BELIZE

Sources: Second Administrative Level Boundaries Dataset (SALB), a dataset that forms part of the United Nations Geographic Database, available at: http://www.who.int/whosis/database/gis/salb/salb_home.htm, and the Digital Chart of the World (DCW) located at: http://www.maproom.psu.edu/dcw. The boundaries and names shown here are intended for illustration purposes only, and do not imply official endorsement or acceptance by the Pan American Health Organization.

Belize is located in Central America; it shares a border with Mexico to the north, Guatemala to the west and south, and with the Caribbean Sea to the east. It is 274 km long and 109 km wide. The total land area (mainland and keys) is 22,700 km^2, with a population density (2005) of approximately 12 inhabitants per km^2.

GENERAL CONTEXT AND HEALTH DETERMINANTS

In 1970, the government moved the national capital from Belize City to Belmopan, which is located inland, in light of hurricane-related damages to Belize City, which is located at sea level. A former British colony, Belize is the only English-speaking country in Central America. Its culture, politics, and economy are more like those of other English-speaking Caribbean countries; due to its location, however, Spanish is also widely spoken.

Social, Political, and Economic Determinants

Belize is a sovereign state governed by the principles of parliamentary democracy based on the British Westminster system. The titular head of state is Queen Elizabeth II, represented by a Governor-General. A Prime Minister and Cabinet constitute the executive branch of the government, while a 29-member elected House of Representatives and a nine-member appointed Senate form a bicameral legislature, the National Assembly. The Cabinet consists of Ministers and Ministers of State who are appointed by the Governor-General on the advice of the Prime Minister. The country has six administrative districts: Belize, Cayo, Corozal, Orange Walk, Stann Creek, and Toledo. A locally elected town board of seven members administers each urban area. Belize City and Belmopan (Cayo District) have their own nine-member city council. Village councils carry out the village-level administration, with the traditional "alcalde," or mayoral system, incorporated into the structure in the southern part of the country (Toledo District).

In 2005, the mid-year population estimate of Belize was 291,800, comprised of 144,400 (49.5%) females and 147,400 (50.5%) males. The population has more than doubled since 1980, when it was 144,000, while the female-male distribution remains unchanged. In 2005, 50.2% lived in urban areas and 49.8% in rural areas, compared to 49% and 51%, respectively, in 2000. The 2005 mid-year population showed that Belize District continued to maintain the highest proportion of the population (29.8%), while Toledo District maintained the lowest proportion (9.5%). The population density averaged 12 per km^2 during the years 2001–2005. The population structure, by age and sex, for 1990 and 2005 is presented in Figure 1.

The demographic profile is of a young population. In 2005, 50% of the population was under 15 years of age, while 48% was 20 years and older. The elderly (60 years and older) accounted for 4.2% of the total population. Women of child-bearing age (15–49 years) accounted for 49.2% of the total female population. The dependency ratio was 69.6% in 2005.

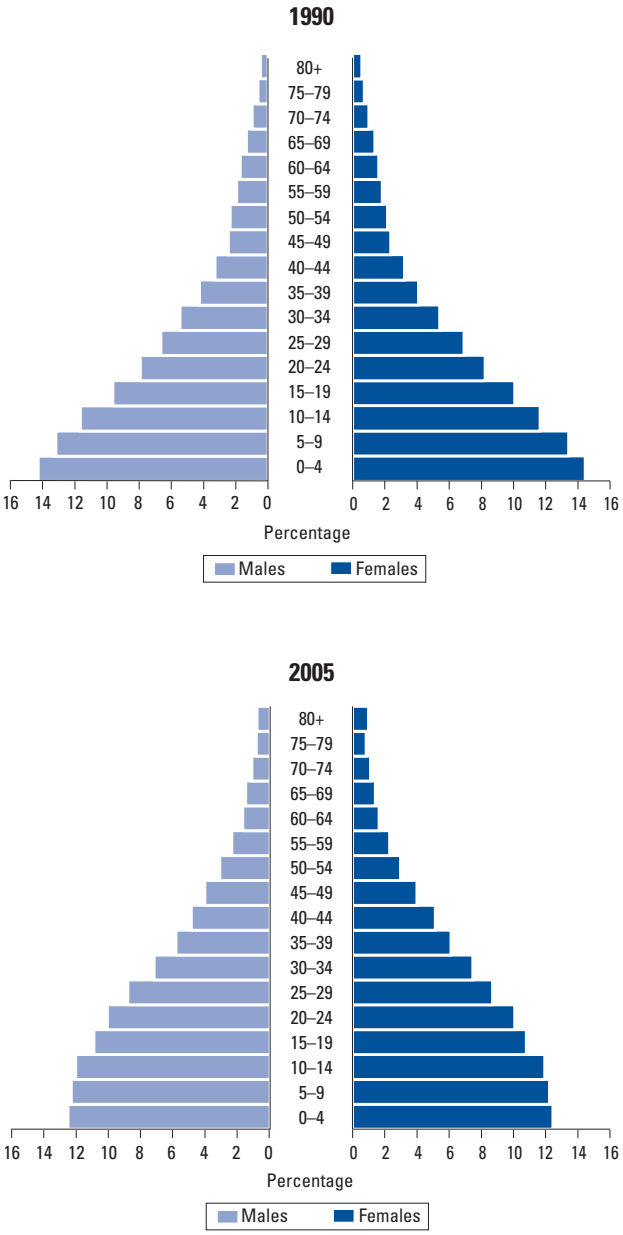
Belize has an open economy based primarily on agriculture and services. Agriculture exports, which include sugarcane, citrus and bananas, and marine products, have historically dominated Belize's economy. The country also relies heavily on forestry, fishing, and mining as primary resources. One of the main attractions for foreign investment is the stability of the currency; since 1976, the exchange rate has been pegged to the U.S. dollar (US$ 1.00 = BZ$ 2.00).

In 2000, Belize had an unprecedented GDP real growth of 12.3%, which was associated with growth in revenues from the tourist industry and shrimp exports. Following several natural disasters, a slowing world economy, higher fuel prices, and a programmed reduction in the central government's expenditure, the GDP fell to 4.3% in 2002 and to 3.1% in 2005. However, increases in banana and in farmed shrimp production and exports, coupled with a surge in tourism activity, contributed to the 2003 GDP growth of 9.3%. Data from Belize's Central Statistical Office (CSO) showed that GDP per capita for 2003 was US$ 3,604. Per capita income at constant prices averaged approximately US$ 3,500 over the 2001–2005 period.

The 2002 Living Standard Measurement Survey report used expenditure data for estimating poverty indicators. (The CSO uses a 1990 World Bank definition in defining poverty as "the inability to maintain a minimum standard of living.") In 2003, the overall poverty level in Belize was 33.4%, and estimates indicated that 10.8% of the population was very poor or indigent. The indigent line was defined as the "minimum cost of food requirement necessary for healthy existence" (with the minimum cost being based on CSO's list of basic food items and their unit cost, which in turn was obtained from the February 2002 round of price collection for the Consumer Price Index).

