
JAMAICA

GENERAL SITUATION AND TRENDS

Socioeconomic, Political, and Demographic Overview

The island of Jamaica covers an area of 10,991 km² and lies about 885 kms south of Miami (United States of America) and 145 kms south of Cuba. It is the largest of the English-speaking Commonwealth Caribbean Islands, and the third-largest island in the region. The island is divided into 14 parishes and there are two major urban centers—Kingston on the southeast coast and Montego Bay on the northwest coast.

An independent state in the Commonwealth of Nations since 1962, Jamaica is governed by a parliamentary democracy based on the Westminster/Whitehall model. Parliament consists of a governor-general who represents the Queen, and a bicameral legislature. The Cabinet of Ministers forms the executive arm of government, which is headed by a Prime Minister.

Traditionally, Jamaica's economy has been based on agriculture, with sugar, bananas, and citrus the leading exports. During the 1960s, bauxite mining increased in importance as a source of foreign exchange, surpassing the agricultural sector. With the decline in aluminum prices worldwide beginning in the 1980s, tourism has replaced the bauxite industry as the leading hard currency earner. Gross foreign exchange earnings from the tourism sector in 1995 were an estimated US\$ 965 million, a 5% increase relative to 1994.

In 1995, the balance of payments account showed a surplus of US\$ 21.8 million, but the current balance of payments account shows a deficit of US\$ 224 million. Fluctuations in the exchange rate have resulted in a value of US\$ 1.00 to J\$ 39.80 in 1995, dropping to J\$ 34.70 in 1997. Consumer prices rose by 25.5% at the end of 1995. Wage increase demands were a contributing factor.

Special measures were introduced in 1995 in an attempt to control the fluctuation of the dollar and to slow inflation. These measures included an increase in treasury bill rates; further fiscal tightening to yield a public sector surplus of 3% of GDP; sale of foreign exchange by the Bank of Jamaica to the

banking system; and implementation of a special deposit scheme for liquidity management purposes.

At the end of 1996, Jamaica's population was 2,527,600. The growth rate is estimated at 1.0, slightly lower than the previous year's rate of 1.2. Life expectancy at birth was 73.6 years—69.6 years for males and 72.9 years for females in 1990. Males represent 49.7 % of the population and females 50.3%. The proportion of the population under age 15 declined from 38.4% in 1982 to 34.3% in 1991.

Infant mortality rates have shown marked improvement over the last seven years, declining from 29.8 deaths per 1,000 live births in 1990 to 23.8 in 1996. The maternal mortality rate was 10.2 per 10,000 women in 1994. The crude birth rate was 22.8, while the crude death rate was 5.9 per 1,000 population. The dependency ratio in 1995 was 722 per 1,000 persons, slightly higher than in 1994 when it was 719. The 1995 contraceptive prevalence rate was 64, and the total fertility rate stood at three children per woman. The 1993 contraceptive prevalence survey of women in the 15–44-year age group demonstrated that fertility was highest among 15–29-year-olds.

The current leading causes of death are chronic noncommunicable diseases. Malignant neoplasms, heart disease, cerebrovascular disease, and diabetes were the leading causes of death in 1991. The crude death rate has shown marked reduction from 8.9 per 1,000 population in 1960 to 5.4 in 1992. The death rate per 100 hospital discharges in 1995 was 4.37.

The number of immigrant visas issued to Jamaicans destined for the United States in 1995 was 14,239, compared with 10,681 in 1994. A total of 3,577 persons emigrated to Canada in 1995, compared with 3,731 in 1994. The United Kingdom issued entry certificates to 242 Jamaicans in 1995, compared with 334 in 1994.

Data for 1996 suggest that in the last three years there has been a significant increase in the number of persons who had migrated from agrarian areas in western Jamaica to urban centers and who are now returning to their "rural roots." This "reverse migration" may be linked to the continuous rise in violence and the cost of living in urban centers.

The poverty severity index rose from 3.9 in 1989 to 4.4 in 1992, having peaked at 6.6 in 1991. In addition, 22% of those employed fell below the poverty line in 1993. Poverty can no longer be associated exclusively with unemployment. A new category—the working poor—has emerged. There was actually a downward trend in unemployment over the 1991–1994 period. Unemployment in this period remained steady at 9.4%–9.5% for males, but fell slightly from 22.8% to 21.8% for females. Despite lower unemployment levels, it was estimated that in 1993 28.2% of the population was living in poverty, up from 27.6% in 1989. From all unofficial indicators, it is likely that in 1994 the number further increased substantially.

Unemployment among 15–29-year-olds ranged from 20% to 31% nationwide. In Kingston, the rate was 25.8%, closely approximating the national average for population in this age group. With respect to education, 1996 data show a national average of 31% of 15–29-year-olds with a primary education; in Kingston the value was only 17.2% for this age group.

The 1994 Jamaica Survey of Living Conditions reported a 10.6% decrease in mean (and real) per capita consumption over the 1990–1993 period. The declines were 14.4% in the Kingston metropolitan area and 16% in other towns.

The Government of Jamaica has clearly stated its intention to eradicate poverty and has conducted poverty alleviation projects. Projects addressing health problems have been mainly in the area of nutrition and the environment. In 1995, approximately 40,000 individuals were targeted for nutrition assistance. Environmental projects in east-central and south St. Andrew aim to improve the health status of these inner city communities. Toilets have been built and repaired, and water pipes installed and rehabilitated in these communities.

The parishes with large urban centers, including Kingston/St. Andrew, St. Catherine (Portmore and Spanish Town), and St. James (Montego Bay) ranked better than the national average on all indicators. In St. Andrew, approximately 70% of households enjoy piped water supply, while 40% of households lack their own sanitary facilities. In Kingston, however, approximately half of households lack piped water and 60% lack their own sanitary facilities, an extremely high figure for the country's major urban center. According to the Planning and Evaluation Unit of the Ministry of Health, 84% of all Jamaicans have access to potable water.

SPECIFIC HEALTH PROBLEMS

Analysis by Population Group

Health of Children and Adolescents

According to the Economic and Social Survey, at the end of 1995 the prevalence of malnutrition in the 0–35-month-old

population was 5.64%, with 5.22% moderately malnourished, and 0.42% severely malnourished. This is a slight improvement over 1994. The supplementary feeding program, which distributes locally manufactured, high-energy supplements to malnourished children through clinics, has improved the effectiveness of the nutrition intervention process by increasing the rate of weight gain and shortening the period for complete rehabilitation of malnourished children.

In 1991, there were 2,317 hospital discharges diagnosed with perinatal complications, representing 2.1% of all discharges and 9.5 per 10,000 population. Perinatal conditions accounted for 44% of all years of life lost due to premature mortality in the age group under 5 years old, and 36% of all disability adjusted life years in young children. Efforts of the Diarrheal Diseases Program have effectively maintained the case fatality and mortality rates from diarrhea in children at less than 1%. Congenital abnormalities rank second to perinatal conditions for infant mortality. The main factors that affect infant survival in the neonatal period (up to 28 days) are birth weight and the quality of prenatal and perinatal care.

