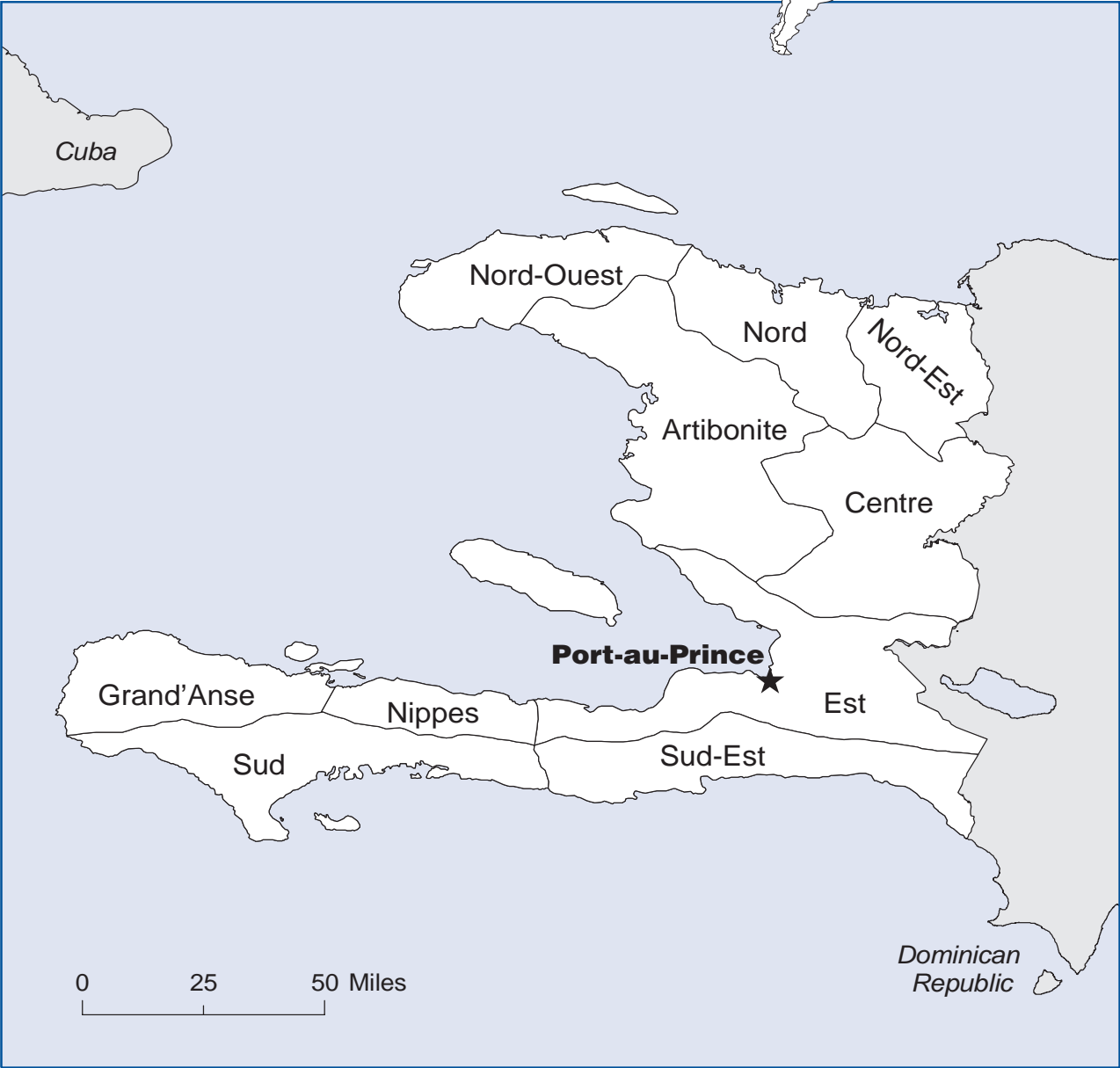


HAITI



Haiti's 27,700 km² take up the western half of the island of Hispaniola, which it shares with the Dominican Republic. Haiti is divided into 10 departments (Nippes became the 10th in 2004), 41 *arrondissements* (similar to districts), 135 *communes* (similar to parishes), and 565 communal sections.