The poverty rates varied by district and were highest in Toledo, where 79% of the population was poor; the lowest rate

FIGURE 1. Population structure, by age and sex, Belize, 1990 and 2005.



was in Belize District (24.8%). These two districts also had the highest and lowest percentage of the indigent population, respectively. The poverty rates in Orange Walk and Stann Creek were very similar and only slightly above the national rate. The Cayo and Corozal Districts joined Belize District as the districts with the overall lowest levels of poverty. The level of poverty in households with children 0–13 years of age was 39%, while the corresponding rates in households with youth 14–24 years of age and those 60 years and over were 33.9% and 26.5%, respectively. The working poor accounted for 29.8% of the labor force. At the household level, 7.5% were very poor and 24.5% were poor. The level of poverty among female-headed households was lower (21.8%) than that of male-headed households (25.5%).

The total adult literacy rate in 2005 was 94.7% (94.8% for females and 94.6% for males). The level of participation in the educational system is expressed in terms of gross and net enrollment rates. The United Nations Children's Fund (UNICEF) estimated that the net enrollment rate for primary school-aged students (number of children 5–12 years enrolled in primary schools expressed as a percentage of all children 5–12 years) was 89.9% for the 2002 school year (91.7% of females and 88.2% of males). The primary school gross enrollment rate (number of children enrolled in primary school expressed as a percentage of all children 5–12 years) was 104.5% in 2002. Between 2000 and 2001, overall enrollment in secondary schools increased by 5%, with a further increase of 6% between 2001 and 2002. Males comprised 49% of overall enrollment and females 51%. At the primary level, Belize District had the highest net (100%) and gross enrollment (112.7%) rates; it also had the highest net enrollment rate at the secondary level.

According to the 2005 Labor Force Survey, women in Belize have just above half the male rate of labor force participation (39.2% female, 76.4% male); just above half the male level of employment (men have 65.8% of available jobs); double the male rate of unemployment (7.2% male, 17.4% female); but more than double the male rate of long-term employment (greater than 12 months) (8.7% female, 3.3% male).

Analysis of health data for the 2001–2005 period indicates that noncommunicable diseases were among the leading causes of morbidity and mortality in Belize. Diseases such as diabetes mellitus and hypertension continued to be the major contributors to mortality and morbidity. During the period 2001–2004, the incidence of reported HIV infections increased 15.6%, but in the period 2004–2005 it decreased 5.0%. The Ministry of Health reported that the average HIV adult prevalence for the 2001–2005 period was 216 per 100,000 population.

Access to safe drinking water continued to improve. In urban areas, coverage increased from 95% in 1990 to 98.8% in 2004 and has remained steady since. In rural areas, coverage increased from 51% in 1990 to 95.4% in 2004. As regards sanitation, limited progress has been made, especially in the rural areas. According to 2002 data from a CSO Poverty Assessment Report, 54.8% of all households had access to improved sanitation (sewer or septic tanks) while 39.7% used pit latrines, 10% of households shared toilet facilities, and 3.5% did not have any toilet facility. Slightly more than 65% of all rural households used pit latrines, compared to approximately 35% of the urban households (except for Belize City). Increased waste generation and inadequate waste management represent a major national problem. It is estimated that Belize produces approximately 112,000 tons of municipal solid waste annually with a per capita generation of approxi-

mately 1.32 kg/day. While a national solid waste management plan was developed in 1999, very little progress has been made in implementing it. Collection services in urban centers have improved; however, proper disposal continues to be a major challenge since the country has no proper facilities for solid waste disposal. The situation in rural areas is even more serious, as there are no collection or disposal services.

In the 2001–2005 period, Belize has been directly and indirectly affected by natural events, mainly hurricanes and floods. The last hurricane to hit Belize was Iris, in October 2001. The country, in particular the health sector, has shown a high level of preparedness and response to natural events. However, in view of the increased frequency and intensity of these events, the country remains on high alert and continuously updates its disaster management plans and programs to reduce vulnerability and minimize any catastrophic impact on public health.

Around 75% of the population in Belize is vulnerable to natural disasters, which particularly impact on the poor, with devastation exacerbated by land degradation. Challenges include the need to strengthen national technical and management capacities as part of efforts to minimize the impact of natural and human-made disasters and to address issues related to improper natural resources utilization, including over-exploitation of marine resources and unsustainable land management practices.

In 2003, there were 1,240 cases of domestic violence. The 25–29-year-old age group accounted for the highest number of cases (269), followed by the 20–24-year-old age group (243), the 30–34-year-old age group (237 cases), the 15–19-year-old age group (100), and the 40–44-year-old age group (81). In 2005, there were 969 reported cases of domestic violence. The population segment ages 15–44 comprised 89% and 87% of the cases in 2003 and 2005, respectively.

The 2000 census revealed that the majority of the foreign-born population comes from Central American countries. Guatemalans have remained the single largest group, accounting for 42.5% of the foreign-born population. Approximately 15% of immigrants were under 14 years of age, the majority being in the productive age group.

Demographics, Mortality, and Morbidity

The total fertility rate in 2003 was 3.4 children per woman; it was 3.6 in 2004 and 3.0 in 2005. The infant mortality rate ranged from as high as 21.2 per 1,000 live births in 2000 to as low as 14.3 in 2004. It was 18.4 in 2005. During the 2001–2005 period, the mortality rate in children under 5 due to diarrhea was reduced from 164 per 100,000 children to 23. Life expectancy at birth in 2005 was 71.8 (69.5 for males and 74.2 for females). The crude birth rate in 2005 was 25.7 births per 1,000 population. Teenage pregnancy, as reflected by births to the under-20 population, was 18.5% in 1998 and 17.1% in 2002. The crude mortality rate from 2001 to 2005 was 4.9, 4.8, 4.7, 4.6, and 5.2 deaths per 1,000 population per year, respectively. There were 5 maternal deaths in 2000, 7 in 2002, 3 in 2003, 5 in 2004, and 10 in 2005. In 2005 the estimated underregistration of deaths was 12.8%, while for 2004 it was 6.7%. There were 6,489 deaths during the period 2001–2005, of which 7.8% (504) were from hypertension. Of these, 50.2% (253) occurred among females. Diabetes mellitus ranked among the first 10 leading causes of mortality in the period 2001–2005, accounting for 398 (6.1%). Of these, 228 (57.3%) occurred among females. In 2005, diabetes accounted for 94 (6.9%) deaths. There were 386 (5.9%) deaths from land transport accidents during this same period, with this cause ranking fourth during 2005. Of these deaths, males accounted for 303 (78.5%). There were 372 (5.7%) deaths related to acute respiratory infections between 2001 and 2005. Of these, 199 (53.5%) occurred among males. Acute respiratory infections ranked sixth in 2005. The leading causes of death from defined causes for all ages in Belize in 2005 were diabetes mellitus, ischemic heart diseases, land transport accidents, and HIV/AIDS. For males, the five leading causes of deaths in 2005 were land transport accidents, HIV/AIDS, injuries, ischemic heart diseases, and diabetes mellitus. In 2005, for females, the five leading causes were hypertensive diseases, diabetes mellitus, ischemic heart diseases, cerebrovascular diseases, and acute respiratory infections.