An average of 51.7% of infants seen at postnatal clinics island-wide were reported to be fully breast-fed at the end of 1995. This is the same as in 1994, despite accelerated promotion of breast-feeding.

The main causes for hospitalization of infants under 1 year old in 1991 were conditions related to the perinatal period and gastroenteritis (e.g., diarrhea), followed by respiratory illnesses. Hospitalization due to respiratory illnesses ranked first for children 1–4 years old, followed by injuries and poisonings, and gastroenteritis. In 1991, among children under 1 year old, perinatal conditions accounted for 33% of discharges from public hospitals; pneumonia, bronchitis, emphysema, and asthma accounted for 10%; other diseases of the respiratory system, 8%; injuries and poisoning, 4%; gastroenteritis, 13%; and all other conditions, 32%.

Over the past five years, immunization coverage of children under 1 year old has increased steadily. Universal coverage has been achieved for BCG and over 90% has been achieved for polio (OPV), diphtheria, pertussis, and tetanus (DPT).

All parishes have achieved over 80% immunization coverage, except in the case of measles. In 1995, special surveillance activities for measles were conducted and a measles vaccination campaign aimed at children between 1 and 10 years old was undertaken. Certain logistical problems, including an inadequate number of health care personnel, supplies, equipment, and transportation have affected the immunization programs.

Poisoning, accidents, and violence are the leading cause of morbidity and mortality among children 5–14 years old, as reflected in discharge reports from public hospitals. The Peace and Love Program commenced in 1994 in primary schools to train teachers and students in conflict resolution

skills and to promote nonviolence in schools and the wider community.

Also prevalent among the 5–14-year-old age group are diseases of the respiratory system including influenza, pneumonia, bronchitis, emphysema, and asthma; intestinal infections; and diseases preventable by immunization. Other areas of concern are anemia and malnutrition. According to the Survey of Living Conditions, in 1994, 16% of the 10–14-year-old age group of adolescents surveyed were anemic, with hemoglobin levels below the accepted standard of 12 g/dl for males and 15 g/dl for females.

Injuries and poisoning were responsible for 34.6% discharges from public hospitals in the 5–14-year-old age group; pneumonia, bronchitis, emphysema, and asthma accounted for 8.5%; appendicitis and hernia accounted for 3.8%; genitourinary disorders were responsible for 4.8%; complications of pregnancy, 4.1%; and all other conditions, 42.4%.

A survey on smoking published by the Medical Association of Jamaica in 1994 showed that 20% of male smokers surveyed in 1993 first started smoking under the age of 15 years.

Teenage births as a percentage of total births have decreased from 31% in 1977 to 23.7% in 1992. In 1993, 2.5% of women between 10 and 14 years old had their first birth. Results of the Jamaica Contraceptive Prevalence Survey show that the age-specific fertility rate in 1993 for 15–19-year-olds was 108 per 1,000 women. In the 20–24-year age group, this rate was 160 per 1,000 women in 1993, a decline of 1.8 compared with 1987.

Within the adolescent population of 268,530, there were 25 cases of syphilis, 195 cases of gonorrhoea, and 229 nongonococcal infections. In the 10–19-year age group, 10 males and 14 females were infected with AIDS.

Health of Women

Abortion is one of the most important causes of maternal mortality in Jamaica caused by infections and complications from procedures performed under unsanitary conditions by untrained personnel. More adequate conditions with less risk of complications are the norm for upper-class women who choose to terminate their pregnancies.

There was a slight reduction in the average number of visits to health centers for prenatal care in 1994 compared with 1993. In 1994, there were 3.9 visits per pregnancy, and in 1993, 4.0 visits. First visits as a percentage of estimated births were 73.6% in 1994 compared with 72.4% in 1993. The percentage of women receiving care before the 16th week of pregnancy is approximately 68.2%. During the postnatal period, 74.4% of mothers and 75.6% of babies received care at health centers. Of the mothers visiting health centers in this period, 51.2% fully breast-fed, and 61.2% accepted family planning.

Over 80% of deliveries take place at Victoria Jubilee Hospital, the main public maternity hospital serving the Kingston/St. Andrew metropolitan area. Service is inadequate due to a shortage of personnel and beds. For example, two night nurses are often responsible for nine labor and delivery stations. The “baby friendly hospital” project carried out renovation at the hospital in 1994 and 1995 under the Debt Relief for Children Initiative, a collaboration between the Government of the Kingdom of the Netherlands and UNICEF.

Studies show that in 1994–1995, most rural parishes recorded increases in the percentage of postnatal family planning acceptors, while larger urban areas such as Kingston/St. Andrew and St. James showed no significant increase. Questions arise as to whether urban parishes are more resistant to family planning, or the women prefer to seek contraceptives at private centers.

Total new family planning acceptors as a percentage of women 15–49 years old increased slightly in 1994 to 7.5%, from 6.5% in 1993. In 1995, 40,000 clients were recruited into the Government’s Family Planning Program. This was 21% below the 51,000 target. The pill remained the dominant choice with an acceptance rate of 47.8%; 28.8% chose the condom; 21.7% of clients opted for the Depo Provera Injection. Family planning visits increased marginally from 51,866 visits in 1994 to 55,918 in 1995. Tubal ligations were introduced in all hospitals by 1994 and were performed at two family planning clinics and one type-5 health center. A total of 3,830 women were ligated in 1994, compared with 3,475 in 1993. Vasectomy is not a widely used form of family planning, and no Jamaican men were reported to have been sterilized in 1993.

The five leading diagnoses for females discharged from hospital were complications of pregnancy 29,147 (33%); normal delivery 28,336 (32%); injuries and poisoning 3,958 (4.5%); genito-urinary disorders 3,716 (4.2%); and cardiovascular diseases 3,457 (3.9%). Normal delivery represented the shortest length of hospital stay (a mean of 2 days). Complications of pregnancy was the condition representing the most days of care (96,185 days).

Health of the Elderly

In 1995, there were 110,430 males and 130,020 females in Jamaica in the 60 years and older group, representing 9.42% of the population. This age group is affected mainly by chronic noncommunicable diseases. Cardiovascular diseases followed by diabetes and neoplasms were the diseases for which persons over 65 years old were most often hospitalized in 1991. Genitourinary disorders, injuries, and poisonings were also of significance. The 1994 Jamaica Survey of Living Conditions indicates that persons over 60 years old exhibited the highest prevalence of protracted illness. Additionally, 81.5% of the ill

or injured sought medical care from private institutions. Females were more likely than males to seek medical care.

A study done of the elderly in August Town, Kingston, determined that their major health problems were hypertensive diseases, diabetes, arthritis, and heart disease. A larger number of obese people complained of arthritis than those who were normal or overweight. A history of heart disease was also more prevalent in obese persons.

