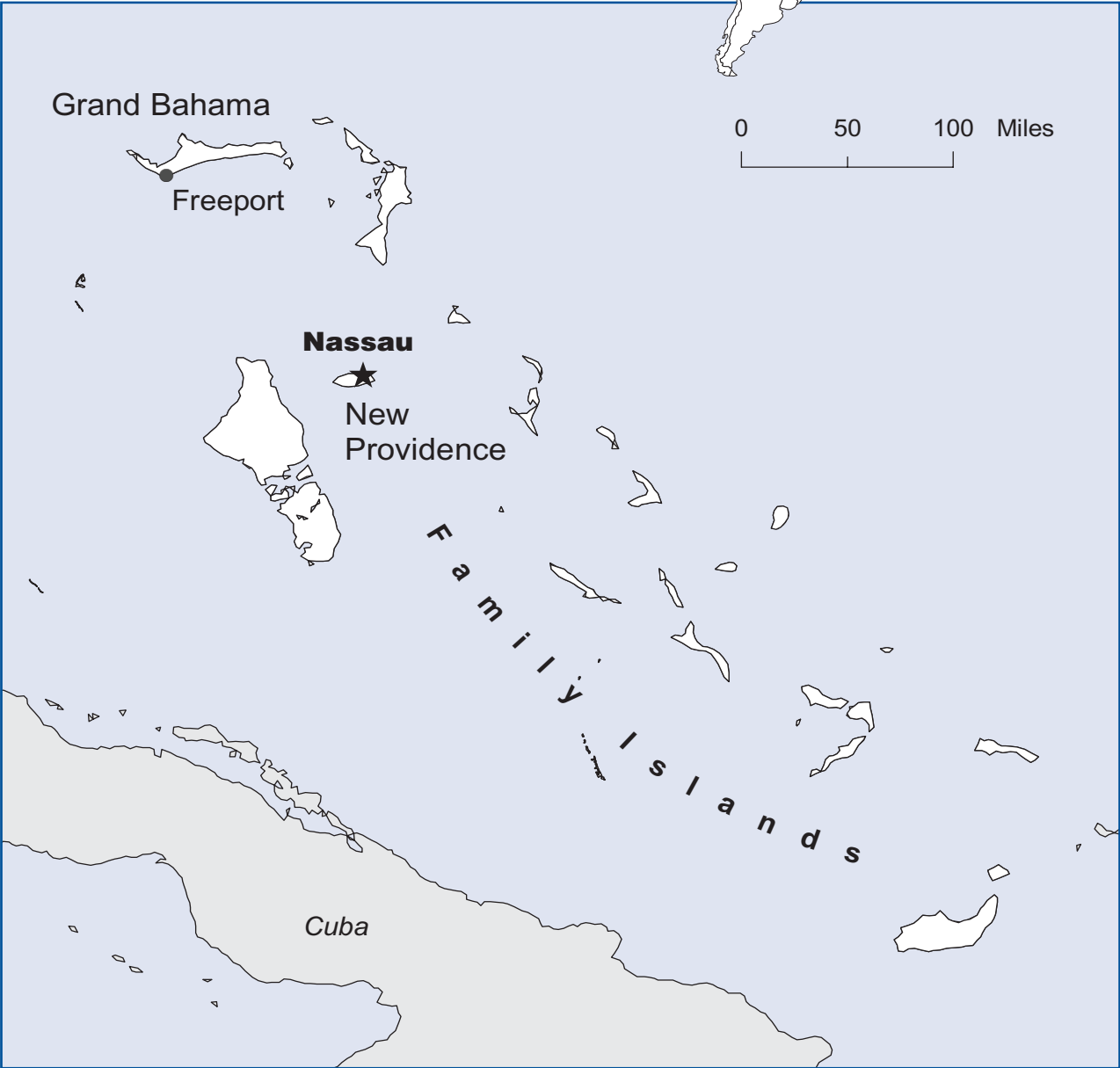


BAHAMAS



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.

The Commonwealth of the Bahamas is located off the southeast coast of Florida, United States of America, and northeast of Cuba. It consists of approximately 700 islands and cays with a land mass of 13,940 km². Tourism, followed by international banking and investment management, constitute the industries of most importance to the national economy.

GENERAL CONTEXT AND HEALTH DETERMINANTS

The 2000 population and housing census reported a total population of 303,611, a 19% increase over the 1990 population of 255,000. The population density per square mile increased from 47.4 in 1990 to 56.7 in 2000. More than 95% of the population lives on seven of the islands. The two major population centers are the capital of Nassau (210,832 inhabitants), located on the island of New Providence, and Freeport, which is on Grand Bahama (46,994 inhabitants). The remaining populated islands and cays are known as the Family Islands. The country is divided into four regions: Region 1 (New Providence and Grand Bahama); Region 2 (Abaco, Andros, and Eleuthera); Region 3 (Exuma and Long Island); and Region 4 (other Family Islands).

Social, Political, and Economic Determinants

The Commonwealth of the Bahamas gained independence from the United Kingdom in 1973. The country is governed by a parliamentary democracy based on the Westminster model, with a Governor General who represents the monarchy, a bicameral legislature including an elected Parliament, and an independent judiciary. The government is headed by a Prime Minister. There is a local government system on the Family Islands comprised of a number of locally elected district councils and a central council headed by an island administrator who is an established public officer.

The Bahamas Living Conditions Survey (BLCS) was conducted in 2001. This comprehensive household survey ($n = 6,414$) was the first of its kind ever conducted in the country. In shedding light on general living conditions, it indicated that the standard of living varies greatly among nationalities. Native-born Bahamians, who represent 89% of the population, comprise nearly 88% of those in the wealthiest quintile and just over 84% in the poorest quintile. The BLCS poverty assessment uses per capita, household-consumption expenditure as its welfare measurement. It indicates a poverty rate of approximately 9%, with some 5% of households falling below the annual poverty line of

US\$ 2,863 per person. The poverty line used is an absolute poverty line in that it represents the minimum amount of money necessary to purchase an adequate diet, with allowances for non-food needs. Nearly 76% of the poor live in the densely populated, urban areas of New Providence and Grand Bahama. The country is characterized by extreme regional disparities in population distribution, which mirror large regional disparities in living standards.

The BLCS 2001 showed that nearly 62% of the workforce was engaged in the private sector, 21% in government services, and 17% were self-employed. The BLCS also analyzed the employment status of children 10–14 years old. The results suggest that child labor was not widespread at the time the survey was conducted, with only 2.4% of children being shown as economically active. This group accounted for less than 1% of the total labor force, yet all of its members were from the poorest quintile. Unemployment was highest among youths (12%), the poor (11.6%), and females (5.4%) in quintile 1. Among nationalities, Haitians had the highest unemployment rate (8%), compared to the national average of 4.6%.

The exchange rate with the U.S. dollar has been 1:1 since 1972. In 2005, per capita income was estimated at US\$ 17,883. In the period 2000–2002, tourism and tourism-related commerce accounted for more than 50% of GDP and, directly or indirectly, 60% of employment. The Ministry of Tourism reported that 4.6 million people visited the Bahamas in 2003. Of these, 1.6 million were stop-over visitors. In 2005 the Bahamas received more than 5 million total tourist arrivals.