HEALTH OF POPULATION GROUPS

Children under 5 Years Old

In 2001–2005, the leading cause of infant mortality was conditions originating in the perinatal period (62.0%). Of all deaths among neonates due to this disease group, slow fetal growth, fetal malnutrition, and immaturity accounted for 149 deaths (19.0%); hypoxia, birth asphyxia, and other respiratory conditions for 87 deaths (11.1%); other conditions originating in the perinatal period for 35 deaths (4.5%); congenital anomalies for 89 deaths (11.4%); acute respiratory infections for 65 deaths (8.3%); nutritional deficiencies and anemias for 28 deaths (3.6%); and septicemia for 29 deaths (3.7%). Diarrheal diseases and acute respiratory infections were among the leading causes of death in the under-5 population. From 1998 to 2003, cases of diarrhea in children under 5 were reduced from 1,645 to 227. In 2005, the five leading causes of death were slow fetal growth, fetal malnutrition, and immaturity; hypoxia, birth asphyxia, and other respiratory conditions; congenital anomalies; intestinal infectious diseases; and acute respiratory infections.

Between 2001 and 2004, the prevalence of low birthweight (less than 2,500 g) fluctuated from 3.6% to 4.4%; it peaked at 6.9% in 2005.

The highest proportion of deaths in the 1–4 age group was due to external causes of injury for the period 2001–2005. Of these deaths, land transport accidents accounted for 18 (11.5%) and accidental drowning for 13 (8.3%). The second leading cause of

death for this age group was communicable diseases, accounting for 44 (43.6%) of all deaths. Of these, acute respiratory infections accounted for 13 (12.9%) of total deaths, and septicemia accounted for 11 (10.9%). In 2005, the five leading causes of death were transport accidents, accidental drowning, acute respiratory infections, septicemia, and intestinal infectious diseases.

In 2005, the main causes of hospitalization among this age group were acute respiratory infections; noninfectious lower respiratory diseases; intestinal infectious diseases; injury, poisoning, and certain other consequences of external causes; and appendicitis, hernia of abdominal cavity, and intestinal obstruction. In 2005, 76.8% of births occurred in public hospitals. In 2001, 90% of mothers breast-fed their babies; 24% breast-fed exclusively for the first three months. Those most likely to have breast-fed were Kekchi Maya women and women who gave birth at home. Of those who did not practice exclusive breast-feeding, most were from urban areas and were younger and better educated. Creole women were the least likely to have practiced exclusive breast-feeding.

Children 5–9 Years Old

The mortality rate for this age group stood at 32 per 100,000 in 2003 and increased to 50 in 2005, with 79 deaths for the 2001–2005 period. External causes accounted for 40.5% of all deaths, transport accidents for 24.1%, and accidental drowning and submersion for 13.9%. Communicable diseases, including acute respiratory infections (12.7%), septicemia (3.8%), and HIV/AIDS (2.5%), together accounted for 19.0% of deaths in this age group. In 2005, the five leading causes of death were accidental drowning and submersion, acute respiratory infection, transport accidents, nutritional deficiency and anemia, and diseases of pulmonary circulation and other forms of heart diseases.

Hospital discharge data for 2001–2005 show that there were 3,151 hospitalizations among this age group. Of these, 574 (23.9 %) were due to injury, poisoning, and certain other consequences of external causes; 297 (12.3%) to appendicitis, hernia of abdominal cavity, and intestinal obstruction; 264 (11.0%) to noninfectious lower respiratory diseases; and 254 (10.6%) to acute respiratory infections.

Adolescents 10–14 and 15–19 Years Old

Those 10–19 years of age accounted for 64 deaths during the period 2001–2005. The mortality rate for adolescents 10–14 years old ranged from 36 per 100,000 population in 2001 to 40 in 2005. External causes of injury were the leading cause of death (40.6%). Most notable were transport accidents, which made up 14.1% of total deaths. Communicable diseases accounted for 12.5% of all deaths, mostly due to respiratory infections. In 2005, the five leading causes of death were accidental drowning and submersion, malignant neoplasms of lymphatic and hemopoietic tissue, transport accidents, acute respiratory infections, and diseases of the nervous system other than meningitis. For the five-year period, adolescents in the 10–14 age group accounted for 2,643 (2.8%) of the 92,813 hospital discharges. Leading causes of hospitalization included injury, poisoning, and certain other consequences of external causes (19.6%); complications due to pregnancy (11.8%); and appendicitis, hernia, and intestinal obstruction (11.2%).

There was an average of 24 live births to mothers under 15 years of age over the same period. There were 1,356 live births to mothers in the 15–19-year age group, representing 18.1% of the total live births.

The mortality rate among adolescents 15–19 years old remained constant at 86 per 100,000 population in both 2002 and 2003. There were 157 deaths in this age group over the five-year period. Of these, 63.1% were due to external causes, of which land transport accidents comprised 21.0%. While males were disproportionately affected by land transport accidents, complications of pregnancy (56.1%) were the leading cause of hospitalization for females.

In 2005, the leading causes of death were land transport accidents, homicide, suicide, other accidents, and diseases of pulmonary circulation and other forms of heart disease. In 2004, the first two causes were the same as 2005; accidents caused by firearm missiles and accidental drowning and submersion were also leading causes in 2004.

During the period 2001–2005, there were 145 (41 males and 104 females) new HIV infections in the age group 10–19 years, which comprised 6.9% of total new HIV infections. Of these, 16 occurred in the 10–14 age group. The early initiation of sexual activity and the prevalence of STIs are public health concerns. Fourteen suicides and self-inflicted injuries were reported in the 10–19-year-old age group during 2001–2005.

Between 2001 and 2005, there were 95 reported domestic violence cases in the age group of under 1 to 14 years of age; of these violent acts, 76.7% were committed against females.

In 2003, studies showed that the prevalence of smoking is very high among school-aged adolescents (13–15 years) and that it is substantially higher among males as compared to females.

Adults 20–59 Years Old

This age group comprised approximately 42.2% of the total population in 2005 and accounted for 35.0% of deaths for that year. In the period 2001–2005, there were 2,147 deaths in this age group, or 33.1% of all deaths (6,489). The leading cause of death for adults was external causes, 762 deaths or 35.5% of all deaths in this age group; 252 of these deaths were due to land transport accidents. In 2003 and 2004, the leading cause of death among those ages 20–59 was land transport accidents, and for 2005 it was injuries. In the 30–39-year-old age group, the leading cause of death in 2004 was land transport accidents, and in 2005 it was HIV/AIDS.

Maternal deaths registered between 2001 and 2005 ranged between 3 and 10 per year. In 2003, 14% of pregnant women accessed prenatal care during their first trimester; 85% obtained prenatal care at some stage of their pregnancy; an estimated 20% who tested their hemoglobin level during pregnancy were found to be anemic; and only 62% took folic acid, iron, and vitamin A supplements before or during pregnancy.

Statistics from the Belize Family Life Association, a nongovernmental family planning services organization, reveal that oral contraceptives remain the method of choice; however, there seems to be a shift to the one-month injection, especially among younger women.