The Golden Age Home in Kingston accepted 489 residents in 1995, 250 of whom were males. The Home provides meals and accommodation; medical, dental and nursing care; and occupational and recreational activities. Similar facilities provide long-term geriatric care in rural parishes.

The National Council for the Aged operates island-wide. In 1995, its main activities included: advocacy and policy formulation; initiation and monitoring of over 100 Golden Age Clubs that carry out income-generating projects for the elderly; caring and community projects; oversight of senior citizen day-activity centers and feeding programs; training and education; and referral and other services. Other social services include concessionary rates for the elderly on public transportation.

Since 1977, the Government has made drugs for chronic diseases available at lower cost for the elderly. Many pharmacies also discount drug prices for senior citizens.

Family Health

According to the 1993 Jamaica Survey of Living Conditions, over 45.5% of Jamaican households are single-parent families headed by women. Many of these families are included in the 21.2% of households that are below the poverty line. The Government has instituted food aid and other projects to assist these families.

The food aid program is designed to supplement the food intake of persons at risk of becoming malnourished and others who have little or no visible income. Beneficiaries are school-aged children, lactating mothers, and children 0–6 years of age whose nutritional levels need to be improved. In 1995, 3,000 malnourished children between 4 and 59 months old benefited from locally manufactured, high-energy supplements distributed through nutrition clinics. A feeding program in schools assisted 315,518 students in 1995. Students were provided with at least one meal per day in early childhood, primary, and secondary public institutions to encourage regular school attendance. In 1995, there were 270,000 persons on the Food Stamp list. This figure represented 78.1% of the overall target of 350,000, a reduction from 86.6% of the 320,000 targeted in 1994.

Children in need of care and protection are the responsibility of the Children's Services Division of the Ministry of Health.

The Adoption Board granted eight adoption orders in 1995. Other services to assist families include the Family Court System, which provides judicial and social services, and the Women's Center, which provides continuing education for mothers 16 years and under.

Workers' Health

The importance of workers' health is gaining momentum in Jamaica as a priority for the Government. An example of concerns in this area is the failure to wear protective gear in some emergency establishments, which poses health risks. In 1994, of 100 employees in such organizations visited by public health inspectors, only 16% used protective equipment. In the garment industry, out of a working population of 506 females and 61 males, only 3.5% were seen by public health inspectors to be wearing protective equipment.

A preliminary report from a 1994 study conducted by the Statistical Institute of Jamaica in collaboration with UNICEF revealed that 4.6% of children between 6 and 16 years old were employed, mostly in the informal sector, despite legislation prohibiting employment of children under the age of 12. There is a great deal of overlap in the phenomena of out-of-school youths, working children, and street children. Many from these groups sleep on the street and are exposed to the elements, physical violence, and sexual abuse. Maintaining hygiene is a problem for these children; they are generally malnourished and tend to share health related problems. They are often exploited by peers and adults because they lack the physical strength to resist.

Efforts to address the problem include work done by the Save the Children Fund (United Kingdom), which has assisted in integrating 500 street and working children into the formal school system in Spanish Town and Montego Bay. Other projects provide cooked meals and remedial education.

Informal commercial workers (called "higglers") sell goods that are generally purchased overseas. There is concern that these workers are at risk of STDs and AIDS due to the nature of their work, which involves international travel and absence from home. HIV prevalence among commercial sex workers in Kingston in 1995 stood at 11%. According to the Epidemiology Unit of the Ministry of Health, the HIV prevalence rate in migrant farm workers has remained stable at 0.1%.

Health of the Disabled

The Jamaica Council for the Disabled is responsible for administering the Government's rehabilitation program for persons with disabilities. Its responsibilities include national registration of the disabled; securing benefits and concessions

for the disabled; assessment, guidance, and placement of persons in need of skills training and employment; providing accommodation and support for clients receiving vocational training; providing support for self-help projects; and catering to disabled 0–6-year-old children.

The Abilities Foundation provides training and education for disabled young adults aged 18–25. Other programs for the disabled include the National Vocational Rehabilitation Service and Early Stimulation Project, which focuses on children 0–6 years old. In 1995, 296 disabled children attended a special program addressing their needs.

Analysis by Type of Disease or Health Impairment

Communicable Diseases

Vector-Borne Diseases. A dengue fever outbreak in 1995 resulted in 1,884 suspected cases. This included 108 cases of dengue hemorrhagic fever, 3 cases of dengue shock syndrome, and 4 deaths. There were 5 reported cases of malaria in 1995 and 14 reported cases in 1996, all imported.

Vaccine-Preventable Diseases. Immunization coverage levels are about 90% for DPT, polio, and tuberculosis. Measles immunization coverage is about 77% for children under 23 months. With the exception of measles, the incidence of these diseases is very low. Between March and May 1995, there was an outbreak of rubella in the parishes of St. Elizabeth, Portland, and Kingston/St. Andrew. These parishes accounted for 65% of rubella cases reported in 1995. Five other parishes had confirmed isolated cases of rubella during the second and third quarters of the year. Of the rubella cases reported, 62% were in females.

Cholera and Other Intestinal Diseases. There have been no cholera outbreaks in Jamaica, but given the presence of the disease in South and Central America, gastroenteritis is monitored as an indicator of potential problems. Gastroenteritis increased in 1995 compared with the previous two years. It appears to be largely a seasonal problem, occurring between October and March. The main etiological factor is the rotavirus.

There were 27 cases of typhoid fever in 1995, a slight increase over 1994. The reported incidence over the past 20 years suggests a gradual decline in the endemic level of the disease, with periodic outbreaks.

Foodborne illnesses are grossly underreported and pose a problem with regard to investigations and confirmation of epidemiological information. The resulting lack of information in this area has hindered the creation of long-term control measures to address problems of specific food vehicles

and to improve food-handling techniques. Training is being conducted in the proper handling and preparation of food.

Chronic Communicable Diseases. While chronic communicable diseases in general are on the increase in the Americas, rates for many diseases have remained relatively low and stable in Jamaica. The island has a surveillance system network consisting of 44 sentinel sites and 22 hospital active sites. These sites include type-3 health centers as well as public and private hospitals island-wide. Efforts are being made to strengthen the surveillance system by including private practitioners, particularly pediatricians.

Reported cases of tuberculosis have been steady over the first half of the decade. There were 109 confirmed cases in 1994; 97% were new cases and 3% were relapsed cases. Confirmed cases of tuberculosis peaked at 121 in 1996, the highest since 1991. Of this number, five were reactivated cases, indicating that 96% of the cases were due to active transmission. Twelve (10%) were co-infected with HIV and accounted for 50% of the 14 deaths. The parishes of residence of those infected include Kingston/St. Andrew, St. Catherine, and St. Ann.

Hansen's disease (leprosy) has seen a decrease and strategies are being put in place to achieve the goal of eradication. Tuberculosis has remained almost constant at a relatively low level for the population. However, there is concern about the coinfection of HIV and tuberculosis and plans are afoot to address this in view of the worldwide trend.