Financial services were responsible for 15% of the GDP. In 2003, the number of banks and trust companies licensed to operate within the Bahamas stood at 284. The vast majority of these were branches, subsidiaries, or affiliates of major banking institutions in North and South America and western Europe. Data from the Office of the Registrar of Insurance Companies indicate that in 2003, there were 163 licensed insurance companies, brokers, and agents. There were 137 companies operating in the domestic sector and 26 operating as external insurers.

In spite of its high per capita GDP, great inequity existed in the distribution of wealth. The majority of wealth was concentrated

in the country's main commercial and tourism centers located on a small number of islands. The GNP increased from US\$ 15,447 per capita in 1999 to US\$ 16,756 in 2002.

The adult literacy rate in 2005 was 95.8% (males 95.0% and females 96.7%). The Bahamian school system comprises 147 government and 42 private/independent schools. The government educational system includes primary, all-age, junior high, secondary (grades 7–9), and senior high (grades 10–12) schools. Various governing bodies control the independent—mainly church-administered—private schools. However, these schools largely function within the framework of the Education Act of 1996, which establishes the regulations under which public schools operate, and many receive annual government subventions. Primary and secondary education is free and universal throughout the country, and school attendance is compulsory for children 5–16 years of age. National school enrollment for children at the preschool level was 85%, but only 51% among the poor, versus 91% among the non-poor. The country faces an ongoing challenge of ensuring an equitable educational system for students throughout the archipelago, including remote islands and cays. The BLCS 2001 found that 68.5% of persons under 25 years of age were most likely to be enrolled in some type of educational institution, whether a day care facility, primary or secondary school, or university. More than 75% of this school-enrolled population was in the 5–16 age group, and 52% were males. Similarly, males accounted for 52% of those not enrolled. Both international and local educational institutions offer services in the country. Most are located on New Providence, while others have opened facilities on some of the larger of the Family Islands.

In the period 2001–2005, crime and violence became major public health concerns. Annual police reports point to serious challenges with narcotics trafficking, particularly as regards cocaine and marijuana, as well as with the growing numbers of small arms and light weapons illegally entering the country and being employed in criminal activities.

The Water and Sewerage Corporation is responsible for the provision of municipal water supply in the Bahamas. Production from municipal and private water systems is systematically monitored and bacteriological and chemical quality analyzed by the Water Quality Control Program of the Department of Environmental Health Services. This data is provided to the supplier and also used to evaluate trends, determine potential supply problems, and make recommendations for improvements. During the 2001–2005 review period, approximately 96.4% of the total population had access to water supply through household connections and other acceptable piped means. The drinking water supply on New Providence and the Family Islands is drawn from underground source facilities. The population not served by piped systems relies on wells or rainwater tanks. In rural areas, despite the availability of clean and safe water, there are unresolved provision difficulties due to operational, resource, and

technical constraints. In 2000, the mean monthly consumption expenditure on water by Bahamian households was 0.8%.

Most residential dwellings had flush toilets, either linked to a public sewerage system (16%) or attached to a cesspit or septic tank (82%). Approximately 4.5% of households used a pit latrine, while 1.1% reported having no toilet facilities attached to their dwelling unit.

The New Providence regional landfill receives in excess of 181,000 tons of solid waste per year. The high waste generation rate in the Bahamas is a result of the country's considerable reliance on imports, which tend to have substantial packaging; the virtual absence of recycling initiatives to reduce paper, plastic, and metal waste components; and the high volume of waste produced by the tourism industry.

The Department of Environmental Health Services monitors the safety of food offered for public consumption through meat inspections at the abattoir, sampling and testing of imported canned goods at ports of entry, and sanitary inspections of food establishments. Outbreaks of conch poisoning, a serious public health problem, have decreased steadily during the last five years due to the implementation of a number of multisectoral approaches, including the introduction in 2004 of mandatory food safety training for all food handlers.

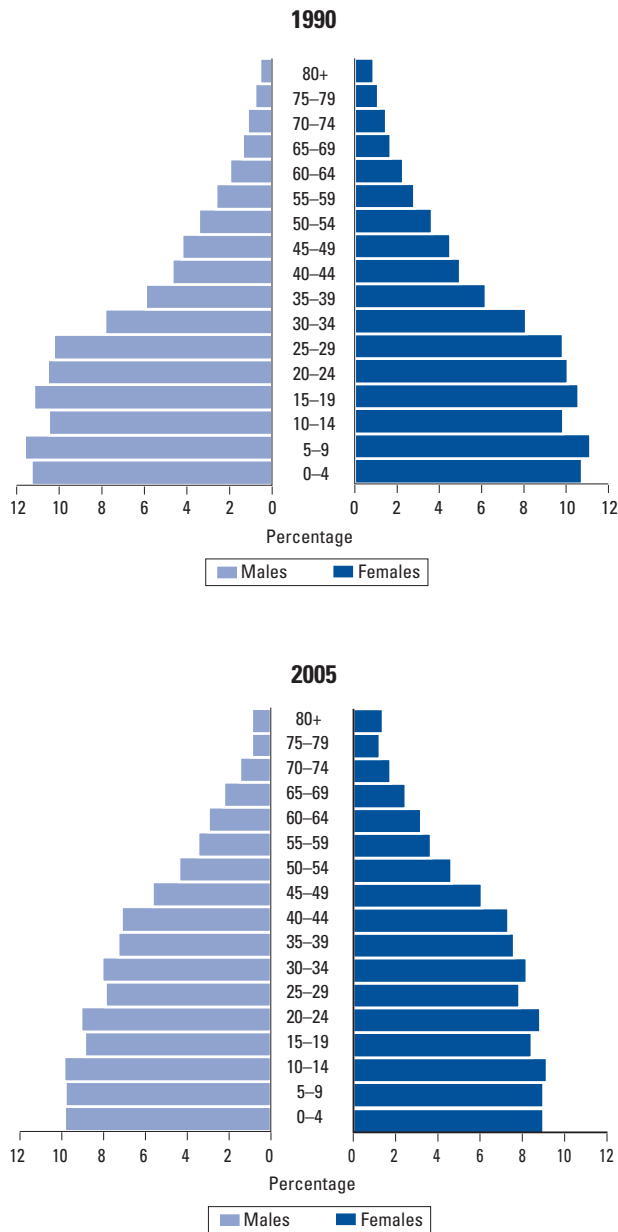
The annual hurricane season in the Bahamas occurs between 1 June and 30 November. The National Emergency Management Agency is responsible for pre-disaster planning and post-disaster response. During the study period, the Bahamas experienced four hurricanes and various other tropical storms that caused extensive flood and wind damage. Hurricane Michelle, which struck northwestern Bahamas in 2001, caused particularly widespread property damage. Several cases of posttraumatic stress syndrome were also reported. In 2004, Hurricanes Jeanne and Frances caused millions of dollars of severe infrastructure damage on Grand Bahama and Abaco. The cost of Hurricane Francis was estimated at 7% of the country's GDP for that year. In 2005 Hurricane Wilma caused severe property damage on Grand Bahama.