Older Adults 60 Years Old and Older

Belize has a relatively low proportion of older persons (4.2% in 2005); the absolute number of elderly persons is increasing and is projected to double by 2025. Income security in 2000 and 2001 was a key welfare issue; many older persons had only a very small income or none at all.

The mortality rate during 2001–2005 for this age group was 48.3 per 1,000 population. There were 2,780 deaths (42.8% of total deaths), with males making up 56.1% and females 43.9%.

Diseases of the circulatory system accounted for 1,146 (43%) deaths among those 65 years of age and older. In 2005, the five leading causes of death were hypertensive diseases, diabetes mellitus, ischemic heart diseases, cerebrovascular diseases, and pulmonary heart disease and diseases of pulmonary circulation.

The Family

The 2000 population census survey results showed that a higher proportion of persons in rural areas (60%) was married or in a common law union as compared to 52% in urban areas. Toledo District reported the highest proportion (62%) of its population in a union while Belize District reported the lowest (51%).

In 2004, a Rapid Assessment of Orphans and Vulnerable Countries (OVC) conducted by UNICEF indicated that approximately 2,000 children have lost one parent due to AIDS. The report estimated that the number of children affected in Belize is likely to increase to more than 7,000 by 2010. It concluded that some 14,000 children, or more than one in 10 in Belize, are already vulnerable and each adult death from AIDS results in approximately three children left with one or no parent. The OVC assessment also concluded that for every Belizean who has already died, there are nearly three more living with HIV.

The 2000 population census showed that females headed 33% of households. The 2002 CSO Poverty Assessment Report noted that households headed by males are more likely to be poor than households headed by females. Furthermore, the report indicated that households headed by females with a partner are more likely to be poor than a household headed by a female without a partner. Married women comprised 65% of those in a domestic relationship, with the remaining 35% being in a common-law union. The Belize family court system reports that more than half of court orders are for child support and for support of children of unmarried women (paternity suits).

The 2000 census revealed that mean individual income is US$ 414 per month. This represented an increase compared to 1991 (US$ 311). The mean income was higher for males than for females. In urban areas, 1% earned less than US$ 714, compared to 6% in the rural areas. The highest quintile of income—those earning US$ 17,130 and above per annum—was three times as high as the lowest quintile of population, most of whom lived in rural areas. Toledo District reported the highest percentage (23%) that earned less than US$ 694 per annum, while Belize District reported the lowest, less than 1%. Belize District also reported the highest percentage that earned more than US$ 17,130.

Workers

Work-related injuries have increased 70%, from 1,522 cases in 1995 to 2,580 in 2003. The loss of productivity increased from 35,430 days lost in 1995 to more than 70,000 days in 2003, with the construction and agricultural sectors being the most affected. Assessments conducted in the agricultural sector indicate a high incidence of exposure to hazards and of reports of injuries and/or diseases. Underreporting of occupational injuries and diseases, however, contributes to the limited information available and therefore makes it difficult to determine the real magnitude of this problem in the country.

Persons with Disabilities

The 2000 census showed that 5.9% of the national population had a disability, with significantly higher rates of disability found in the populations of Toledo (8.4%) and Cayo (7.5%). The census found that the most prevalent disability was sight loss or impairment (3% of total population), followed by problems of mobility (1.8%), body movement (1.4%), and hearing (1.1%). Cayo District reported the highest prevalence (3%) and Stann Creek District the lowest (0.9%). A disturbing finding was that the cohort under 5 years of age represented 29% of Belize's disabled population. Most of the disabled live in rural areas where services are not available.

Ethnic Groups

A Labor Force Survey conducted in 2004 indicated that Mestizos comprised 48.4%, Creoles 27.0%, Mayan groups (the major two are Mopan and Kekchi) about 10%, Garifunas 5.7%, Mennonites 3.2%, and East Indians 3.0% of Belize's population. Other ethnic groups constituting less than 1% of the population were Chinese (0.9%) and Caucasian (0.7%).

Desirable Tourism Aggravates Undesirable Sanitation Problems

In recent years, increasing revenues from tourism have led to unprecedented real growth in Belize's gross domestic product—to over 12% in 2000 and 9.2% in 2003. Notwithstanding this economic growth and the country's reasonably well-organized social services, tourism is exacerbating sanitation problems that are potentially threatening to the population's health status. The generation of waste is voluminous: an estimated 130,000 tons of municipal solid waste in 2005, and 1.26 kg per person every day. The management of that waste is a national issue and a major challenge for the health sector, as proper facilities to dispose of solid waste do not exist countrywide. A national solid waste management plan, developed some years ago, currently awaits implementation.

HEALTH CONDITIONS AND PROBLEMS

COMMUNICABLE DISEASES

Vector-borne Diseases

The two main vector-borne diseases affecting the country are **malaria** and **dengue**. The principal species causing malaria in Belize is the *Plasmodium vivax* parasite, although *P. falciparum* remains an important and dangerous threat in parts of the country. Malaria cases fluctuated from 1,441 cases in 2000 to 1,066 in 2004 and 1,549 in 2005, of which 653 cases (42%) were from the southern Stann Creek District. Malaria will continue to represent an important public health concern in Belize, especially in rural areas of the southern districts, given that there is an active migrant population that works in the citrus and banana industries, and frequent population movements and substandard housing have provided favorable environmental conditions for mosquito breeding.

Dengue is also endemic in Belize. While the number of cases had been relatively low (under 5 annually), outbreaks were experienced in 2002 (42 cases) and 2005 (652 cases). Of the latter cases, 614 (94%) were from Cayo District. The first confirmed case of dengue hemorrhagic fever (DHF) in Belize occurred in 2005. Serotypes 2, 3, and 4 have been identified in Belize; therefore, the population remains vulnerable to a DHF outbreak.

Recently a few chronic cases of **Chagas' disease** have been reported, and studies reveal the presence of the vector in the western and southern districts.

Vaccine-preventable Diseases

There have been no reported cases of **measles** since 1991 or **poliomyelitis** since 1987. The last case of **neonatal tetanus** was reported from Stann Creek District in 1997, and the last case of **non-neonatal tetanus** was in a 3-year-old from Orange Walk District in 1998. The last case of **congenital rubella syndrome** was reported in 1997. No cases of **diphtheria** or **pertussis** were reported for 2001–2005.

In 2002, two new vaccines, hepatitis B and *Haemophilius influenzae* type b, were introduced into the national infant immunization schedule. The vaccines were constituents of the pentavalent combination vaccine DPT/HepB/Hib. Although rubella elimination activities with vaccination of adults were started in 1997, following introduction of the measles-mumps-rubella (MMR) vaccine the previous year, MMR vaccination of males was carried out in 2004; the effort targeted 66,800 males aged 5 to 35 years and resulted in 96% coverage.

Vaccination coverage of all antigens (diphtheria, BCG, tetanus, pertussis, polio, Hib, hepatitis B, MMR) steadily increased during the 2001–2005 period. During the 2001–2005 period, vaccination coverage for BCG was 96% or higher, and that for 3 doses of polio was 93% or higher in infants. For 2005, vaccination coverage for MMR (children 12–23 months) was 95%; coverage of infants (less than 12 months) for BCG was 96%; and that for third doses of the DPT/HepB/Hib pentavalent combination vaccine and OPV-3 was 96%.