Acute Respiratory Infections. Respiratory infections were second among the 10 leading causes of visits to health centers (89,733) in 1996. Pneumonia, bronchitis, emphysema, and asthma were the fourth major cause of hospitalization in 1994, with the exclusion of obstetric conditions. Asthma is becoming the major cause of illness prompting visits to emergency departments of public hospitals (28,178 cases in 1996). The most commonly affected are children in the under-5 age group. Increased environmental pollution could be a major contributor to this situation. The usual trend of increased influenza activity during the last quarter of the year was supported by anecdotal reports.

Rabies and Other Zoonoses. Epidemiological data showed that leptospirosis is a serious health problem, both in the human and animal population. A research protocol was developed in 1994 for an epidemiological retrospective assessment of the leptospirosis situation. The study is still pending. Jamaica maintains its rabies-free status.

During the 1991–1995 period, technical cooperation concentrated in supporting epidemiological surveys to assess the condition of cattle herds. Jamaica could be considered free of both bovine brucellosis and tuberculosis, and a proposal for official certification of this status was prepared at the end of

1995. Certification would have a positive impact on public health and contribute to Jamaica's economy by benefiting the beef trade.

AIDS and Other Sexually Transmitted Diseases. In 1995, there were 505 cases of AIDS reported to the Ministry of Health Epidemiology Unit in 320 males and 185 females, a 41% increase over 1994. Between 1982 (when the first AIDS case was reported) and December 1995, there have been 1,533 reported AIDS cases, representing a doubling of cases every two years. Of the total, 62.3% are males and 37.7% females. The adult male-female ratio is 1.7:1 and indicates a predominately heterosexual transmission. More women of childbearing age are affected. There is a doubling of cases every two years. Transmission categories are ranked heterosexual, homosexual/bisexual, and mother to child. There is an increase in the number of HIV positives in the prenatal clinic population, and criteria for testing prenatal clinic clients will be developed. There have been 907 AIDS-related deaths, a mortality rate of 59.2%. The total number of pediatric cases is 108. There were 73 pediatric deaths, a pediatric AIDS mortality rate of 67.6%. The adult mortality rate is 58.5%.

All parishes were affected by the epidemic: St. James had the highest case rate (155/100,000 population) and Clarendon the lowest (12/100,000).

HIV prevalence among United States visa applicants, blood donors, migrant farmers, and insurance company clients has remained between the ranges 0.5/1000 and 4/1000. However, an increase in the rate among food handlers has been observed. While HIV prevalence in female commercial sex workers in Kingston has remained the same during the past five years (11%–12%), screening has shown a seroprevalence of 22% among this group in St. James. The intervention among sex workers in Kingston had positive impacts, and a similar intervention program has begun in St. James. That 31% of the 64 HIV-positive sex workers in St. James are cocaine addicts poses a serious problem, since this population has been found most resistant to condom use.

The incidence of STDs remains high and continues to be a major concern. In the public health services, cases of chlamydia, syphilis, gonorrhea, and nongonococcal urethritis remain high, as do cases of congenital syphilis and ophthalmia neonatorum. There are also increasingly high levels of gonococcal resistance to penicillin and tetracycline, signifying the need for the use of more expensive drug therapy.

Studies in Jamaica support international research on the contribution of STDs to increased spread of HIV. It has been shown that genital ulcer disease and the inflammatory STDs (gonorrhea and chlamydia) facilitate transmission of HIV infection. Of concern, therefore, are the large numbers of genital ulcers and inflammatory STDs being seen at the Comprehensive Clinic in Kingston. After conducting a study at this clinic,

STD syndromic reporting was introduced in 1995 with respect to urethral and vaginal discharges. A treatment algorithm was developed to treat these discharges.

Noncommunicable Diseases and Other Health-Related Problems

Nutritional Diseases. The results of relatively recent surveys among children under 5 years of age provide some notion as to changes in prevalence of malnutrition over time. The data indicate that the proportion of children under 5 who are mildly, severely, or moderately low weight-for-age declined over the period 1970 to 1985. Mildly malnourished children moved from 39.0% to 31.9%, while moderately and severely malnourished declined from 10.8% to 8%. These surveys found that the weaning period of 6 to 11 months was the peak period for wasting, lowest in the age group 48 to 59 months. Stunting increased with age, implying that suboptimal intakes continued after weaning. In comparison, the 1989–1993 Jamaica Survey of Living Conditions data suggest a prevalence rate of 6.5 to 9.9% for moderately and severely malnourished children. In 1993, 9.9% of all children aged 0–59 months had low weight-for-age, 6.3% were stunted, and 3.5% were wasted. Recorded low weight-for-age wasting and stunting increased in 1993. All survey data sets highlighted the fact that rural areas show a higher prevalence of malnutrition than urban areas.

Since 1980, the Ministry of Health has had data supplied from the Monthly Clinic Summary Report Systems. Data for 1984–1987 indicate an average of 4.1% of clinic clients aged 0–35 months were classified as moderately to severely malnourished. In 1988, the Ministry of Health adopted the WHO classification, and data for 1989–1994 indicate that the percentage of children assessed as being moderately and severely malnourished averaged approximately 8.4% over the period. The clinic population is a self-selected one and does not necessarily indicate the actual prevalence of malnutrition island-wide.

Malnutrition in Jamaica occurs most frequently in households of the unemployed, among subsistence farmers in rural areas, in the lowest income urban areas, in large families with no paternal support, and among very young mothers.

Iron deficiency anemia is prevalent among pregnant and lactating women and young children. Ministry of Health clinic data for 1984–1991 indicate that, on average, some 28.9% of pregnant women tested were diagnosed as anemic. The 1985 National Health Survey estimated that 25% of children under age 5 years were anemic, with the peak incidence being in the age group 6–11 months old.

While malnutrition in Jamaica has been relatively low and is no longer a major cause of death, there are localized areas with more severe levels of malnutrition. Increased surveil-

lance at the community level and regular monitoring of the population in these areas are needed to analyze the contributory factors and design appropriate targeted interventions.

Chronic Noncommunicable Diseases. The leading causes of mortality and morbidity in Jamaica are chronic noncommunicable diseases. Their ranking varies depending on the indicator used. In general, the ranking is as follows: cardiovascular disease, neuro-psychiatric conditions, cancers, diabetes, and nutritional disorders.

Chronic noncommunicable diseases represent a substantial portion of the illness burden. Hypertension and diabetes (123,090 and 50,783 visits, respectively) made up two of the five major causes of ambulatory visits in health centers in 1996. In 1994, cardiovascular disease, diabetes mellitus, and neoplasms were among the five first-listed causes of hospitalization. In 1990, cardiovascular disease accounted for 30% of all noncommunicable diseases.

Cancers accounted for 15% of noncommunicable diseases and 9% of total disease burden in 1990. Cancers of the breast and cervix are the most common neoplasms in women, with rates in 1991 of 22.6 and 19.2 per 1,000 population, respectively. Prostate cancer is the number one form of cancer found in men. The rate in 1991 was 28.2 and reflects a growing trend.

