operates the King Edward VII Memorial Hospital, the Mid-Atlantic Wellness Institute (which provides psychiatric and mental health care), and the Lamb-Foggo Urgent Care Centre.

**The Health System’s Performance**

The Government ensures that individuals and specific groups, including the poor, have access to adequate health care services. To help mitigate the effects of poverty, government programs provide financial assistance, free or subsidized primary health care, and subsidized hospitalization for vulnerable populations.

The Health Insurance Act of 1970 established Bermuda’s health system model. Bermuda has no universal, publicly funded health insurance system; rather, health insurance plans are provided through private companies, public agencies, and employers. According to the Bermuda 2000 Census, 95% of the population was covered by some form of health insurance policy, but only 83.6% of the population reported health insurance coverage in 2009.

Overall usage of the health care system and the services offered is widespread. The most frequently used specialized services include diagnostic services, rehabilitation services, and treatment for chronic diseases.

**Health Expenditures and Financing**

According to Bermuda’s 2010 National Health Accounts report, for fiscal year 2009, public and private expenditures for health totaled US$ 557.7 million, representing some 9.2% of GDP for 2008 or an estimated US$ 8,661 per person (17). Public-sector expenditures on health accounted for 27.9% (US$ 155.8 million) of health expenditures and 14% of Bermuda’s total Government outlays (US$ 1.1 billion) in 2009. Public financing supported primary health care, health promotion, health administration, and operation of Bermuda’s hospital system. Private expenditures on health care amounted to some US$ 401.9 million (72.1% of total health costs), with 74% dedicated to health insurance costs. Household outlays for health, including for health insurance copayments, fees paid to health care providers, and other out-of-pocket health costs, amounted to an estimated US$ 81.3 million (14.6% of all health expenditures) in fiscal year 2009.

**The Health Services**

Primary health care in Bermuda is delivered primarily by private physicians. Bermuda’s two hospitals, the King Edward VII Memorial Hospital and the Mid-Atlantic Wellness Institute (MWI), are administered by the Bermuda Hospitals Board (BHB) and provide almost all secondary health care in Bermuda. The BHB and the Government operate various long-term care facilities. Skilled nursing care facilities include Lefroy House (57 beds), the Extended Care Unit at the King Edward VII Memorial Hospital (90 beds), and a new residential hospice care facility. In 2009, the BHB opened the Lamb-Foggo Urgent Care Centre, with four treatment rooms, for minor illnesses and injuries. Bermuda has three special education facilities for children with disabilities and impairments.

The public and private health care systems collaborate closely in the provision of health care. Responsibility for public health care lies with the Ministry of Health, which includes the Department of Social Insurance, the Department of Health, the Bermuda Hospitals Board, and the Bermuda Health Council. There is a large private health care sector utilizing fee-for-service practices.

Bermuda imports prescription drugs from Brazil, Canada, the European Union, India, Israel, and the United States. Since 2005, Bermuda has had two MRI units and two CT scanners.
KNOWLEDGE, TECHNOLOGY, INFORMATION, AND HUMAN RESOURCE MANAGEMENT

Scientific Production in Health

The Bermuda Hospitals Board (BHB) Diabetes Centre was involved in a number of international research trials from 2006–2010, including the EPIDREAM study (Diabetes Reduction Assessment Using Ramipril and Rosiglitazone Medications); the STAR study (Study of Trandolapril/Verapamil SR and Insulin Resistance); the ORIGIN Trial (Outcome Reduction with Initial Glargine Intervention); and the GRACE Trial (Global Registry of Acute Coronary Events).

The Ministry of Health hosts a website that includes a directory of health services available in the territory and provides the public information on topics such as health promotion activities. The Bermuda Hospitals Board and the Bermuda Health Council also have websites with information about their health care services.