Intestinal Infectious Diseases

Access to safe drinking water (97.2% of the population) contributed significantly to the control of **cholera**. There have been no cases of the disease since 1999. On the other hand, reported cases of **gastroenteritis** ranged from 293 to 3,737 during 2001–2005. The numbers of reported cases of foodborne diseases were as low as 13 in 2001 and as high as 224 in 2005. Improved surveillance contributed to the change in cases reported; nonetheless, these numbers are low.

Acute Respiratory Infections

Acute respiratory infections (ARI) continue to be one of the leading causes of mortality and morbidity in the general population. Information from the Ministry of Health showed that deaths attributable to ARI in the 1–4 age group were 9.4% in 2001 and 8.8% in 2004.

HIV/AIDS and Other Sexually Transmitted Infections

HIV/AIDS constitutes a major public health problem characterized by its increasing feminization, the infection of children, and a growing number of AIDS-related orphans. The highest concentration of infected persons can be found in Belize City

(437 in 2002 and 396 in 2005), with Corozal and Toledo reporting the lowest number of cases—4 in 2002 and 3 in 2005, and 6 in 2002 and 2 in 2005—respectively. A national multisectoral response strategy includes access to antiretroviral drugs for all those in need. However, issues of stigma and discrimination remain obstacles against successful care and treatment.

HIV/AIDS reports from 1986 through 2005 indicated that 3,360 individuals have acquired HIV, 762 have developed AIDS, and there have been 606 registered deaths due to AIDS. Between 2003 and 2005, approximately 185 women tested positive for HIV. The male-female ratio at the end of 2005 was 1.1:1. In 2003, 10 children less than 1 year of age and 12 children 1–4 years of age were newly diagnosed as being HIV-positive. Antiretroviral treatment is provided to 398 patients: 360 are adults (207 males and 153 females), and 38 are children.

In 2005, the mother-to-child transmission rate was 9.5. Underreporting is very likely since clinicians may not indicate AIDS on the death certificate to protect individuals and family from stigma and discrimination. The Prevention of the Mother-to-Child Transmission (PMTCT) Program was implemented within all public health facilities and four private health facilities.

In the general population, new infections with HIV continue to show an upward trend as greater numbers of the population are being tested.

Zoonoses

There have been no **rabies** cases in humans since 1989, and the last canine case was reported in 2000. However, the prevalence of rabies in bovine animals and wildlife, such as vampire bats and foxes, represents an ongoing public health threat.

Noncommunicable Diseases

Metabolic and Nutritional Diseases

In 2005, **obesity** was found in 2.8% of children under 5 years of age who were seen in health clinics. Belize District had the highest percentage (36.4%) and Corozal District the lowest (4.4%). In rural areas, the severity of **malnutrition** was higher for females than for males, while in the urban areas, it was approximately the same.

Cardiovascular Diseases

In 2001, heart diseases ranked second (82 deaths), of which 69 were from **ischemic heart diseases**. **Cerebrovascular diseases** were another leading cause, with 59 deaths. Cardiovascular diseases accounted for 22.4% of registered deaths in 2001 and for 21.3% of registered deaths in 2005.

Malignant Neoplasms

Hospital discharge data showed 366 and 391 hospitalizations for neoplasms in 2003 and 2005, respectively. In 2005, females accounted for the highest number of cases, of which 183 were benign neoplasms, carcinoma in situ, and neoplasms of uncertain behavior and of unspecified nature. Neoplasms of these same categories in males were 35. In females, there were 28 cases of malignant neoplasms of the uterus (cervix, corpus, and part unspecified). In males, there were 9 cases of malignant neoplasm of the prostate.

In 2001, there were 18 deaths from cervical cancer, 6 in 2002, and 12 in 2003. Cervical cancer statistics from the Ministry of Health showed 14 deaths in 2004 and 10 deaths in 2005. Cervical cancer morbidity data indicate 21 cases in 2004 and 23 in 2005. In 2001, there were 1 and 2 deaths in Stann Creek and Toledo, respectively; however, there were no cervical cancer deaths in Toledo District during the 2002–2004 period. In 2003, malignant neoplasms of the uterus (cervix, corpus, and part unspecified) ranked eighth in the 10 leading causes of death. In 2005, there were 10 deaths from cervical cancer. A 2003 needs assessment report showed that the estimated coverage of cervical cancer screening was 62.7%, with the lowest coverage among illiterate women living in rural areas. The cervical cancer mortality rate in 2005 was 6.9 per 100,000 women.

Other Health Problems or Issues

Mental Health and Addictions

The principal conditions leading to mental health consultations are clinical depression, psychotic disorders, anxiety disorders, substance abuse, and stress-related disorders. In 2005, 12,318 patients were seen at various psychiatric units throughout the country. Psychotic disorders accounted for the highest number of cases seen, affecting 1,904 men and 1,257 females. Child disorders and abuse were 303 and 141, respectively, in 2005.

The Global Youth Survey conducted in Belize in 2003 found that 20% of high school students had used tobacco, 16% had smoked cigarettes, and 9% had used other forms of tobacco. Nearly one-quarter (23.5%) purchased their own cigarettes, and 15.5% reported that they usually smoked at home.

Environmental Pollution

The importation of pesticides in the country increased significantly, from 1.7 million kg in 2001 to about 7 million in 2005. A 2001 study documented 59 severe acute pesticide intoxication cases, including 3 deaths. It was also estimated that about 4,000 acute pesticide intoxication cases occur annually in the country with the majority involving agricultural workers, pesticide handlers, and/or applicators.

A study conducted by the Ministry of Health and PAHO in the Macal River (Cayo District) in 2005 revealed the presence of mercury in several fish species. The average concentrations found were 0.11 µgHg/g and 0.56 µgHg/g in non-predatory and predatory fish, respectively. While these levels are lower than the limits set jointly by the Food and Agriculture Organization and the World Health Organization—0.5 µgHg/g in non-predatory and

1.0 in predatory fish—there are concerns of exposure to mercury due to consumption of fish by residents of rural communities along the river.

Oral Health

Caries prevention strategies for preschool children focus on fluoride prophylaxis applications. Clinics also offer fissure sealants for children, prophylaxis and check-ups, and some limited restorative dentistry.

The Ministry of Health's Dental Health Program is carried out in all six districts with 19 professionals: 9 are dental surgeons and 10 are dental nurses or dental assistants.

RESPONSE OF THE HEALTH SECTOR

Health Policies and Plans

Belize's national health care system is based on the principles of equity, affordability, accessibility, quality, and sustainability through the formation of effective partnerships with other public and private entities to promote attainment by the population of the highest level possible of health and well-being. As part of the Health Sector Reform Project, the Ministry of Health reorganized the country's health services into four health regions: Northern, Central, Western, and Southern. Each has a regional health manager, who, with the support of a management team, is responsible for coordinating the delivery of population-based health services to the communities in the geographical areas under its jurisdiction.