The crude death rate has shown marked reduction from 8.9 per 1,000 population in 1960 to 5.4 in 1992. It remained the same in 1994. The leading causes of death are now due to chronic noncommunicable diseases, a change from the 1950s when the leading causes were primarily infectious diseases. The leading causes of death in the general population for 1990 were heart diseases (114.0/100,000 population), malignant neoplasms (82.2), cerebrovascular diseases (80.1), diabetes (51.0), and diseases of the respiratory system (30.1).

Morbidity information is based on hospital utilization by diagnosis in government institutions. For 1991, the six top conditions for hospitalization were complications of pregnancy, normal delivery, genitourinary disorders, injuries and poisonings, cardiovascular diseases, and neoplasms, with diabetes mellitus ranking 10th. In 1993, the top six conditions were complications of pregnancy, normal delivery, injuries and poisoning, cardiovascular diseases, genitourinary disorders, and pneumonia, bronchitis, emphysema, and asthma.

Injuries and poisoning were the leading diagnoses (representing 14.9% of all diagnoses), according to the number of days of care provided. An estimated 124,648 days of care were provided with an average length of stay of 9.3 days. More than 70% of the cases hospitalized were male. An examination of the geographical distribution shows that the incidence of these cases is predominantly an urban phenomenon linked to poverty and other socioeconomic variables. These factors raise serious concerns regarding the use

of health care resources for conditions that are clearly preventable.

Cardiovascular diseases and diabetes mellitus predominate at both the hospitals and health centers; 8% of all discharges from hospitals and 14.3% of all clinic visits are due to cardiovascular diseases. Diabetes mellitus has the longest average length of hospital stay (15.0 days) and accounts for 5.9% of all clinic visits. An island-wide survey done in 1993 showed that the prevalence for diabetes is 17.9% and for hypertension is 21.1% (systolic reading only).

The area of chronic noncommunicable diseases is receiving greater attention, but needs to be organized as a program so that the problem can be better defined, prevention and control strategies can be established, and resources can be effectively allocated.

Accidents and Violence. Accidents and trauma are among the five leading causes of hospitalization, estimated to represent about 20% of hospital admissions and 33% of expenditures. In 1994, violence and accidents accounted for 12% of hospital discharges. Of trauma cases treated in hospitals, 48% are attributable to motor vehicle accidents; burns represent about 28%; and acts of violence, 20%. During 1996, there were 3,286 stab wounds and 1,156 gunshot wounds; the number of cases of burns by fire, chemical, or other causes totaled 1,333; there were 749 cases of poisoning. Road traffic accidents gave rise to 8,655 cases that were treated in hospital.

Violence constitutes a growing public health problem as demonstrated by the alarming increase in the rate of mortality, morbidity, and disability in the society. The overwhelming loss of potential years of life and its psychological effects on the population also are problems. The Ministry of Health has examined the cases of trauma due to accidents and violence in Jamaica in order to facilitate programs for the prevention of accidents, the prevention and control of violence, and the promotion of peaceful coexistence in which health related activities are emphasized.

Parishes with the highest level of population density had the largest number of traumas associated with violence. In 1994, Kingston/St. Andrew had 718 stab wounds and 404 gunshot wounds, while St. Catherine had 490 and 126 cases, respectively.

In 1994, the varying types of trauma that required emergency care in public sector casualty departments affected all age groups. The 16–44-year age groups (5,012) and the 5–15-year-olds (1,051) comprised the highest number of victims. The number of children under 5 years old that were victims of trauma (847) is of concern, especially trauma due to burns (499), motor vehicle accidents, and poisoning. There is a need for education about safety in the home and road safety programs that make the use of seat belts and crash helmets mandatory.

While there has been a decrease in motor vehicle accidents, they still are an area of major concern. It is estimated that for every motor fatality there are an average of nine injuries, three of them requiring major medical treatment. A Government-sponsored road safety report in 1993 ranked Jamaica as having the third and fourth highest rates for motor vehicle fatalities per number of cars and population size, respectively. Traffic accidents also are highly localized, occurring mostly in the Kingston/St. Andrew and St. Catherine areas. Most deaths involve pedestrians, the elderly, and children. Unsafe driving habits and unfit vehicles are the major causes of vehicular accidents.

Behavioral Disorders. Mental health visits account for 2% of total public health center visits, up from 1.4% in 1989. Of the 7,067 patients seen by the Community Mental Health Services, the most common diagnoses were schizophrenia (49.6%), depression (19.6%), substance abuse (9.6%), neurosis (7.0%), and organic psychosis (4.7%).

The Ministry of Health has recognized the need for community mental health services and for more information on the nature and extent of the problem. Mental health services are not integrated into general services, which contributes to an ineffective use of resources and poor patient management. Services are limited in range and are short of trained personnel to support patient rehabilitation. Finally, mental illnesses require health promotion approaches that can destigmatize and increase public awareness about the disease. A Mental Health Act designed to direct greater resources to this area is planned for 1997.

Oral Health. A successful program in salt fluoridation has been in operation since September 1987. This is evident by the decrease from 6.7% in 1984 to 1.08% in 1995 in decayed, missing, and filled teeth (DMFT) in children 12 years of age. A 1995 study showed that 63% of the sample needed no dental care, and the degree of fluorosis was negligible (0.4%). The overall dental status of the Jamaican population has improved considerably, based on the decline in extractions performed.

The Ministry of Health's Dental Health Program targets children under age 16 for comprehensive care. In 1996, there were 189,290 dental visits and 71,888 preventive procedures performed. In addition, emergency and palliative care was provided for adults. The private sector helped considerably to meet the increasing demand for prophylactic, orthodontic, restorative, and other specialty services. The ratio of dentists to population (public and private) was approximately 1:12,000 in 1996.

Natural Disasters. The last natural disasters of major significance were Hurricane Gilbert in 1988 and a 1993 earthquake that registered about 8 on the Richter Scale.

Flooding is a recurrent problem during the rainy season, causing problems with transportation, housing, and water supplies.

The Ministry of Health and the Office of Disaster Preparedness share disaster and emergency response and mitigation activities with support from the Jamaica Defense Force. The Ministry of Health is responsible for emergency medical services and the Office of Disaster Preparedness is responsible for other aspects of emergency preparedness and disaster response. Nongovernmental and voluntary organizations involved in disaster response include the Jamaica Red Cross and the Adventist Disaster Relief Agency. The Government of Jamaica has a well-organized disaster response program and the capacity to assist other countries in the northern Caribbean when they are affected by disasters.

RESPONSE OF THE HEALTH SYSTEM

National Health Plans and Policies

Jamaica has developed a large and complex public network of primary care centers and hospitals around the country, offering an extensive array of services, frequently for free or below cost. Over time, experience has shown that reliance on Government resources is insufficient to properly maintain the infrastructure and to provide adequate personnel and other essential support services. The rising costs of health care resources, which are largely imported, and devaluation of the Jamaican currency during the early 1990s have widened the gap between available and required resources.