GENERAL CONTEXT AND HEALTH DETERMINANTS

Social, Political, and Economic Determinants

In 2004, Haiti—the first black nation and the first country to gain independence in Latin America—celebrated its independence bicentennial. After nearly two centuries of dictatorship and intermittent attempts at democracy beginning in the late 1980s, the country has suffered recurrent periods of political instability. To summarize political events in the period under review, Jean Bertrand Aristide returned to Haiti in 2001. He again left the country in February 2004, and in March 2004 a transitional government was installed with the support of the United Nations Stabilization Mission, paving the way to normalization and efforts to strengthen the country's institutions and to presidential and parliamentary elections in February 2006.

The vast majority of Haitians continue to live under precarious conditions, in poverty and marginalization. Haiti is considered to be the poorest country in the Americas. The country's unequal income distribution (4% of the population has 66% of the nation's wealth, while 10% has practically nothing) forces the poor to turn to nature for survival. Deficient farming practices on steep terrain have accelerated soil erosion, as the run-off from tropical rains flushes arable land toward the sea, obstructing urban drainage systems in its wake. Surface water is polluted by ineffective excreta and household waste management.

According to the 2001 Haiti Living Conditions Survey, 55% of the population lives in households that are below the extreme poverty line of US\$ 1 per person per day, and 71%—more than six million people—live below the poverty line of US\$ 2 per person per day. That same survey shows that poverty is far worse in the country's rural areas and involves 82% of the country's population.

According to the 2003 General Population and Housing Census, more than 61% of the population aged 10 and older is literate (53.8% of females and 63.8% of males), a figure that is much higher in urban areas (80.5%) than in rural ones (47.1%). According to the 2001 Haiti Living Conditions Survey, the gross primary-school enrollment ratio is 120%, a figure that indicates that many overaged students are still enrolled in primary school. The net enrollment rate in primary school for children 6–11 years old is 60% nationwide. Slightly more than one of every two chil-

dren in this age group attends primary school in rural areas, compared with upwards of 7 of every 10 in urban areas. There is no important difference in net primary enrollment rates for girls and boys.

This is not the case with secondary-school enrollment, where the gross enrollment ratio for girls is 37%, while that for boys is 45%. There is a wide gap in the gross secondary-school enrollment ratios of children from more affluent households (71%) compared with those from households in the lowest income quintile (23%). The country's official languages are Creole and French, but only 10% of the population speaks French, mainly those who have completed secondary schooling.

Access to basic health care is inadequate. According to the 2005–2010 National Strategic Plan for Health Sector Reform published in November 2005, less than 40% of the population has access to basic health services in certain departments (among them, Ouest, Nord, and Nord-Est); 80% seeks care from traditional healers. For many Haitians, the need to pay before receiving treatment precludes their getting any health care. Some organizations are promoting the idea of offering free services to increase access to treatment. Health costs (consultations, hospitalization, medical care, and drug purchases), too, have risen precipitously and can no longer be borne by people of limited means.

Forty-seven percent of the population lacks access to basic health care; 50% lacks access to basic drugs. A medical consultation that cost 25 Haitian Gourdes (HTG) in the late 1980s now costs 1,200 HTG—48 times more.

For the past two decades, the country's social and political crisis has had serious socioeconomic consequences. Haiti's GDP has generally decreased, translating into an average annual growth rate of –0.3% in 1986–2004.

From 2000 to 2004, the country experienced negative growth, along the order of –1.1% per year. Per capita GDP has been falling even more precipitously, at around 2.8% annually, mainly due to the rapid population growth (2.5% per year) between 1982 and 2003.

In August of 2000, the exchange rate of the HTG was 22 to 1 US\$; it depreciated to HTG 42 per US\$ 1 in 2005.

The qualitative and quantitative increase in food production in Haiti since the late 1950s has not been able to keep up with the population's needs, although food availability varies widely from

department to department. The population's nutritional status is eroded by inaccessibility to highly nutritional food and a lack of access to enough food.

Unsanitary preparation of food sold on the street is undoubtedly linked to high morbidity.

According to the Food and Agriculture Organization (FAO), 3.8 million people in Haiti, most of them living in rural areas, experience hunger; 23% of children under 5 years old suffer from chronic malnutrition. More than 40% of households experience food insecurity, and a high proportion of women (12%) are below the critical threshold for chronic energy deficiency.

The nutritional manifestations of food insecurity are numerous in Haiti. Worth citing among them are low birthweight; protein-energy malnutrition; micronutrient deficiencies, such as iron and folic acid deficiency, that lead to anemia in women and children; and vitamin A and iodine deficiency.

The decline in agricultural production has likewise intensified in recent years, at an annual rate of -1.2% between 2000 and 2004. The impact has been twofold. First, the nutritional status of children has deteriorated; recent surveys indicate an alarming increase in malnutrition in urban areas. Second, the widening of the trade deficit due to a rise in imports, notably food products, has been largely responsible for the devaluation of the country's currency and an increase in the cost of living.