Significant health events and developments occurred in the period 2001–2005. These included the implementation of guidelines for the clinical management of mother-to-child transmission of HIV, the Family Violence Protocol, the Protocol for the Use of Psychotropic Drugs, and the National Policy for Older Persons. A Sexual and Reproductive Health Policy was introduced in 2002, and a comprehensive national plan was developed to make the policy operational.

Other Ministry of Health plans and protocols are in various stages of implementation. These include the Family Plans and Norms, a draft mental health policy, draft Medical Practice Bill, draft General Health Act, draft Policy for Disabled Persons, the National Policy on Health and Family Life Education, the first draft of the Poverty Elimination Strategy and Action Plan, the National Referral System Policy Guidelines and Protocols, the National Plan of Action for Children and Adolescents, National Strategic Plan for HIV and AIDS, and the National Care and Treatment Plan for HIV and AIDS.

Care protocols for victims of domestic violence were developed and implemented by the Ministry of Health for use within public clinics and hospitals and in conjunction with other community social services. The National Action Plan for Gender-based Violence was developed in 2005 to strengthen collaboration among key stakeholders in addressing systematically the issues of gender-based violence and child abuse. The National Action Plan for Children and Adolescents was designed to create greater synergy among key programs addressing childhood and adolescent development issues. The Plan is coordinated by the National Committee for Families and Children and clearly outlines Belize's international commitments and national policies, targets, and strategies as they relate to children and adolescents. At the end of 2003, a process was initiated to review and update all public health-related legislation to create an umbrella act known as the General Health Act.

In the latter part of 2000, the Ministry of Health launched a pilot project of the National Health Insurance Initiative, with the objective of consolidating efforts for the implementation of a national insurance plan to cover health care costs currently being funded by the government through the Ministry of Health and to ensure sustainable universal access to health care by the population.

In 2002 a service agreement between the Social Security Board (SSB) and National Health Insurance Fund (NHIF) was signed that defines the relationship between the two entities, with the latter serving as a sub-unit of the SSB. It instructs the NHIF to purchase services agreed upon by the Ministry of Health, applying certain performance contract principles (productivity, efficiency, and effectiveness indicators linked to targets and bonuses). Service agreements between the NHIF and the four primary care provider (PCP) clinics on Southside Belize City were signed in 2001 and define the NHIF relationship as a service purchaser and the PCPs as service providers. Service level agreements were developed by the Ministry of Health with PAHO technical cooperation in 2003 to define the relationship between the Ministry and health regions. Targets are being set and indicators established to measure progress as part of the health reform principle of shifting emphasis from input to output indicators.

The Ministry of Health applies nominal fees in its hospitals and clinics for imaging and laboratory tests; there are also nominal fees for inpatient services, including deliveries. The National Health Insurance pilot started in August 2001 and did not include any fee for service payments by the consumer, no co-payments were required, and collection rates differed at each institution. Subsequently, co-payments were introduced in Southside Belize City. These fees are less a source of revenue generation than a mechanism to discourage abuse of the system. When the initiative was rolled out in the Southern Health Region, it was felt that a fee structure would be a barrier to access, so no co-payments were required. The NHIF purchases only a primary care package of services; normal inpatient care at public institutions retains a nominal fee structure. The initiative was completely implemented in the Belize District (Southside Belize City) in early 2005

and extended to the Southern Health Region (Stann Creek and Toledo Districts) in June 2006.

Organization of the Health System

The role of the Ministry of Health headquarters is to provide policy advice to the Minister of Health. It holds responsibility for national health planning, public health protection, regulation, research, quality and standards, international and regional collaboration, and monitoring of the overall performance of the national health system. There are two key divisions in the Ministry of Health: the administrative arm, headed by the Chief Executive Officer, and the technical arm, headed by the Director of Health Services. The Director of Health Services is constitutionally responsible for the health of the nation.

The Ministry of Health operates a nationwide network of facilities that includes a total of eight hospitals, one in each district, with the exception of Cayo and Belize Districts, which have two each. Three of the eight hospitals are designated as regional hospitals and provide a wide range of secondary care in addition to routine primary care. Another three hospitals are community hospitals or primary level facilities, which provide a minimum amount of secondary care at the district level. Only the Karl Heusner Memorial Hospital functions as a national referral hospital; it is also the general hospital for Belize District. It provides services for neurology, physiology, ENT (ear, nose, and throat conditions), and orthopedic surgery. Outreach community services include dental health, mental health, and communicable diseases prevention and control. In addition, there is a mental health hospital, a psychiatric unit in Belmopan, and psychiatric units staffed with psychiatric nurses in each of the regional and community hospitals. The psychiatric nurses, as part of a community-based psychiatric program, provide ongoing counseling to survivors of gender-based violence and child abuse, as well as pre- and post-test counseling for HIV. There is a Mental Health Association that serves as an advocate for patients with mental illnesses and their families, while at the same time supporting the Ministry of Health's mental health programs and services. The Mental Health Consumer Association also has been very active, and in 2005 advocated successfully for new psychotropic drugs to be added to the national drug formulary.

Public Health Services

Belize's primary health care strategy ensures equity in health as it relates to accessibility and human resources distribution. The Ministry of Health has an organizational structure that establishes a permanent link between its headquarters, the districts, and communities. Community health workers form the principal link between the formal health system and the community. Village health committees support these workers in identifying community health needs and planning the implementation of corrective measures. In 2003, two of the most significant achievements of the primary health care strategy were the involvement of the lay public in community health projects and intersectorial collaboration. District and village teams were established with community members whose active participation was encouraged in activities developed to enhance the population's general health status. At the national level, a National Primary Health Committee monitors the progress of these efforts and supports the district health committees in the planning and implementation of programs. The Health Sector Reform Project continues to support primary health care initiatives, with the overarching goal of producing a more efficient, sustainable, and equitable national health system which incorporates the participation of communities in the planning, implementation, and monitoring of their own health care systems.

The overall health of the population improved during the reporting period due to the expansion of health services and infrastructure in rural and urban areas. This was evidenced by an increase in life expectancy, improved immunization coverage, a reduction in preventable childhood diseases and the infant mortality rate, a decreased fertility rate, and an aggressive vector control program that was implemented as part of the primary health care strategy. Within this framework, new facilities that include a rehabilitation center for independent living were constructed in 2004. Similarly, in 2005, approximately 12 new psychiatric nurse practitioners were trained to improve the country's response to mental health issues and strengthen its community-based approach.

The national response to gender-based violence has seen dramatic improvements in the areas of detection and treatment since the beginning of the 2001–2005 period. Recognizing the public health challenge, the Ministry of Health's national surveillance system registers cases of gender-based violence and child abuse and analyzes data. In 2003, the surveillance system was evaluated by the U.S. Centers for Disease Control and Prevention, and recommendations for the improvement of its operations were implemented in 2005.

Data from various health situation analyses conducted in 2005 indicate that maternal and infant mortality rates continue to be above acceptable levels. Other trends include a steady increase in noncommunicable diseases (hypertension, diabetes, cardiovascular diseases, and cervical cancer); road traffic injuries and violence; STI/HIV/AIDS, its feminization, and TB coinfection; malaria and dengue cases, including the risk of DHF outbreaks; and occupational injuries. There is also inadequate management of solid waste. In this context, the government's 2000–2006 National Health Plan identifies disease surveillance and strengthened health information systems as national priorities.