In response to this situation, the Government is engaged in health sector reform with the assistance of several technical cooperation agencies. Major elements of the reform are: decentralization, integration of services, promotion of quality assurance standards, rational resource allocation, human resource development, greater cost sharing, increased efficiency, fostering public-private partnerships, and equity.

It is recognized that health services delivery and management must be transformed to better match the changing epidemiological conditions and the demands of health care consumers and providers, as well as to make efficient and effective use of available resources. The Ministry of Health's central office will function in more of a regulatory capacity for the entire health system rather than in its traditional role as the centralized manager of the public system. Service delivery and management responsibilities will be delegated on three levels: 4 regions, 14 parishes, and 130 health districts.

In 1997, the Government proposed a National Health Insurance plan to offer coverage for a defined set or package of hospital, laboratory, diagnostic, and pharmacy services.

Organization of the Health Sector

Institutional Organization

Over the past decade, there has been significant growth in the private health care sector. It is estimated that 75% of ambulatory care of a curative nature is delivered in the private sector, while most hospital and preventive services are provided largely in the public sector. In 1995, there were nine small private hospitals in Jamaica, which accounted for about 300 beds, and 75 private clinics. Private hospitals report approximately 50% occupancy. There are six private health insurance companies in Jamaica, covering an estimated 10%–15% of the population. Most reimbursements are for drugs (41%) and doctor's fees (24%). The pharmaceutical sector consumes 10% of total national health expenditures, 80% of which is in the private sector.

Primary care remains a top priority with the Government. In 1996, the Ministry of Health operated 364 primary health care centers, which operate at five levels of service. The higher the level of service, the wider the catchment area of the clinic. Use of primary health care centers for curative care, which represents 46% of the workload, is decreasing despite an expansion in the number of facilities and range of service benefits. Maternal and child health services, family planning, and dental services comprise the remaining 54% of services.

In 1995, curative visits to primary health care centers totaled 780,520, down from 1,005,126 in 1992. It is assumed that more services are provided in the private sector. The other services provided by primary care centers, such as preventive care and health promotion, remain important in improving the health conditions of the entire population, but most notably among children, the elderly, indigent, and individuals suffering from chronic and communicable diseases.

The public secondary and tertiary care system comprises a total of 23 acute care hospitals: six tertiary specialty hospitals, five secondary care hospitals, nine small community hospitals, and three hospitals specializing in chronic care. The University of the West Indies Hospital, with 430 beds, is a regional teaching facility. Public hospital utilization has steadily decreased over the past five years. Bed availability has fluctuated due to the Government's extensive hospital restoration program that has focused on six major hospitals. Total hospital discharges (111,002), average occupancy rate (66.6%), deliveries (36,059), outpatient visits (333,409), and casualty visits (389,855) for 1995 reflect lower use despite service expansion. The number of x-rays taken increased slightly and physical therapy treatment almost doubled, reaching 173,733.

It is estimated that public hospitals are responsible for 95% of inpatient days and 65% of costs. While the leading reasons for admission relate to normal and complicated ma-

ternity cases, trauma cases and chronic diseases account for the largest expenditures.

Organization of Health Regulatory Activities

The Ministry of Health, in its thrust to protect the environment and promote health for sustainable development, divides responsibility for the management of its environment health strategies among the Public Health Inspectorate, the Veterinary Public Health Unit, the Environmental Control and Pharmaceutical divisions, and the Pesticide Council. Their roles include the regular monitoring of the quality of food, drugs, air, and drinking water; the disposal of excreta; the management of wastewater, solid and hazardous wastes; port health; the control of vectors and pesticides; and monitoring of workers and occupational and institutional health.

The Food Safety Program targets both raw and cooked foods. Food processing, milk processors and ice cream manufacturers, hotels, restaurants, and itinerant vendors are monitored to ensure food safety. Meat also is inspected to ensure its safety for human consumption. The Food Division of the Government Chemist Department assists with the monitoring of food, especially milk samples. Of special relevance is the mushrooming of street food vendors. The Food Handler's Clinic educates clients on personal hygiene and good food handling practices.

The Pharmaceutical Services Division of the Ministry of Health, created by the Food and Drug Act of 1964, controls the authorization, importation, distribution and use of pharmaceuticals. The division ensures that all substances used as food, drugs, and cosmetics are safe and of high quality. A task force was set up to examine the classification and regulation requirements of herbal preparations, vitamins, and homeopathic medicine. The Pharmaceutical Services Division is also charged with the distribution of drugs, vaccines, and other medical supplies within the Government health system. Supply and personnel shortages are chronic, especially in primary care centers.

It is estimated that private funds currently finance 82% of pharmaceutical costs, but it is not clear what level of service this represents. The Ministry of Health has gradually relinquished the pharmaceutical industry to a quasi-public agency (Health Corporation Limited) and the private sector. There are about 275 registered pharmacies and 520 pharmacists in the country.

The National Public Health Laboratory is the Ministry of Health's central laboratory facility. It investigates and monitors food and water and serves as a referral laboratory for hospitals and clinics, as a reference laboratory for quality control purposes, and as a clinical laboratory for Kingston Public Hospital and Victoria Jubilee Hospital.

Health Services and Resources

Organization of Services for Care of the Population

Veterinary public health is the joint responsibility of the Ministries of Health, Agriculture, and a number of other agencies cooperating to prevent zoonoses and reduce the risk of foodborne diseases. The training of food inspectors, public education, and community participation are the main strategies for improving hygienic food handling and rodent control programs.

The Health Promotion Charter for the Caribbean has been the framework for health education and promotion strategies for countries in the subregion, including Jamaica, since its inception in 1993. The Charter emphasizes multisectoral multidisciplinary considerations in the formulation of health public policy. The Bureau of Health Education is the unit responsible for planning, implementing, evaluating, and coordinating health education and promotion programs in the country. Under health sector reform, the Bureau will form part of the Division of Disease Prevention and Health Promotion.

Environmental Services

The Government recognizes the critical relationships between health and the environment and sustainable economic development. It has identified three national priorities in this area: community water and sanitation, solid waste management and disposal, and occupational health. Several joint technical cooperation programs are working to strengthen human resources, infrastructure, and the institutions responsible for maintaining environmental services.

The Ministry of Health shares the responsibility for environmental health services with a number of other public, quasi-public, and private agencies such as the National Water Commission. Public health inspectors assigned to parish health departments are responsible for the enforcement of public health laws.

Over 80% of the population is connected to piped water supply systems, 12% receives treated water of questionable quality, and the remaining 7% of the population does not receive water from a public water supply network. The principal sources of drinking water are rivers, wells, and bore holes, resources that are in danger of being seriously degraded if inadequate waste disposal methods and pollution persist.

The continued use of open trench irrigation systems, poorly maintained water transmission and distribution systems, siltation, industrialization, and use of chemicals in agriculture pose threats to the natural water resources.