Demographics, Mortality, and Morbidity

The population pyramid (Figure 1) shows a transition from a youthful to a less youthful population due to lower fertility and increased life expectancy rates. Sex differentials were more extreme among the elderly than for other age groups; for every 1,000 females, there were only 708 males. As of 2001, life expectancy for females was 76 years compared to 70 for males. The overall male-female ratio in the country was 95:100. The annual population growth rate declined from 2.2% in 1980 to an estimated 1.9% in 2002.

In 2003, 28.4% of the population was under 15 years of age and 5.2% was 65 years of age or older. The age dependency ratio is estimated at 62.1%. Females constituted 50.5% of the popula-

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



tion. Women of childbearing years in the 15–49 age group comprised 55.3% of the female population and 28% of the total population. Over the 2001–2005 period, the total fertility rate remained more or less constant at approximately 2.3 children per woman. The age-specific fertility rates for the 15–19-year-old and the 20–24-year-old age groups in 2003 were, respectively, 46.1 and 96.5 per 1,000 women.

The infant mortality rate ranged from 12.7 per 1,000 live births in 2001 to 17.3 in 2004; the child mortality (0–5 years of

age) rate decreased from 0.5 per 1,000 children in 1999 to 0.4 in 2003. There were 2 maternal deaths each in 2003 and 2004. The crude birth rate stood at 16 per 1,000 population in 2003. Between 2001 and 2004, the crude death rate increased from 5.4 to 5.7 per 1,000 population, and in 2003 it declined to 5.2 (1,649 deaths). Life expectancy at birth continued to increase steadily, and for the period 1999–2001, it was 73 years (69.9 years for males and 76.4 for females). In 2003, across all ages, the age-specific death rates were higher for males than for females.

In the period 2001–2003, a total of 6,600 deaths occurred. Diseases of the circulatory system accounted for 31.8% of female deaths, compared with 26.2% of male deaths. External causes of injury and poisoning constituted 4% of total female deaths, compared with 11.9% of total male deaths.

Data analysis of the BLCS 2001 reveals an ongoing movement of outlying rural populations to the more developed urban areas. The proportion of the total population living on the Family Islands declined from 16.5% in 1990 to 14.9% in 2000. The census data showed that this declining population trend found on most of the Family Islands resulted largely from migration to either New Providence or Grand Bahama (Region 1) in search of better employment opportunities.

Migrants were for the most part younger persons, with about one-half of both male and female migrants being under 25 years of age. Males comprised 64% of internal migrants. Sustained increased inward migration by the population to Region 1, the influx of immigrants from outside the country, and the booming tourist industry may, over time, produce a concentrated population pattern that could significantly tax the country’s health care delivery system.

The large influx of external immigrants presents other challenges to the country’s social and economic status, as well. Immigration data shows two distinct migratory patterns: a poorer group in search of employment opportunities and a wealthier middle-aged group arriving in the Bahamas to fill job positions, usually in professional specialties. Poorer migrants have a tendency to increase demand on the country’s social services, including government health facilities and schools. Wealthier migrants tend to utilize private facilities (health, education, etc.), even though their consumer habits place additional demands on such public resources as electric utilities and the telephone system.

The country’s undocumented immigrants tend to live in substandard housing in overcrowded marginal areas, raising serious environmental health and communicable disease concerns, particularly given the growing population density on New Providence.

Haitians, who represented slightly more than 6% of the population in the 2000 census, accounted for more than 14% of those in the poorest quintile. Within recent immigrant groups (persons who immigrated to the Bahamas within five years prior to the BLCS 2001), nearly 84% of Haitians had a per capita expenditure of less than \$8,524. Haitians comprised the single largest immi-

grant group and accounted for about 33% of recent immigrants. Other immigrant groups included persons from the United Kingdom, the United States, Canada, and other Caribbean islands and territories.

Chronic noncommunicable diseases, influenced by lifestyle choices, accounted for nearly 45% of all deaths in the Bahamas. Taken together, hypertension, diabetes, coronary heart disease, stroke, chronic respiratory diseases, cancers, and injuries dominated the country's morbidity and mortality profile.

HEALTH OF POPULATION GROUPS

Children under 5 Years Old

In the period 1999–2001, the infant mortality rate decreased from 15.8 per 1,000 live births in 1999 to 12.7 per 1,000 live births in 2001. However, the rate rose to 17.2 in 2003 and increased slightly to 17.3 in 2004. The stillbirth rate ranged from 9.5 per 1,000 live births over the period 1999–2001 to 15.4 in 2003. In 2003, registered infant deaths accounted for 3.3% of total deaths. There were 89 infant deaths in 2004. The combined data from the Perinatal Information System showed that the prevalence of low birthweight (less than 2,500 g) ranged from 8.5% in 1999 to 11.2% in 2003.

The BLCS 2001 indicated that approximately 74% of all children 24 months and younger were breast-fed. In the 2002–2004 period, there was no vertical transmission of HIV from mothers on antiretroviral treatment to their babies. According to the National Health Services Strategic Plan 2000–2004, at least 98% of children entering preschool or primary schools were immunized against childhood preventable diseases.

In the period 1999–2000, there were a total of 72 deaths from defined causes among children under age 5. Conditions originating in the perinatal period accounted for 38.9%, followed by congenital malformations with 12.5% of all deaths. There were 7 deaths due to land transport accidents, accounting for 9.7% of deaths in this age group.

In 2003, a total of 10 deaths were recorded in preschool children aged 1–4 years old. This represented a 33% decrease from 2001, when there were 15 deaths. Diseases of the respiratory system were among the leading causes of mortality in children of this age group in 2001 and 2003. Other causes of death included accidental drowning, congenital malformations and chromosomal abnormalities, and pulmonary heart disease. The leading cause of inpatient morbidity during 2001–2003 was acute respiratory infections. Other major causes included injuries and poisonings, intestinal infectious diseases, slow fetal growth, low birthweight, prematurity, and other diseases of the respiratory system. Child abuse in this highly vulnerable 1–4 age group continued to be a cause of concern despite a decrease from 612 to 526 (14%) reported cases from 2002 to 2003. In this period, child neglect and physical abuse were the most commonly reported

types of abuse and accounted for 42% and 32%, respectively, of all cases. Sexual abuse and incest accounted for an additional 23% of reported cases.

The BLCS 2001 results showed that in children 5 years and younger, respiratory illness is a major concern. During the four weeks prior to the survey, among children in this age group, coughs, colds, and runny noses were the most common illnesses (41%), followed by diarrhea (6.6%) and asthma (2.4%). Incidence of diarrhea among children 5 years and younger was 7.8%. The survey also showed that the highest rate of stunting was found among the younger population, with proportions declining as children grew older. Height-for-age z-scores indicated that 15% of children 2–4 years of age were at significant risk for stunting. The overall weight-for-height z-scores (wasting), which reflect current nutritional status, showed that the potential for undernourishment increased as children grew older. Both weight-for-height and height-for-age z-scores showed the highest prevalence of undernutrition on the urbanized islands of Region 1 and the lowest on the less developed Family Islands of Region 4.

Children 5–9 Years and 10–19 Years Old

In 1999–2000, there were 25 deaths in the 5–9-year-old age group and 53 deaths in the 10–19-year-old age group. The leading causes of death in the population 10–19 years of age were homicide, with 13 deaths (26%), and land transport accidents, with 12 deaths (24%).