In the area of communicable diseases prevention and control, the National Health Plan includes initiatives to decrease the risk

and impact of STI/HIV/AIDS; reduce the incidence of tuberculosis, malaria, and dengue; provide sexual and reproductive health services with a life cycle approach and special emphasis on services for pregnant women and children under 5; provide timely and reliable laboratory diagnostic and epidemiological services that are confidential and of high quality for effective patient management, surveillance, and health planning; and provide and disseminate opportune information about priority health events/disease outbreaks. The National Laboratory Services Strategic Plan 2004–2009 seeks to provide quality diagnostic services in compliance with international standards that are timely, confidential, accessible, and affordable to the public.

The Directly Observed Treatment, Short Course (DOTS) strategy continues to be used for the treatment of tuberculosis; public and rural health nurses administer DOTS to patients at public clinics and at the TB Clinic in Belize City; in the rural communities where a public health nurse is not available, family members receive training to administer the medication.

The 2005–2010 Plan of Action for Food and Nutrition Security provides a comprehensive framework to guide the implementation of activities comprising the six programs outlined in the Food and Nutrition Security Policy. These are Information, Education, and Communication on Food Production, Preparation, and Nutrition; Diversified Food Production, Food Processing, Marketing, Storage, and Credit Mobilization; Maternal and Child Care, School Feeding, and Nutrition for the Elderly and the Indigent; Creation of Employment and Income-Generating Opportunities at the Local Level; Food Safety; and Analysis and Reform of National Policies for Food and Nutrition Security.

The Plan's food safety activities include the development of a meat inspection plan; training and monitoring of food handlers in safe food handling techniques and personal hygiene; and the inspection of food establishments. The National Health Plan includes activities to prevent and control waterborne illnesses and to eliminate human rabies. The Ministry of Agriculture, in collaboration with the Ministry of Health, drafted a Plan for the Development of Human Resources in Nutrition. The country's school feeding program was restructured in 2003.

Despite the fact that there are nine dentists and two dental auxiliary nurses spread out across the districts, with the highest concentration in Belize District, most district clinics reported an increase in tooth extraction, particularly among children. Productivity was largely measured based on the numbers of extractions and clinical encounters. Supply and equipment shortages continued to be challenges during the 2001–2005 period.

In 2000, the government instituted a Health Sector Hurricane Management Plan that is updated each year in May. Health managers annually participate in hurricane preparedness meetings. A mass casualty plan was developed in 2004, emergency workers were trained in mass casualty management, and a simulation exercise was carried out in 2004. The Karl Heusner Memorial Hospital is the only public hospital with a mass casualty management plan.

A national response plan to mitigate the emergency effects of a potential Severe Acute Respiratory Syndrome (SARS) pandemic was developed and put into effect at the end of 2003.

Individual Care Services

The national public health system provides universal access for personal and population-based services through a regionalized network of public facilities and programs. This includes the provision of pharmaceuticals and other support services. A system of rural health centers with permanent staff is supplemented by mobile health services, community nursing aides, voluntary collaborators, and traditional birth attendants working throughout rural communities. For 2005, the health care delivery network reported 209,959 outpatient visits (720 visits per 1,000 population), 21,745 hospital discharges (75 per 1,000 population), and 7,457 live births. There were 357 hospital beds (1.2 beds per 1,000 population).

The private health care delivery network is comprised of 54 outpatient facilities or clinics. These are mainly located in Belize City, and some offer specialized services such as dentistry, dermatology, and gastroenterology. In addition, there were five private hospitals, for a total of 79 beds.

In the public sector, the provision of hospital-based care in the four health regions includes inpatient and outpatient care for accident- and emergency-related incidents, as well as services in the areas of pediatrics, obstetrics, gynecology, internal medicine, and surgery. Primary health care needs are addressed through a network of clinics, health centers, and health posts.

The Ministry of Health is responsible for the operations of the Central Medical Laboratory, which serves as a referral and reference center for the four health regions and the public medical laboratories of all districts. Services by the laboratory include bacteriology, serology, cytology, histology, and special chemical and hematological analyses. A Quality Control Program supported by the Caribbean Epidemiology Center (CAREC) is underway. The Belize National Blood Transfusion Services are responsible for the collection, screening, storage, and distribution of blood and blood products. Services depend on voluntary donors.

A community-based approach to addressing mental health illnesses was developed and implemented in 2000. Mental health units have been established in all the districts, and an acute psychiatric unit was constructed in 2001. Mental health services are organized and implemented at three levels of care: outpatient services (crisis intervention and therapeutic services to individuals and families); inpatient services at the Rockview Hospital and Belmopan Hospital; and community services (outreach and ancillary services).

Belize's National Policy for Older Persons was introduced in 2002. The National Council on Aging was established in 2003. There are four institutions that house the elderly: the Sister Cecilia Home and the Raymond Parks Shelter for the Homeless, both in Belize City; the Golden Haven Home in Hattieville; and the Octavia Waight Home in San Ignacio. The Mercy Kitchen and St. Joseph Mercy Clinic in Belize City provide primary health care, home-delivered meals, and visits to the residences of the elderly. The Mercy Kitchen additionally provides socialization activities, spiritual enrichment programs, and laundry facilities for the homeless.

The country's only rehabilitation/treatment center is located at the Karl Heusner Memorial Hospital, where physiotherapy services for adults and children are offered through one trained physiotherapist and one nurse aide.

Health Promotion

Health promotion strategies remain among the national public health priorities, with policies, programs, and plans focusing on domestic violence, road traffic accidents, health education, community participation, and tobacco control. A project was implemented in Toledo District under the auspices of the Institute of Nutrition of Central America and Panama (INCAP) to respond to the nutritional problems identified in that district. Interventions were geared toward the control of malnutrition, micronutrient deficiencies, and other consequences of undernutrition. The major activities included nutrition education, organic vegetable production, food preparation, and fruit and vegetable drying and preservation. In addition to the general health promotion programs organized by the Health Education and Community Participation Bureau (HECOPAB), other aspects of health promotion included, but were not limited to, health and family life education, school health services, and road safety. Extensive efforts were made to engage the media in health promotion initiatives, resulting in a number of award-winning health promotion features. As part of promoting health lifestyles, the Ministry of Education has introduced the Health and Family Life curriculum, and training guides for primary and secondary schools were finalized in 2005. The curriculum, which is now being piloted in 12 schools in the six districts throughout the country, focuses on self- and interpersonal development, managing the environment, nutrition and physical activity, and sexuality and sexual health with an emphasis on STI/HIV/AIDS prevention.

In 2004, 232 children were placed with foster families. In the same year, 2,024 child protection cases were processed (1,330 cases related to child abuse and 694 to other services, such as family support, placement requests, and child custody cases). In 2005, 731 abuse cases were reported for Belize District, of which 242 were related to sexual abuse, 144 to physical abuse, and 70 to child abandonment. The progress made toward achievement of the Millennium Development Goals is the framework used for assessing the social situation of children and adolescents in Belize. In addition, the Convention on the Rights of the Child and the 2002 United Nations' General Assembly Special Session on Children titled "Building a World Fit for Children" continue to be the structure for research and policy analysis concerning the human rights, health, and educational situation of Belizean children.