The climate of insecurity has recently reached critical, even explosive, levels. It poses real challenges to private investment and has led to chronic unemployment and underemployment. The 2003 census indicates that 33%, or one-third of the economically active population, reported that it was out of work. This is but a baseline, of course, and real unemployment and underemployment most likely are far higher.

These circumstances easily explain the high incidence of extreme poverty in the country. Moreover, with structural adjustment programs calling for cutbacks in public expenditure, the supply of basic social services, notably in health and education, cannot meet demand. And, as the private sector takes over health and education services, prices tend to rise further.

Government workers account for 46% of the economically active population (50.4% of men; 42.2% of women). Workers in agriculture, forestry, animal husbandry, hunting, and fishing comprise 49.6% of the economically active workforce, which is dominated by men (93.3% in rural areas). "Wholesale and retail trade" ranks second, at 25.3%, and is dominated by women.

The country's political instability and insecurity slowed investment and economic growth after 2000. Real GDP fell in 2000–2003, plummeting from HTG 23.9 billion in 1987 to HTG 12.9 billion in 2003—a 48% drop. The average inflation rate was 17% (including a rise in the cost of basic goods), and the budget deficit (not including donations) represented 3.1% of GDP, on average.

The United Nations has referred to these dire circumstances as "the silent emergency."

The economic impact of events such as the 2004 floods, coupled with insecurity, material losses, and economic disruption

caused by political unrest early that year, contributed greatly to the estimated 5.5% drop in GDP.

In 2005, the economy stabilized, private sector activity rebounded, and foreign trade returned to pre-crisis levels. Inflation, too, shows signs of abating, and the Gourde has held stable, at around HTG 37/US\$ 1.

In 2003, only 53.3% of the population—some 1,709,081 people—had access to safe drinking water. Drinking water coverage rates in 2000–2004 showed a modest 2.7% increase.

Drinking water supply coverage in urban areas in 2003 reveals that only 52% of the rural population, or around 2.4 million persons, had access to safe drinking water. This represents a 4.8% reduction in the population served since 2001.

In urban areas, 1.8 million people, or 58% of the population, have no access to excreta disposal services, and in rural areas, the figure is 3.6 million, or more than three-quarters of the rural population. In sum, roughly 5.5 million people, or 69% of Haiti's total population, do not have access to excreta disposal services.

Haiti is often buffeted by hurricanes, and the damage can be severe because of the country's degraded environment and precarious housing, often poorly constructed and built on unstable soil on very steep terrain, in marshlands, and along riverbeds. Given Haiti's pervasive deforestation, even normal rains can precipitate floods in Port-au-Prince and other urban areas.

Haiti is also extremely vulnerable to earthquakes. The country has eight fault lines, two of the most important located as follows: one in the far north and the other crossing east to west. Seismic activity in Haiti in 2003–2005 has revived the specter of a possibly major earthquake (7–8 on the Richter Scale), which experts have been forecasting for several years. The extremely high rate of urbanization that has left the metropolitan region of Port-au-Prince *commune* with slightly more than two million inhabitants (10,000–18,000 persons per km²) will worsen the damage.

Demographics, Mortality, and Morbidity

According to the 2003 General Population and Housing Census, Haiti's annual population growth rate was 2.5%. According to that same census, the country has a population of 8,373,750 persons and a population density of 302 inhabitants per km². Three departments account for almost two-thirds of the population: Ouest, for 37%; Artibonite, for 16%; and Nord, for 10%. About 40% of the population is urban.

Haiti's population is young—60% was under 24 years old in 2003 and 36.5% was under the age of 15. Analysis of death certificates from 2003 shows that 4% of deaths in the country were in the age group 0–24 years old.

The birth rate remains relatively high, at 25 per 1,000 in urban areas; 30 per 1,000 in rural areas; and 28 per 1,000 for the country as a whole. The average number of children per woman has declined from 4.7 to 4.0, averaging 5 in rural areas, 3 in urban areas, and 2.4 in the capital. Life expectancy at birth is 52.7 years for males and 56.8 years for females. Around half of the population is

single. Women represent 51.8% of the population (86 men per 100 women in urban areas and 98 men per 100 women in rural areas), a situation explained by factors related to population shifts—overwhelmingly, women migrate from rural areas to the cities, while the reverse is true for men. (See Figure 1 for the country’s population structure.)