In 2003, there were 23 deaths among children 5–14 years of age. Leading causes of mortality were primarily external causes such as assault or homicide, drowning and submersion, exposure to smoke and/or fire, and land transport accidents. Together, these comprised 43.5% of all deaths among this age group. In 2001, the mortality profile in this age group showed HIV/AIDS to be the leading cause of death, accounting for 28.6% of all deaths, followed by land transport accidents, with 14.3%.

In 2003, the three leading discharge diagnoses among children in this age group were injuries (13.2%), acute respiratory infections (12.7%), and intestinal infectious diseases (11.5%). Together, these conditions accounted for 37.4% of discharge diagnoses. Injuries and respiratory infections were also among the leading causes of morbidity in children 5–14 years old in 2001 and 2002. There were 8 registered deaths due to HIV/AIDS among this age group during the 1999–2003 period.

Adolescents 15–24 Years Old

During the 2001–2003 period, there were 172 deaths in this age group. External causes, primarily land transport accidents (21.5%) and homicides (18%), accounted for nearly one-half (48.3%) of all deaths. The male-female ratios for land transport accidents and homicides were 5.2:1 and 4.2:1, respectively.

During this same period, there were 412 abortions; 53.9% were due to spontaneous abortions, 29.1% to unspecified abortions, and 10% to ectopic pregnancies. Mental disorders (including alcohol and drug abuse) accounted for 2.5% of primary discharge diagnoses for both males and females. In 2003, there were 9 births among females 10–14 years old, less than half of the 20 births in this same age group in 1994. The birth rates among females 10–14 years and 15–19 years were 0.6 and 23 per 1,000 females, respectively. Findings from the BLCS 2001 showed the prevalence of contraceptive use to be 5.6% in girls 10–19 years.

There were 3 HIV/AIDS registered deaths in the 15–19-year-old age group over the 1999–2003 period. A drug use survey conducted among secondary school students in 2002 showed that alcohol was the most popular drug among students in grades 10 and 12. Among students in grade 10, 3.5% had used tobacco, compared to 1.9% in grade 12. The prevalence of marijuana use increased with age, ranging from 6.7% among students in grade 10 to 7.7% among those in grade 12.

The BLCS 2001 showed that 68% of those between the ages of 16 and 24 had completed high school, while 32% had no academic qualification or credentials (i.e., from high school, vocational school, or another accredited institution). The survey data show that youths from the poorer quintiles exited the educational system earlier and with fewer qualifications than did youths from wealthier quintiles.

Adults 20–64 Years of Age

In the period 1999–2000, there were a total of 1,433 deaths registered in this age group. There were 1,416 deaths due to defined causes and 18 due to ill-defined causes. The five leading causes of mortality in this age group were HIV/AIDS, with 477 deaths (33.7%); assault or homicide, with 95 deaths (6.7%); ischemic heart diseases, with 83 deaths (5.9%); land transport, with 78 deaths (5.5%); and diabetes, with 78 deaths (5.5%). The leading causes of death for men were HIV/AIDS (34%), assault or homicide (9.2%), land transport accidents (7.3%), ischemic heart diseases (6.5%), and cirrhosis and other diseases of the liver (3.3%). The leading causes of death for women were HIV/AIDS (33%), diabetes (5.7%), malignant neoplasm of the breast (4.8%), and ischemic heart diseases (4.2%).

In 2003, the age-specific mortality rate for females aged 25–44 years was 2.6 per 1,000 population, and for males it was 3.7 per 1,000 population. Among women ages 25–44, the three leading causes of death were HIV/AIDS, pulmonary heart disease, and malignant neoplasm of the breast. Together, these accounted for 50% of all deaths in females. Other causes included hypertensive diseases (3%) and cirrhosis and other diseases of the liver (3%).

The combined morbidity data based on hospital discharge diagnoses for 2003 showed that the primary causes of inpatient morbidity in females 25–44 years of age and older were obstetric complications of pregnancy, childbirth, and the puerperium. This

cause represented 40.4% of all hospital discharges in 2003. The second and third leading causes were other infectious and parasitic diseases (7.8%) and carcinoma in situ, benign neoplasms, and neoplasms of uncertain or unknown behavior (3.3%). Mental disorders, injuries, and poisonings were also among the five leading causes of morbidity seen at Rand Memorial Hospital in Freeport over the same period.

In terms of morbidity in 2003, the leading public hospital discharge diagnoses among males 25–44 years of age were injuries (28.2%), mental disorders (7%), HIV/AIDS (6.7%), other diseases of the digestive system (6.1%), acute respiratory infections (3.5%), and hypertensive diseases (3.2%).

In 2003, the major causes of morbidity in females ages 45–64 were hypertensive diseases, which represented 8.7% of hospital discharge diagnoses, followed by other diseases of the digestive system (8.1%), injuries and poisonings (6.7%), and carcinoma in situ (6.6%). During the 2001–2002 period, benign neoplasms, hypertensive diseases, diabetes mellitus, and other diseases of the digestive system were also leading causes of morbidity in this age group. The birth control pill was the most popular contraceptive method used among all females (47%), followed by female sterilization (19.7%), which was used primarily by older women. Other methods included injectables (16.1%), condoms (9.1%), and other modern methods (6.5%).

Obesity was most notable in the 31–50-year-old age group (about 35%) and the 51–60-year-old age group (33%), while young adults in the 21–30-year-old age group were predominantly the healthiest in terms of weight.

Older Adults 60 Years Old and Older

The most common causes of inpatient morbidity among persons 65 and older were hypertension, injuries, and poisonings, cerebrovascular diseases (stroke, myocardial infarction), pneumonia, urinary tract infections, diabetes mellitus, and malignancies. Other health conditions affecting this age group included arthritis, cataracts and glaucoma, dementia, depression, and decreased hearing. In 2003, the leading causes of death in adults 65 years of age and older were hypertensive diseases, diabetes mellitus, cerebrovascular diseases, ischemic heart diseases, prostate cancer, urinary tract infections, acute respiratory infections, and malignancies of other areas.

The Family

Female-headed households (FHH) represented a significant portion of all households in the Bahamas, and their poverty rates were double those of male-headed households (MHH). FHHs were found to have more children and had higher economic dependency burdens than MHHs. However, poor female heads of households were better educated than poor male household heads. In poor households, 33% of all youths (ages 19–24) were

“unattached,” meaning that they neither worked nor were in some type of training in preparation for future employment. Among non-poor households, the unattachment rate for this age group was more than 20%. Nearly 50% of poor children (ages 2–5) were either underweight or overweight.

Housing tenure (ownership, government housing, rental, or rent-free accommodations) as well as housing quality differed markedly between poor and non-poor households. Nationwide, about 70% of households had fewer than two people per bedroom, and 90% had fewer than three people per bedroom. Only 22% of poor households had fewer than two people per bedroom, and 50% had more than three people per bedroom.

Results from the BLCS 2001 showed that individuals from households in higher consumption quintiles had higher levels of health insurance coverage; only 20.1% of those in the poorest quintile had coverage, compared to 76% in the wealthiest quintile. Data from the Ministry of Health in 2003 indicated that higher-income persons were more likely to have comprehensive health insurance packages, while lower-income persons, who purchased lower-priced premiums, faced higher deductibles.