Management of Solid and Hazardous Waste. A major area of concern is the treatment and disposal of liquid and

solid waste. In 1995, there were 26 officially recognized dump sites, all of which are located in environmentally precarious areas with regard to land, water, and air pollution. The Government is considering a national rationalization program for solid waste management, including the development of landfills. Six sites were identified as potential landfills. Of these, Riverton City is currently being converted.

Twenty percent of the population has access to sewerage systems, which exist only in the major urban areas and tourist centers of Kingston, Montego Bay, Ocho Rios, and Negril. The disposal facility for 50% of the population is the pit latrine, while 28% have access to individual septic tanks and absorption systems. There are 109 water treatment plants; 40% are in the Kingston/St. Catherine area.

Solid and hazardous waste, including industrial byproducts, and air pollution are on the rise due to increased industrial activity, urbanization, and the number of motor vehicles. In response to public complaints about air pollution, spot checks of air quality were conducted at Waterloo Road in St. Andrew, Riverton City Dump in Kingston, and Windsor Road in St. Catherine. Four mini-volume air samplers were acquired with the assistance of Government of the Kingdom of the Netherlands.

For the long term, a study on Jamaica's medical waste management recommended that dedicated incinerators be constructed in Kingston and Montego Bay; that an appropriate separation, storage, and collection system be provided throughout the medical community; and that incineration capabilities be upgraded in existing facilities.

The disposal of sewage from ships that dock in Jamaica's harbors is a matter of concern, since the country is at risk for the spread of the feco-oral diseases and cholera.

Water Quality. The major suppliers of drinking water include the National Water Commission and the Parish Councils. In 1996, there were approximately 891 formal sources of water supply providing approximately 140 million gallons per day. Of this number, 567 supplied treated water. According to the Water and Sanitation Monitoring System, 84% of all Jamaicans have access to potable water. While 96% of the urban population can access drinking water, this is true for only 69% of the rural population. Twelve percent of those without access use rainwater catchment systems and protected springs; 4% have no regular supply.

The Ministry's goal to test 15,000 samples of drinking water was surpassed. Of 16,626 water samples, rates for chlorine residue were satisfactory in 13,234 (79.6%). Of 7,012 samples taken, 1,635 (24.5%) had coliform/bacterial contamination, an increase of 2.1% over 1995. These samples were found mainly in Parish Council Supplies and household tanks. The parishes of Portland, St. Mary, Trelawny, and Hanover need to improve water treatment practices.

There is a need for intersectoral collaboration with suppliers of drinking water to provide piped water to the 16% of the

population who do not have access, and to improve their chlorination practices. Similarly, citizens constructing pit latrines or sewage systems in areas with limestone soil or high water tables should seek the guidance of the Public Health Department to prevent contamination of the groundwater.

Vector Control. The vector control program is an integral part of the Ministry's efforts to prevent outbreaks of vector-borne diseases. Surveillance of *Aedes aegypti*, *Anopheles albimanus*, and other mosquitoes continues through inspection of breeding sites at households, in drains, and at the international airports. While the Ministry of Health conducts public education programs, treats breeding sites with larvicide, and sprays or fogs communities infested with mosquitoes, community participation is vital to ensure that drains are kept clean and that domestic water storage containers do not foster mosquito breeding. In 1996, the house indices of the *Aedes aegypti* (vector of dengue and yellow fever) ranged from 2% to 52%.

Approximately 90% of aircraft landing at the Norman Manley and Sangster International Airports spray residually or in flight.

The Pesticide Control Authority monitors and controls the use of chemical pesticides on the island through registration of pesticides; licensing of importers, manufacturers, sellers and pest control operators; authorization of sellers; and registration of premises. The Ministry of Health approved regulations to the Pesticide Act in January 1996; to date, there are 330 different pesticide products registered for use in Jamaica.

Beach and River Pollution. The Beaches and Rivers Monitoring Project was implemented in 1996. Water samples taken at Bluefields, the only bathing beach visited, revealed an unsatisfactory fecal coliform level; local experts will continue monitoring. Hunts Bay, Kingston Harbor, and three fishing beaches are monitored as control sites in assessing trace elements in fish and shrimp. While cadmium values were very low in all areas, lead was high at Hunts Bay, and the zinc level was high in all areas sampled. In three rivers monitored—Rio Cobre, Black River, and Roaring River—the chemical oxygen demand values were above expected. There was no evidence of fish life in these rivers.

Organization and Operation of Personal Health Care Services

The National Public Health Laboratory is the island's major public sector laboratory and blood banking facility. It offers services in hematology, chemistry, serology, bacteriology, histology, cytology, HIV testing, and other areas. In 1996, 738,450 laboratory examinations were performed; 17,759 units of blood were issued (down from 21,110 in 1995 due to

a decline in the donor population); 23,834 were tested for HIV; and 995 genotyping (paternity) tests were conducted.

The Ministry of Health is responsible for x-ray examination, contrast with and without ultrasonography, and other diagnostic imaging services in hospitals island-wide. X-ray services were provided for 166,268 clients; 35,875 as inpatients and 130,393 as outpatients.

The Emergency Medical Service is managed jointly by the Ministries of Health and Local Government and the Jamaica Fire Brigade and receives funding from the Inter-American Development Bank. Accidents and emergency departments in several hospitals had been upgraded, as were facilities at fire stations. Thirty-five doctors and nurses were trained in Advanced Cardiac and Trauma Life Support for adults and children. Staff of the Department of Social and Preventive Medicine trained 62 firemen to be emergency medical technicians. Ambulances are equipped for basic life support, and the Ministry of Health supplied necessary communication equipment.

The major noninvasive treatment modalities used in public sector hospitals include pharmaceuticals and physical therapy. Physiotherapy services are offered at regional general hospitals (Type A) and at general hospitals (Type B), except at Mandeville, which has a shortage of personnel. The only parish hospital (Type C) that offers this service is Falmouth. Bustamante Hospital for Children and National Chest Hospital (specialist hospitals) also offer these services. A total of 180,034 physiotherapy treatments were given to 48,844 clients, approximately 4 treatments per client.

Therapeutic radiological services are offered at the Kingston Public and Cornwall Regional Hospitals. Of the 2,633 clients who received superficial x-ray treatment, 362 were new. Beta therapy treatments were given to 109 patients (40 new clients included) at the Kingston Public Hospital, the only public sector facility that offers the service.

Physical and substance abuse therapy are offered at Sir John Golding Rehabilitation Centre for physical disabilities, Ken Royes Centre for mental ill health, Detoxification Units at Cornwall Regional and University Hospitals, Patricia House, and William Chamberlain Memorial Men's Hostel and Rehabilitation Centre for substance abuse. The Drug Abuse Secretariat established mechanisms to enhance the income-generating capabilities of recovering addicts.

Richmond Fellowship, Jamaica/Patricia House is a 24-bed residential facility for Jamaican nationals or non-nationals who have lived in the country for more than five years. The service model embraces the "therapeutic community" approach to substance abuse that focuses on individual and group counseling. During 1996, 67 clients were admitted, and 33 graduated. Funding is from the Ministry of Health, and entry is voluntary.