Out-migration is significant in Haiti, be it temporary or permanent, legal or illegal, or what is termed “brain drain.” The Ministry for Haitians Living Abroad estimates that the total number of émigrés is 1.5 million: 700,000 are in the United States of America, 550,000 in the Dominican Republic, 100,000 in Canada, 70,000 in neighboring French overseas departments and territories, and 40,000 in the Bahamas. Many Haitian professionals and skilled technicians who live outside Haiti provide an important source of revenue for the country.

The first published analysis of death certificates in Haiti dealt with deaths in 1997. At that time, death certificates were filled out for only 6.3% of deaths. Coverage increased to 10% in 2003. However, a precipitous drop in death certificate coverage occurred in 2004 and 2005. At the same time, the way in which death certificates are completed improved (the percentage of death certificates with an ill-defined cause of death fell from 48% in 1999 to 26% in 2002). Immediate and effective feedback was put in place at the central and departmental levels. Given this poor coverage, mortality data should be interpreted with caution. Table 1 shows the 10 leading causes of death in 2003. The data come from an analysis of death certificates from the country’s 10 departments.

Diabetes mellitus ranks as the 11th cause of death, and is implicated in 2.8% of deaths. Maternal mortality ranks 12th (the 7th leading cause of death in women).

According to the 2000–2001 Mortality, Morbidity, and Service Utilization Survey (EMMUS III), maternal mortality was 523 per 100,000 live births, representing a 15% increase over the figure from the 1991 national survey, which reported a rate of 457 per 100,000 live births. An analysis of the causes of maternal mortality in 2003 shows that complications in childbirth, such as hemorrhage, are the leading causes of death (29%), followed by problems linked with hypertension and eclampsia (26%). Abortion was implicated in 13% of cases. According to 2000–2001 Mortality, Morbidity, and Service Utilization Survey (EMMUS III), 54.4% of all women and 63.2% of pregnant women are anemic.

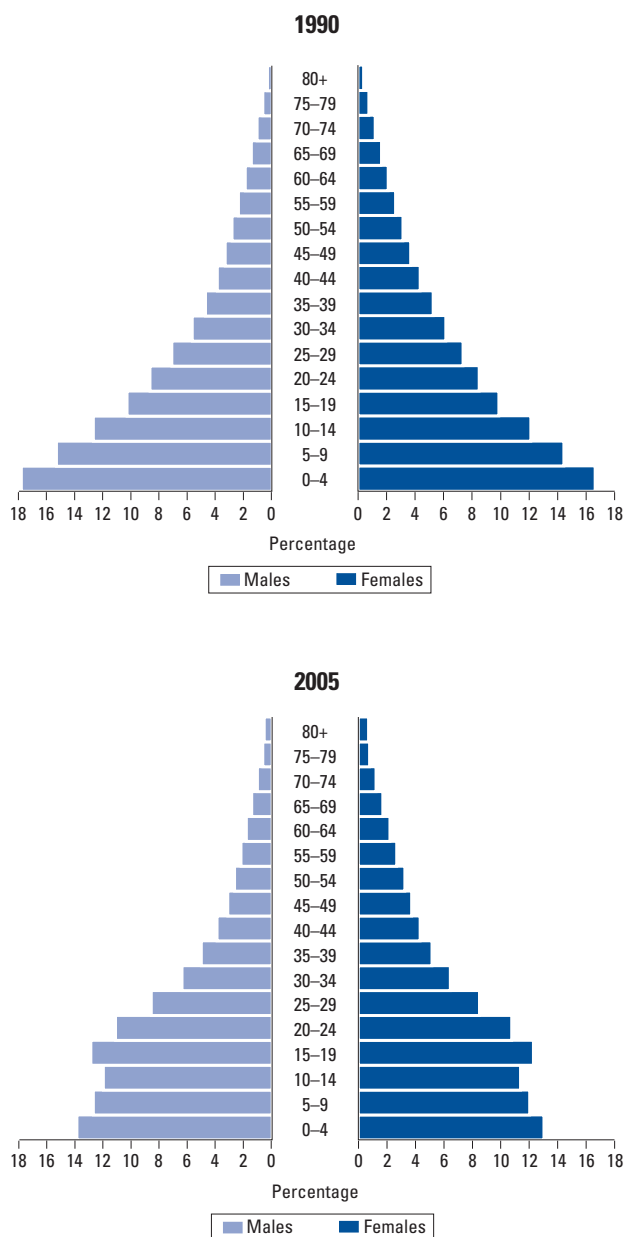
HEALTH OF POPULATION GROUPS

Children under 5 Years Old

Infant mortality estimates in Haiti are based on data from the Morbidity, Mortality, and Service Utilization surveys (EMMUS). Table 2 shows the infant mortality indicators from four surveys.