Persons with Disabilities

According to the BLCS 2001, approximately 6% of the sample population ($n = 6,414$) reported having a physical or mental disability. Of those who had a self-reported disability, 68.5% of the disabilities were related to sight, hearing, or speech; 18.2% to limbs; and 13.3% to mental disabilities. A total of 3.7% of children under 5 years of age had a disability, compared to 17.6% of the elderly.

HEALTH CONDITIONS AND PROBLEMS

COMMUNICABLE DISEASES

Vector-borne Diseases

Malaria is not endemic to the Bahamas, although the *Anopheles* mosquito vector is present. Ten imported malaria cases were reported between 2000 and 2003. There were no cases of yellow fever for the 2001–2003 period, although the *Aedes aegypti* vector is present. In 2003, there was a **dengue fever** outbreak resulting in 180 reported cases, presenting predominantly with serotypes 2 and 3; no deaths were registered. Approximately 700 cases of **scabies** were reported annually to the Ministry of Health Surveillance Unit during the 2001–2005 period.

Vaccine-preventable Diseases

In the period 2003–2004, at least 98% of children entering preschool were immunized against **measles, mumps, and rubella; diphtheria, pertussis, and tetanus; polio; hepatitis B;** and *Haemophilus influenzae* type **b**. Since 2000, vaccination

coverage for the first and third doses of all vaccines has exceeded 90%, except for hepatitis B, which was initiated in 2001 as part of the pentavalent vaccine. This vaccine contributed significantly to the Expanded Program on Immunization in the Bahamas.

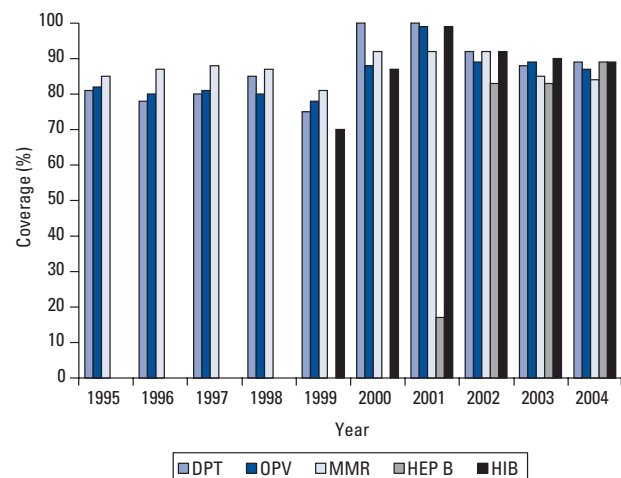
During the 2001–2005 review period, there were three reported cases of *H. influenzae* meningitis. There was an outbreak of hepatitis A in 2001 in which a total of 46 cases were reported. Only 5 sporadic cases were reported in 2002, 1 case in 2003, and 3 cases in 2004. During the 2002–2003 period, there were 6 reported cases of symptomatic hepatitis B. There were no confirmed cases of polio, diphtheria, measles, or neonatal tetanus. This success is credited to children being routinely vaccinated, immunization campaigns which target adults, and the continuous training of all health care providers.

Figure 2 shows immunization coverage levels by antigen for children under age 2 for the 1995–2004 period.

Intestinal Infectious Diseases

There were three **conch poisoning outbreaks** during the 2001–2003 period. The annual number of reported cases ranged from 122 to 312 during this time as a result of poor food handling by conch vendors; no deaths were registered. Foodborne diseases and **gastroenteritis** continue to pose diagnostic challenges. Between 2001 and 2003, the incidence of reported foodborne diseases ranged from 318.2 to 417.2 per 100,000 population. The number of gastroenteritis cases during the 2001–2004 period ranged from 2,521 to 4,904. Between 2002 and 2003, 564 cases of ciguatera poisoning were reported, and 214 occurred in 2004. Ciguatera poisoning is an important health problem due to the population's high consumption of and frequency of exposure to toxic fishes such as the barracuda. In the 2001–2004 period, reported cases of **salmonellosis** ranged from 4 to 28 cases per year; none, however, were linked to an outbreak.

FIGURE 2. Immunization coverage (%), by antigen, for children under age 2, Bahamas, 1995–2004.



Chronic Communicable Diseases

During the 2001–2004 period, the annual number of reported cases of **tuberculosis** ranged from 44 to 47. Among these cases, the highest proportion occurred in the 25–49-year-old age group. The TB/HIV coinfection rate remained high, standing at 39% in 2002 and 32% in 2003. There were 7 deaths due to coinfection in 2002 and 8 deaths in 2003. Of the reported TB cases, about 7 out of 10 clients were Bahamians, while one in four was Haitian. The male-female ratio for TB infection was 2.1:1 in 2001 and 1.2:1 in 2003.

Acute Respiratory Infections

In 2001–2002, acute respiratory infections were the second leading discharge diagnosis (12.7%) given for children aged 5–14 years. In 2003, there were 388 females and 371 males with hospital discharge diagnoses of acute respiratory infections.

HIV/AIDS and Other Sexually Transmitted Infections

The HIV epidemic in the Bahamas is monitored through seroprevalence surveys conducted among sub-population groups, such as pregnant women attending prenatal clinics, those attending clinics for treatment of sexually transmitted infections (STIs), blood donors, prison inmates, and TB patients. Figure 3 shows prevalence rates for the years 1994–2005 for three of these sub-population groups.

As of December 2005, there was a cumulative total of 10,479 reported cases of HIV infection. The number of new persons testing positive annually for HIV declined by 56.1% from its peak level of 659 in 1994 to 289 in 2003, with the greatest change being noted in the 20–49-year-old age group. The prevalence of HIV in pregnant women declined from 4.2% in 1994 to 2.8% in 2005. Among persons receiving care for STIs, the percentage testing

positive for HIV decreased from 7.2% to 5.8% over the 1995–2005 period. Underreporting regarding HIV transmission via injecting drug use remains a challenge.

The prevalence of HIV among blood donors was approximately 0.4% in 2005 and was at its lowest (0.2%) in 2003. Infection rates among the prison population decreased from 3.4% to 2.5% between 2002 and 2004. A decrease in AIDS mortality has occurred for both women and men, with the percentage of registered deaths dropping from 18.4% to 11.8% between 1996 and 2003. The drop is concurrent with improved access to quality health care and ability to diagnose and treat opportunistic infections, as well as the increased affordability and availability of antiretroviral medications.

Zoonoses

There were no reported cases of zoonotic diseases during the 2001–2005 review period.