Human Resources

In 2005, the health staff inventory showed that more than one-half of all health personnel continue to be located in Belize City, where there is the largest number of bed capacity (115) for an estimated population of 87,000. Nationally (public, private, and volunteers), there were 159 specialists, 166 general practitioners, 257 registered nurses, 24 public health inspectors, 27 medical technologists, 21 radiographers, and 248 community nursing aides. A national network of traditional birth attendants is supported and supervised through the maternal and child health program of the Ministry of Health. There are an estimated 70–75 licensed pharmacists, of whom 25 work in the public health system.

Severe human resources shortages have led to the recruitment of health professionals from within and outside of the Caribbean. Many of these professionals, especially medical doctors, are assigned to remote rural areas where human resource shortages are particularly acute. The shortages are compounded by the active recruitment of national health professionals, particularly nurses, by developed countries.

Belize has no national school of medicine. The country depends largely on the utilization of medical training institutions in Cuba. The University of Belize supplies other non-physician health care providers through its Faculty of Nursing and Allied Health Sciences. Training programs include pharmacy, medical technology, and practical nursing; bachelor's degrees in nursing and social work, as well as an associate degree in social work, are also offered. There are approximately 40–90 graduates per year from these programs collectively (2003–2005). In 2005, 16 students graduated from the psychiatric nursing program. Neither the production nor recruitment of health care providers was guided by a human resources plan for health, since none existed for most of the reporting period. In late 2005, measures to address this concern were beginning to be developed.

Between 2001 and 2005, community nurses aides were selected by their communities to receive training by the Ministry of Health in rehydration therapy, including venipuncture for the administration of fluids to severely dehydrated patients who do not have immediate access to health centers and hospitals. Traditional birth attendants received training and were provided with the basic equipment necessary to perform their functions in the community. Health care workers (physicians and nurses) in all six administrative districts were trained to diagnose STIs and

HIV/AIDS based on clinical manifestations. In 2004, 374 parenting workshops were carried out countrywide along with other public awareness activities. Training was provided to health care personnel as well as caregivers in the area of nutrition and HIV/AIDS. Physicians, health educators, nurses, and lay persons were trained in the nutritional management of obesity, diabetes, and hypertension. Special training was provided on simple techniques for the diagnosis of cervical cancer. All of the public health nursing staff was trained in the surveillance of immune-preventable childhood diseases as well as maintenance of the cold chain.

Other study programs designed to fulfill the continuing education needs of health care providers addressed such topics as protecting the human rights of the mentally ill, clinical management of dengue and HIV/AIDS, referral systems, safe motherhood, water and sanitation, proper nutrition, food safety, prevention of geo-helminthes infections, and malaria control.

Health Supplies

Belize has no local pharmaceutical manufacturing capacity even though there are 28 importers in-country. Registration for pharmaceuticals is covered in the draft Pharmacy Act, which currently is pending review and approval. The Act will govern the licensing of professionals, registration of medicines, and the donation policy. A permit is required for the importation of pharmaceuticals into the country. All Belizeans have access to the drugs in the Belize Drug Formulary when using public sector health services. In the period 2001–2005, new psychotropic drugs were included in the national drug formulary. Close to 100 private pharmacies operate in the country.

The antiretroviral and PMTCT programs are parallel systems and separate from the rest of the pharmaceutical management system. Antiretroviral medications are not quantified for, procured, or distributed through the established system for essential medicines or supplies, nor are they dispensed at health facilities. Instead, they are dispensed at voluntary counseling and testing clinics or by psychiatric nurses in hospitals.

A total of US$ 692,669 was used to procure vaccines, needles, and syringes for the period 2001–2005 from the Expanded Program on Immunization.

The total public health budget for 2004–2005 was US$ 9,163,327, of which 44.52% (US$ 4,079,304) was allocated for the procurement of pharmaceuticals.

Research and Technological Development in Health

Several studies were conducted during the review period in order to develop appropriate interventions, including a seroprevalence study among the prison population in 2005, a baseline parasitological survey among schoolchildren that same year, and the Global Youth Tobacco Survey among youths ages 13–15 in 2003. Additionally, a study on consumer practices relating to food safety was carried out in 2003 in collaboration with the Caribbean Food and Nutrition Institute (CFNI) and the University of Belize.

The Belize Virtual Health Library was launched by PAHO/WHO in 2003 and joined the expanding Internet network of libraries containing health sciences information throughout Latin America and the Caribbean. The universal access initiative is targeted to both national and regional users.

Health Sector Expenditures and Financing

Health care is financed by the government, private health insurance, and the private sector. In 2001, the Ministry of Health budget was US$ 20,330,331, which is 8.4% of the total government budget and 2.4% of the GDP. In 2003, it was US$ 23,407,066, which was 8.43% of the government's budget and 2.4% of the GDP. In 2005 the Government of Belize budget increased to 9.1% of the GDP.

In 2005 the Ministry of Health's budget increased to US$ 26,161,413, which was 9.57% of the government's budget and 2.5% of the GDP. Personnel emoluments and medical supplies consume a large share of the budgetary allocation. Procurement of pharmaceuticals and supplies regularly exceeds the annual budgeted cost. Regions are allowed to collect and retain revenues. It has been mandated that the funds be utilized as follows: 5% for staff performance incentives, to be granted at the discretion of regional management teams; 10% for staff development (training, workshops, conferences, and seminars); and 85% for capital investments. As the revenue-generating center for the Central Region, the Karl Heusner Memorial Hospital shares 10% of its revenue obtained from secondary services for the strengthening of primary health care services in the Belize District.

Technical Cooperation and External Financing

Multilateral and bilateral agencies, including UNICEF, PAHO/WHO, and the U.S. Agency for International Development, provided financial support for the process of modernizing and upgrading Belize's public health system. Bi- and tri-national agreements with Guatemala and Mexico also contributed significantly to improvements in the population's health, particularly in the areas of immunization of children under 5 and the prevention and control of rabies, malaria, and dengue fever. In 2004, funds were mobilized from nongovernmental sources for the completion of the National Plan of Action for Children and Adolescents, an 18-month institutional strengthening and capacity-building package for the social sector, development of protocols for the management of cases of children with behavioral problems, publications design and printing, completion of an Addendum Report to the Committee on the Rights of the Child, and consultations for the National Education Summit as part of the Ministry of Education's Action Plan 2005–2010.

Through international agreements with Cuba and Nigeria, health professionals from these countries have provided support in expanding health services coverage to rural areas and introducing specialty services within hospitals.

Technical cooperation activities were carried out with CAREC, CFNI, and INCAP. Other agencies providing technical support included the Inter-American Development Bank, Organization of American States, Inter-American Institute for Cooperation on Agriculture, Regional Inter-governmental Organization for Agricultural Health, United Nations Development Program, UNICEF, United Nations Population Fund, and Joint United Nations Program on HIV/AIDS.