Human Resources

Bermuda had sufficient human resources to meet its health needs during 2006–2010. During this period, the number of physicians increased, as did the number of visiting specialist physicians. In 2008, there were 35 family medicine physicians and 6 public health physicians (6.37 primary care physicians per 10,000 population). According to the 2009 Department of Statistics Employment Survey (18) there were 157 registered and practicing physicians on the islands, an approximate ratio of 24.4 physicians per 10,000 inhabitants. Nurses continued to represent the largest group of health care providers in the territory, totaling 559 in 2009 (86.8 per 10,000 population), an increase of 21% (98 nurses) over the number in 2008. However, this figure represents a significant reduction from the more than 800 licensed nurses working in Bermuda in 1999. There were 67 dentists/dental hygienists (10.4 per 10,000 population) and 1 optometrist per 10,000 population in 2009. In 2007, 58.5% of physicians, 28.6% of dentists, 75.0% of pharmacists, and 66.2% of nurses were non-Bermudian.

Health Personnel Training

The Bermuda College offers a “Nursing Assistant Certificate,” which prepares students for entry-level positions in the health care sector.

In 2009, there were 125 continuing medical education programs with a total of 3,519 attendees.

Labor Market for Health Professionals

Bermuda continued to experience difficulties with the retention of nurses. It has responded by recruiting from a wider range of countries and by increasing its own training capacity. In January 2008, the hospital nurse vacancy rate was 5%, compared to 6.4% in 2007.

Health and International Cooperation

In August 2008, the Bermuda Hospitals Board announced its collaboration with Partners Healthcare System’s Dana Farber Cancer Institute (Boston, Massachusetts, U.S.A.) with the aim of improving the ability of patients to consult with medical specialists remotely, via a “robot.” In 2009, patients in Bermuda carried out consultations with over 90 Lahey Clinic specialists in Boston through the use of the robot, which is currently being used about 20 times a month. The specialist physicians are credentialed by the Board to provide remote care, either in an emergency or to facilitate the work of visiting specialists. Three U.S. hospitals collaborate with the Bermuda Hospitals Board in specialized areas: Massachusetts General Hospital for trauma, Johns Hopkins University Hospital for intensive care and anesthesiology, and Howard University for psychiatry and behavioral sciences. Accreditation Canada accredits all services at King Edward VII
Memorial Hospital and the Mid-Atlantic Wellness Institute.

Bermuda maintains an active relationship with the following organizations: Caribbean Cooperation in Health Initiative (CCH), Caribbean Epidemiology Centre (CAREC), Pan American Health Organization (PAHO), and World Health Organization (WHO).

SYNTHESIS AND PROSPECTS

Bermuda has a high standard of health. It ranks 23rd in the world for life expectancy, has a stable birth rate, an infant mortality rate which has declined steadily since the 1950s, and a life expectancy at birth which increased from 64.85 years in 1950 to 79.37 years in 2010. However, the proportion of the population under the age of 15 is declining, while the proportion over age 60 is increasing.

Most leading causes of death in Bermuda are related to chronic, noncommunicable diseases and conditions, caused by lifestyle factors such as inactivity and poor diet. Diseases of the circulatory system and malignant neoplasms are consistently the leading causes of death. The increase in obesity, diabetes, hypertension, and other risk factors for heart disease and complications (stroke, kidney failure, etc.) is of particular concern. The causes and consequences of these conditions are interrelated, and the 2006 Health Survey of Adults and Children in Bermuda revealed that deterioration in lifestyle behaviors was associated with these health problems.

The National Health Promotion Strategy, “Well Bermuda,” was launched in 2006. Since that time the Department of Health has worked with a broad range of Government and community partners to enhance the promotion of health in Bermuda. The strategy addresses chronic, noncommunicable diseases and a number of other health problems, and presents a vision for a healthier Bermuda, with clear goals and objectives to work toward as a community. The Department of Health has adopted “healthy people in healthy communities” as its vision. With public health partners, steps are being taken toward realizing this vision through continued monitoring of the population’s health and implementation of coordinated interventions.

The Bermuda Health Council was tasked with producing a National Health Plan Consultation Paper in 2011. The purpose of the National Health Plan is to bring Bermuda’s health system into the 21st century. The aim is to build on strengths, establish new goals for the health system, set the course for necessary reforms to modernize the health sector, correct existing gaps, and lay the blueprint for a more equitable and sustainable health care system for Bermuda.

REFERENCES