NONCOMMUNICABLE DISEASES

Metabolic and Nutritional Diseases

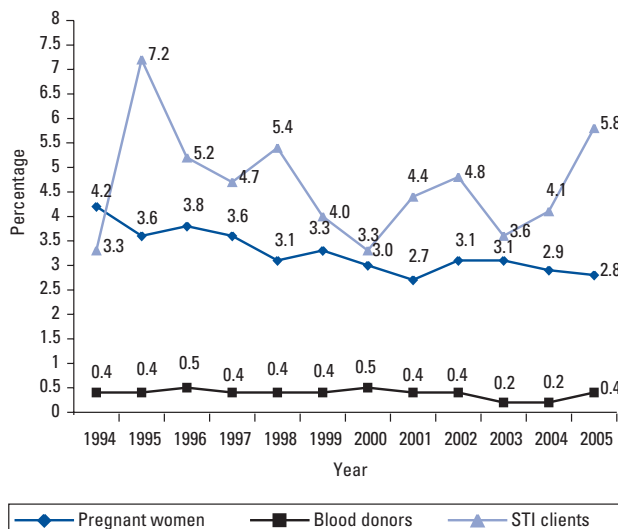
In 2005, the Ministry of Health carried out a Chronic Noncommunicable Diseases Prevalence and Risk Factors Survey that found overweight and obesity to be significant risk factors in the population. The overall prevalence of **overweight** and **obesity** was 70.6%; New Providence had the lowest rate (68.7%); on Grand Bahama it was 73.7%, and on the Family Islands 76.9%. Nutritional choices also emerged as a major risk factor, with a significant percentage of those surveyed reporting that they consumed the equivalent of less than one daily serving of fruit (47.1%), vegetables (51.1%), and legumes (80.1%). Current international dietary guidelines encourage five or more servings of fruits and vegetables daily. Of the population 62% reported that they engaged in some sort of moderate or intense physical activity over the course of most days. The remaining 37.5% noted that they engaged in little or no physical activity.

The prevalence of self-reported **diabetes** was 7.0%, while that of clinical diabetes was 9.2%. As with clinical hypertension, males had a lower prevalence (8.6%) of clinical diabetes than females (9.6%).

Cardiovascular Diseases

The 2005 Noncommunicable Diseases Prevalence and Risk Factors Survey showed the prevalence of clinical **hypertension** to be 37.5%, with males experiencing a slightly lower prevalence (37%) than females (38.4%). The prevalence of self-reported **stroke** was 1.1%, self-reported **heart disease** 3.2%, and self-reported **asthma** 6.1%. On comparison by region, it was found that the prevalence on the Family Islands was consistently higher than the national prevalence, with stroke at 2.5%, heart disease at 7.8%, and asthma at 7.8%.

FIGURE 3. HIV prevalence in pregnant women, blood donors, and STI clients, Bahamas, 1994–2005.



Malignant Neoplasms

National figures showed prostate cancer prevalence among males ages 40–70 years old to be 1% and breast cancer prevalence in women ages 15–74 years old to be 1.3%, while cervical cancer among women in this same age group was 0.8%. Colorectal cancers in men and women ages 50–74 years old were 0.7%.

OTHER HEALTH PROBLEMS OR ISSUES

Oral Health

During the 2001–2005 period, annual school dental screenings provided data on the oral health of children. Twenty-four of the 26 public schools on New Providence were examined during the 2004–2005 school year. Of the 2,566 grade 6 students examined, 82% were caries-free; the decayed, missing, or filled teeth (DMFT) index was 1.54. Over the same period, 2,106 grade 1 students were also examined: 55.6% were caries-free, and the DMFT was 3.48.

RESPONSE OF THE HEALTH SECTOR

Health Policies and Plans

The main objectives of monetary and fiscal policies pursued by national authorities remain the maintenance of macroeconomic stability, improvement of all aspects of economic competitiveness, and stimulation of sustainable development by the private sector in the short and medium terms. A key goal in the Bahamas is diversification of the economy, which is to be accomplished by improving intersectoral linkages between the tourism sector and the rest of the economy and by improving infrastructure on the Family Islands to promote their economic development.

Major health events and developments during the review period include the appointment of a blue ribbon commission in 2002 to study the feasibility of creating a national insurance system; the report was presented to the Cabinet in 2004 and development of an implementation plan was mandated. A cost and financing report was also submitted in late 2005. During 2001–2005, the government increased access to quality health care for persons living with HIV/AIDS by removing cost barriers. Renewed focus was given to ensuring appropriate levels of integration at the policy, programmatic, and service levels, and this approach was successfully applied to maternal and child health, communicable diseases prevention, and oral health. It is now mandatory that medical students complete a rotation with the Ministry of Health's Department of Public Health.

Between 2001 and 2005, the Ministry of Health consulted and collaborated with a variety of agencies on policy initiatives that impact the country's health situation. These culminated in the Workers' Health and Safety Act (2002) and the establishment of the National Emergency Management Agency in 2004.

In the period 2001–2005, several reforms were introduced under the Ministry of Health's leadership. The National Health Services Strategic Plan (NHSSP) 2000–2004 is a comprehensive framework for the advancement of an enhanced, integrated, national health care service delivery system. The plan seeks to foster multisectoral collaboration and participation while strengthening partnerships between the public and private sectors and the population at large. The revised 2003–2004 NHSSP consists of 13 strategic goals; each embodies a main objective, contains key indicators and expected results, and identifies the entities responsible for leading actions. The priority focuses are health promotion and protection, scaling up HIV/AIDS care and treatment, prevention and control of communicable and chronic noncommunicable diseases, environmental protection and sustainability, improved efficiency of health services delivery systems, and enhanced strategic management.

A mid-term review of progress of the original NHSSP 2000–2004 took place in December 2002 in preparation for implementation of the revised plan in 2003, providing an opportunity to make necessary adjustments and emphasize areas of special concern. These concerns included the increasing numbers of deaths due to noncommunicable diseases and teenage deaths attributable to homicides and land transport accidents, the contribution of alcohol and drug abuse to the rising rates of homicides and violent injury, and the growing threat to public health posed by domestic violence. Other areas calling for more focused attention were the status of health legislation, the regulation of professional certification, health financing and infrastructure, and health information systems. In 2001, the National Health Information System acquired databases for mortality and hospital discharges, thereby streamlining data processing and enabling improved health situation analyses.

In the area of occupational health, in addition to the passage in 2002 of the Workers' Health and Safety Act, two other labor statutes were approved that same year. The first entitled women to 12 weeks of maternity leave, and the second provided unpaid paternity leave following the birth of a baby, and/or during the illness of the baby or the baby's mother. Additionally, the Employment Act of 2002 eliminates discrimination in the workplace against those living with HIV.

Results from a 2002 evaluation of essential public health functions indicated that the national health system performed below average in all areas except health promotion and capacity for the development of laws and regulations. Further analysis revealed, at all levels in the health system, an absence of formal evaluation processes and the inefficient and ineffective utilization of established institutional capacity and of management information systems.

Organization of the Health System

The health care organizational model has been centralized and is predominantly curative and disease-based, with all func-

tions (financing, provision of services, and regulation) performed by the Ministry of Health. The health care delivery system consists of public institutions, private-for-profit institutions, and private nonprofit institutions. The government health sector is comprised of four main clusters of services: the Ministry of Health, the Department of Public Health, the Department of Environmental Health Services, and the Public Hospitals Authority. An organizational and management review of the Department of Public Health is currently under way, and within this framework, between 2001 and 2003, a regional health pilot project commenced in southeastern Bahamas to improve the quality of public health services. The Public Hospitals Authority has responsibility for the three government hospitals (Princess Margaret Hospital, Rand Memorial Hospital, and Sandilands Rehabilitation Center) as well as public health services on Grand Bahama.