The William Chamberlain Memorial Men's Hostel and Rehabilitation Centre is funded and operated by the Salvation Army. This facility can accommodate 25 persons. The rehabil-

itation program lasts four to six months and is open only to male substance abusers. Entry is voluntary and all clients have a psychiatric evaluation at the Detoxification Unit, University Hospital, before admission.

Inputs for Health

The Pharmaceutical Division uses a Vital, Essential, and Necessary list of drugs to guide the procurement of pharmaceuticals. The third edition of the National Drug Formulary was issued in 1997. This document embraces the concept of rational drug use and will serve as a guide to doctors, nurses, pharmacists, and students of these disciplines. It is also expected to assist with the maintenance of rational prescribing practices.

Health Corporation Limited, a quasi-private company established in 1994 to ensure the efficient, cost-effective procurement and distribution of pharmaceuticals and medical supplies, has met approximately 70% of the essential needs of the public sector.

Although budgetary allocation for essential drugs has moved from US\$ 3 million in 1991–1992 to US\$ 8.6 million in 1996–1997, affordability remains a constant concern of the Government. To this end, there is a policy in place that fosters the use of generic drugs. Additionally, the Jamaica Drugs for the Elderly Program was launched in 1996 to alleviate hardships experienced by elderly clients in obtaining drugs for diseases such as arthritis, asthma, diabetes, glaucoma, and hypertension. Response to this program has been overwhelming, with 71,105 persons registered throughout the island. There is also private sector participation in the program of over 100 pharmacies, indicating good private/public partnership.

To increase accessibility to pharmaceuticals, the Ministry of Health collaborated with the Consumer Affairs Commission in a survey of prices on 33 prescription drugs to treat asthma, diabetes mellitus, and hypertension as well as over-the-counter drugs such as antacids, anthelmintics (deworming medications), and cough and cold remedies.

Human Resources

The number of health personnel in the public sector increased from 4,220 in 1991 to 4,968 in 1995, approximately 18%. There were 417 physicians and 1,836 registered nurses in 1995. Several categories of health personnel are in short supply, and, in general, personnel are poorly distributed, with the less affluent and rural areas having less access to care.

The Government is the primary sponsor and trainer of health workers. Much training is provided overseas and

funded through international cooperation. In general, there is a scarcity of training facilities and resources for health care personnel. This disparity varies with profession, but there is particular need to strengthen and create greater capacity for programs for health administrators, other management specialists, information technology professionals, and physical therapists. The growing private sector creates increasing competition for those scarce government-trained human resources. Private providers dominate in ambulatory care and pharmacy services.

In addition to strengthening existing human resources and training facilities, new categories of health workers need to be developed to coincide with different approaches to managing resources and delivering care.

Finally, there are weak economic incentives for people to pursue or remain in the selected health professions, at least in the public sector. Inadequate financial remuneration, benefits, and poor incentives contribute to a poor distribution of personnel relative to human resource needs. For example, nurses are known to avoid permanent hospital assignments, choosing instead to work in primary care or take short-term contract work in hospitals. This is a critical problem for certain professions such as laboratory and pharmacy technicians. Chronic staff shortages, low productivity, and frequent strikes are common. These problems should not be overlooked, since the health sector represents a large and growing segment of the economy, and should serve as a source of a variety of jobs in the future.

Expenditures and Sectoral Financing

The Jamaican health sector is estimated to have had about US\$ 348 million in total expenditures in 1995. Depending on the source, total health expenditures consume between 5% and 8.9% of the GDP. Public expenditures are estimated to represent 35% of total health expenditures, indicating a gradual shift toward the private sector over the past decade. This is most applicable to ambulatory care, of which the private sector provides 75%. Fifty-two percent of drug expenditures are in the private sector.

Public expenditures on health represent about 6% of the Government budget. The Government provides 95% of the hospital care and funds 65% of this care. Significant but undetermined portions of public hospital funds or resources go to physicians operating in both sectors, leading to a subsidy for private physicians and patients capable of paying to use public resources.

Taxation revenue provides nearly 90% of the Ministry of Health's budget. Other sources include bilateral/multilateral funding and cost recovery programs such as user fees. The former primarily fund capital development projects, while the

latter are utilized for recurrent expenditures by the collecting institutions.

In recent years, the Ministry of Health has been chronically underfunded, a problem compounded by generally unfavorable fluctuations in the Jamaican dollar. Substantial funding of services and other activities comes from extrabudgetary sources, such as bilateral and multilateral loans and grants.

With the growth of the private sector, the public now finances about 35% of the national health system. In the 1996–1997 fiscal year, actual public expenditures are estimated to have totaled US\$ 157 million.

While compensation and secondary care continue to absorb the largest part of the Ministry of Health budget, trends are improving for line item categories and programs. Such expenditures decreased to 58% and 51% respectively. Primary care is allocated about 18% of the recurrent budget. Financing the maintenance of plant and equipment, currently allocated less than 1% of the health budget, continues to be a problem.

In recent years, the Ministry of Health has placed a greater emphasis on cost recovery for hospital services. The Health Sector Initiatives Program, part of the health reform movement, has implemented new management systems that have led to significant increases in money recovered from hospital patients. Unfortunately, charges bear no relationship to actual costs, and fee increases cannot keep pace with costs. On average, hospitals collect fees equal to about 5%–10% of their expenses. It is recognized that other financing sources must be developed, such as insurance programs and public-private partnerships. Revenue from all sources average 2% of total Ministry of Health expenses.

Approximately 7% of the Ministry's total budget for 1996/1997 came from bilateral/multilateral programs, consis-

tent with the 1995/1996 budget (7.4%). User fees, on the other hand, accounted for 3.2% of the recurrent budget for 1996/1997, an increase of 0.3% over the previous year. User fees were collected from three main areas—secondary and tertiary care, primary care, and health services support—totaling US\$ 5,328,911 in 1996/1997. Because secondary and tertiary care have better mechanisms for collecting fees, over 95% of the user fees collected in 1996/1997 were from hospitals. While user fees are not a significant portion of the Ministry of Health budget, they do offer the collecting institutions access to ready cash to purchase supplies when necessary.

There are a significant number of volunteer organizations, local and overseas, that contribute to the delivery of health services. Visiting medical teams, arrangements with medical institutions overseas, government loans, and fund-raising campaigns are options commonly used to obtain care for Jamaican citizens and deserve further analysis. More information is needed to achieve efficient management of these valuable resources.

External Technical and Financial Cooperation

There are many varied external technical and financial cooperation activities in health and related sectors. Jamaica and the donor agencies take a multisectoral approach to improving living conditions, another factor essential to sustainable socioeconomic development. Examples include areas such as AIDS prevention, health sector reform, water safety and waste disposal, violence reduction, and poverty eradication. Bilateral/multilateral programs fund about 7% of the Ministry of Health budget.