The Doctors Hospital Health System is the principal provider of private inpatient services through Doctors Hospital located in Nassau, New Providence, which is staffed and equipped for the provision of primary, secondary, and tertiary care. A second private inpatient clinic is the Lyford Cay Hospital. Various non-governmental organizations, such as the Cancer Society, the Diabetic Association, the Bahamas Heart Association, the Family Life Association, and the AIDS Foundation, provide additional outpatient and community services.

All workers in both the private and public sectors are required by law to participate in the National Insurance Scheme, which provides illness, disability, and death benefits to its contributors, as well as retirement, occupational injury, maternity, and survivorship benefits. Private health insurance also is offered by a number of companies. A small percentage of workers are enrolled in an insurance plan managed by a private insurer on behalf of the Bahamas Public Services Union. At the current time, the group health insurance scheme has proven to be an attractive option for many persons.

Public Health Services

The Department of Public Health holds responsibility for primary health care services on New Providence and the Family Islands. These services are provided through a network of primary health care facilities ranging from level I (complex health centers) to level II (main health centers) and level III (satellite clinics). Home visits by trained public health nurses, which include basic primary care and follow-up, are provided through various of these facilities. The Department is also responsible for supporting the Ministry of Health's public policy development and the management of more than 14 national health programs.

In order to improve program management effectiveness, funding is provided annually in the Department's budget for the following national program areas: maternal and child health services, Expanded Program on Immunization, nutrition services, disease surveillance (general; vector-, water-, and foodborne dis-

eases; STI prevention programs; and tuberculosis control), and training and development (nursing and medical health professionals, allied health professionals, and administrative and other support staff).

In 2003–2004, protocols were put in place for 90% of all diseases that have been identified and targeted for surveillance and control. With regards to tuberculosis, the Directly Observed Treatment, Short Course (DOTS) strategy was being consistently applied on all islands. A specialty clinic for new diabetes cases was established using a team approach to patient management, and treatment and protocols for asthma patients have been developed for implementation at the primary, secondary, and tertiary care levels. To address issues concerning HIV/AIDS and STIs, the prevention of mother-to-child transmission program was expanded, and antiretroviral drugs were introduced as part of the comprehensive treatment program for all patients attending public facilities. During the 2001–2005 review period, the Ministry of Health prepared guidelines for this comprehensive care and treatment strategy, conducted public education programs, and provided US\$ 1 million for the purchase of antiretroviral drugs.

In 2001 and 2002 the government received technical support to document key functional and data requirements as part of a long-term strategy to strengthen the public health information system. In December 2003, the Department of Public Health initiated plans for the pilot implementation of an automated, integrated client health records and reporting system (IPHIS). IPHIS supports public health provider interventions, tracking, follow-up, case management, and reporting and has been implemented in four sites on New Providence and Grand Bahama. The IPHIS initiative should improve the quality, collection, and analysis of public health data in the future.

The principal objective of the national laboratory service is to strengthen services to improve case management and disease prevention and control efforts. A National Medical Laboratory Strengthening Committee, with representation from both public and private laboratories, coordinates the national activities of a subregional project being implemented through the Caribbean Epidemiology Center. One component of the project calls for the establishment of a national laboratory information system.

The principal public health laboratories are located at Princess Margaret Hospital on New Providence and Rand Memorial Hospital on Grand Bahama. They provide services in the areas of clinical chemistry, microbiology, immunology, blood banking, surgical pathology, cytology, and hematology. The main laboratory at Princess Margaret Hospital processes an average of 700 tests daily. Laboratory specimens from the Family Islands are transported to the Princess Margaret or Rand laboratories for testing.

During the study period, the government provided a bulk waste collection program and depository sites and implemented a national solid waste education and awareness program. The New Providence Regional Landfill receives in excess of 181,000 tons of solid waste per year.

The Government Strengthens the Health System to Better Respond to Citizens' Needs

The location of the leading commercial and tourism activities drive the population's distribution, as well as inequities in the distribution of wealth, throughout the islands of the Bahamas. Moreover, the health care services are being overloaded as Bahamians migrate from less developed to more economically advantaged islands and as more and more immigrants, mainly Haitians, flow into the country. To better respond to all residents' health care needs, the Ministry of Health is spearheading an effort designed to bolster the health system. At the heart of this endeavor is the 2000–2004 National Health Services Strategic Plan, which envisions an integrated national health care delivery system. The Plan sets forth 13 strategic goals, conferring priority to health promotion and protection, prevention and control of communicable and noncommunicable diseases, environmental protection, efficient delivery systems, and better health services management.

In 2001, the Department of Environmental Health Service's Derelict Vehicle Removal Program disposed of some 7,200 abandoned vehicles taken from vacant properties, roadside garages, and along public thoroughfares on New Providence. The resulting 8,121 tons of compacted metal were then exported to the United States for recycling. In 2002, the program was expanded to address the larger of the Family Islands, and 4,000 additional vehicles were collected, crushed, and exported.

The Department also monitors manufacturers of bottled water to ensure sanitary production conditions and quality control. The Water and Sewerage Corporation evaluated the condition of all municipal sewage treatment systems with the goal of implementing improvements as necessary.

The risk management service within the Public Hospitals Authority was strengthened, and cooperation between health agencies and the National Insurance Board was enhanced. The revised NHSSP 2003–2004 includes efforts to strengthen the Worker's Health and Safety Program and workers' health services, and develop and implement occupational safety training programs.

In 2002, permission was sought from the Cabinet to amend the section pertinent to food handling of the Public Health Act. In November 2003, the Department of Public Health began piloting the new Serve Safe Food training program for food industry workers, and in 2004 a four-hour course became mandatory for all food handlers. Since the training's introduction, 85% of documented food handlers have participated and five persons have been certified as trainers. In 2001–2003, the Public Market and Slaughterhouse Act was reviewed and deemed adequate without further amendment. Poultry regulations were drafted, and a Hazard Analysis and Critical Control Point (HACCP) program based on inspection will be implemented in the poultry and other food industries. Amendments were introduced to the meat importation regulations under the Animal Contagious Diseases Act to protect the Bahamas from the introduction of bovine spongiform encephalitis and foot-and-mouth disease. The Act's amendments

focused on the areas of changing technologies, country disease status, and emerging diseases.

In 2001, a group of health centers were designated as hurricane treatment centers and equipped to respond to persons requiring medical care in the immediate aftermath of a hurricane. Ministry of Health, Department of Public Health, and Public Hospitals Authority personnel have been trained in the use of Humanitarian Supply Management System (SUMA) techniques as well as in the medical management of disasters. A disaster preparedness workshop was conducted in August 2002, and a National Disaster Plan was proposed.

The emergence of severe acute respiratory syndrome (SARS) highlighted the need to take proactive measures to counteract emerging communicable diseases that might enter the country through the port system. Reports of West Nile virus on one of the Family Islands strengthened an integrated approach to outbreak investigations. The Ministries of Health and Agriculture remain on high alert in addressing the threat of avian influenza in birds and poultry and pandemic influenza in humans.

Individual Care Services

In 2003, there were five public and private hospitals with a total of 1,068 beds, representing 35 hospital beds per 10,000 population. There were 55 health centers or main clinics; 9 were on New Providence, 5 on Grand Bahama, and 41 on the Family Islands. There were 59 satellite clinics throughout the country and 286 privately owned health care facilities offering primary care and diagnostic services.

In 2001, a state-of-the-art health care center opened to serve south-central New Providence. It is the largest of the country's approximately 115 community health clinics and the only public health facility to offer ophthalmology, laboratory, radiology, and audiology services. The center holds a weekly nutrition clinic for at-risk obese schoolchildren.

Grand Bahama has its own public health services network of clinics and the Rand Memorial Hospital. The clinics make referrals to Rand, which in turn makes referrals to Princess Margaret Hospital in Nassau for those services not available at its own facilities.

A National Mental Health Committee was set up in early 2002. Between 2000 and 2002, a new organizational framework for the creation and implementation of community-based mental health programs and interventions was developed.

In 2003, the National Family Islands Dental Prevention Program was initiated; several dental professionals travel to the Family Islands to provide primary, secondary, and tertiary dental treatment, including dental prosthesis. A National Dental Sealant Program was initiated that same year and incorporated into the National Family Islands Dental Prevention Program.

A Neurodevelopment Clinic was established in 2001 to screen at-risk children between the ages of 6 weeks and 5 years for neurodevelopment disorders. During the 2001–2005 reporting period, the Department of Social Services spearheaded a basic training program for caregivers at the continuing education and extension services of the College of the Bahamas. A revised Parentcraft Education Program was launched in 2003 to prepare expectant couples for the birthing process and teach basic techniques in baby care and breast-feeding.

Health Promotion

The revised NHSSP 2003–2004 identifies health promotion as a strategy leading to the establishment of healthy public policy and healthy individual behaviors. The strategy's expected results include supporting national health programs, strengthening communications strategies, formulating healthy public policies, improving intersectoral collaboration, and capacity-building.

In 2005, the National Health Promotion Three-Year Plan of Action was completed and the Ministry of Health's Health Education Division is now a line item in the Ministry's budget. All staff members of the Division have participated in at least one relevant continuing education health promotion activity. A career path for new and existing posts for the Health Education Division was prepared.

Human Resources

The shortage of nurses in the public sector and the need for recruitment and retention were major issues of concern during the 2001–2005 period. In 2002, the Ministry of Health adopted a three-pronged incentive-based approach: sponsorships and stipends for nursing students were increased, opportunities for continuing education were promoted, and special focus was placed on encouraging high school students to choose nursing as a career. A Nursing Task Force was established which led to the development of a more comprehensive Strategic Plan for Nursing in the Bahamas. During the period 2001–2003, 66 students trained as registered nurses. Training was provided in dialysis

nursing and psychiatric nursing to further meet the growing demand in these specialty areas. Post-graduate medical training has been established in the Bahamas in collaboration with the University of the West Indies in the disciplines of family medicine, obstetrics, gynecology, and internal medicine.

Table 1 shows the total number and ratio per 10,000 population of health professionals by category employed in the Bahamas for the 2002–2003 period.

Health Supplies

The Ministry of Health holds responsibility for the regulation and control of pharmaceutical services. The BLCS 2001 reported that respondents who were outpatients tended to buy their medicines from both public and private facilities. When expenditures at both types of facilities were combined, results showed that, on average, females spent more on medications than males.

Vaccines, needles, and syringes for the public sector are procured by the government through the PAHO Revolving Fund for Vaccine Procurement. The Bahamas National Drug Agency is responsible for the registration of pharmaceutical distributors and the drugs these companies distribute. There is no registration system for individual pharmaceutical drugs. Effective cold chain practices are in place to ensure the viability of vaccines until they are dispatched to health centers and clinics. The national drug formulary consists of approximately 600 pharmaceutical products.

Research and Technological Development in Health

High technology units and equipment were concentrated on New Providence, at both public and private facilities. There were two dialysis units, one located at Princess Margaret Hospital and the other at Rand Memorial Hospital. There were two intensive care units on New Providence and one on Grand Bahama. There were two neonatal intensive care units, both located on New Paradise; one is at Princess Margaret Hospital and the other at Doctors Hospital.

Research activities carried out during the period 2001–2003 included the design of a questionnaire on the health section for the BLCS 2001 and conducting a drug survey of secondary schools in 2002. The Ministry of Health's Family Planning Unit collaborated with the Department of Statistics of the Ministry of Finance to include key questions in the BLCS 2001 reflecting knowledge, attitudes, and practices regarding family planning.

In 2005 the Ministry of Health also completed the Chronic Noncommunicable Diseases Prevalence and Risk Factors Survey.

Health Sector Expenditure and Financing

Health care is financed by the government, private health insurance, users' fees at both public and private facilities, social

TABLE 1. Number and ratio of health personnel, Bahamas, 2002–2003.

Category	Total number	Ratio per 10,000 population
Physicians	523	16.8
Dentists	79	2.5
Hospital administrators	35	1.1
Professional social workers	128	4.0
Nutritionists/dietitians (registered)	15	0.5
Nurses/nurse practitioners	840	26.9
Enrolled nurses/trained clinical nurses	508	16.3
Radiographers	43	1.4
Laboratory technologists/technicians	119	3.8
Pharmacists/dispensers	133	4.2
Pharmacy technicians	7	0.2
Physiotherapists	30	0.9
Occupational therapists	8	1.0
Dental assistants	131	4.0
Public/environmental health inspectors	72	2.0
Statisticians	4	0.1

Source: Annual Report of the Chief Medical Officer.

health insurance (the industrial injury component), and external sources. The total recurrent health expenditure for the 2001–2002 fiscal year was US\$ 148,271,603. The 2002–2003 estimated expenditure was US\$ 155,261,671. Health expenditure, as a proportion of the total actual recurrent expenditure, was 15% in 2002–2003. In fiscal year 2001–2002, about 69% of the health budget was apportioned to the delivery of health care, with institutions receiving the majority of the share. In the 2003–2004 fiscal year, the distribution of expenditure between the different divisions of the Ministry of Health showed that 65% went to all areas of the Public Hospitals Authority, 18% to the Department of Environmental Health Services, 10% to the Department of Public Health, and 7% to the Ministry of Health headquarters. In 2001, private insurance spent about US\$ 102 million, and total per capita out-of-pocket expenditure in 2000 was US\$ 309.

Technical Cooperation and External Financing

The agencies providing technical cooperation and direct financing for health projects include PAHO/WHO (the only United Nations agency with a resident representative in the Bahamas), Food and Agriculture Organization, Inter-American Institute for Cooperation on Agriculture, Inter-American Development Bank, Organization of American States, United Nations Development Program, Joint United Nations Program on HIV/AIDS, the European Commission Humanitarian Aid Office, the Clinton Foundation, the Government of Cuba, University of Toronto's Hospital for Sick Children, McGill University, the University of South Florida,

and the U.S. Embassy. In the Caribbean subregion, support was received from CARICOM, the Pan Caribbean Partnership against HIV/AIDS (PANCAP), and the Caribbean Disaster Emergency Response Agency (CDERA).

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