According to the preliminary report of the 2005–2006 Mortality, Morbidity, and Service Utilization Survey (EMMUS IV), 1 in 12

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



Haitian children die before their fifth birthday. The survey also found that acute respiratory infections and acute diarrheal diseases continue to be the most common health problems in children—40% of children under 5 years old had acute respiratory infection symptoms or fever in the two weeks preceding the survey. However, only 20% of children had been taken for a consultation or to get help (20% in urban areas versus 18% in rural areas; and 28% among children whose mother had a secondary education

TABLE 1. Ten leading causes of death in rank order, by sex, total deaths from leading causes, and percentage of total deaths by cause, Haiti, 2003.

Rank	Cause of death	Female deaths	Male deaths	Total deaths	% by cause
1	Diseases of the circulatory system	829	561	1,390	24.4
2	AIDS	219	271	490	8.6
3	Infectious intestinal diseases	219	268	487	8.6
4	Pneumonia and influenza	160	169	329	5.8
5	Malignant neoplasms	157	135	292	5.1
6	Tuberculosis	118	148	266	4.7
7	Malnutrition	117	132	249	4.4
8	Infections specific to the perinatal period	128	117	245	4.3
9	Accidents	77	142	219	3.8
10	Assault	28	145	173	3.0
	Total deaths with other defined causes	781	775	1,556	27.3
	Total deaths from defined causes	2,833	2,863	5,696	100
	Ill-defined causes	1,043	1,272	2,315	

Source: Haiti, Ministry of Public Health and Population. Analysis of causes of deaths, 2003.

TABLE 2. Infant mortality rate, by age group, as estimated by the first four Mortality, Morbidity, and Service Utilization surveys (EMMUS I–IV), Haiti, 1987–2006.

	EMMUS I 1987	EMMUS II 1994–1995	EMMUS III 2000–2001	EMMUS IV 2005–2006 ^a
Infant mortality (0–1 years old)	99	74	80	57
Neonatal mortality (0–28 days old)	40	31	32	25
Postnatal mortality (1–11 months old)	59	43	48	32
Young child mortality (1–4 years old)	66	61	42	31
Infant and young child mortality (0–4 years old)	158	131	119	86

Source: Institut Haïtien de l'Enfance.

^aThese are preliminary results.

versus 15% among those whose mother had no schooling). Moreover, 24% of children under 5 years old had had one or more episodes of diarrhea in the two weeks preceding the survey, and 57% had been treated with oral rehydration therapy—an important increase in the use of this treatment as compared with the previous survey period (2000–2001), in which the figure was 41%.

The 2000–2001 survey (EMMUS III) found that 65.3% of preschoolers were anemic in 2000.

Children 5–9 Years Old

According to data from the 2003 census, the estimated population 5–9 years old accounts for 13% of the total. With the country's level of poverty and the fact that 89% of the schools are private, 17% of school-aged children do not attend school and 12.5% have never even been enrolled. In this latter group, 42% were younger than 10 years old and 54% were girls.

Infectious and parasitic diseases were responsible for 27% of recorded deaths in this age group. Tuberculosis, diarrheal dis-

eases, malnutrition, HIV/AIDS, and malaria are the five leading causes of death, with no differences between the sexes. Also noteworthy is the importance of external causes in the mortality of children in this age group (8%). A more detailed study of the causes of death, based on data from 2000, reveals that boys are more likely to be the victims of traffic accidents and girls are more often victims of accidents in the home.

A national survey conducted in 2002–2003 on the prevalence of helminth infections in children 6–12 years of age (complemented with surveys on the prevalence and intensity of intestinal geohelminth infections in the departments of Sud and Grand'Anse) reveals that one-third of the children had parasites, with substantial variation from department to department. The department of Grand'Anse had the highest rate (74%), followed by Nord (46%). A deparasitization campaign was launched there by the Ministry of Public Health and Population and the Ministry of National Education, Youth, and Sports as part of a PAHO/WHO regional program and the Communicable Disease Prevention and School Health project. A single 400 mg dose of albendazole

was administered every six months. The campaign was expanded to the departments of Nord and Nord-Est and to Artibonite.

Adolescents 10–14 and 15–19 Years Old

The 10 leading causes of death in these groups include AIDS, physical assaults, accidents, tuberculosis, typhoid, and maternal causes; services for adolescents are mainly provided by nonprofit organizations. According to the 2005–2006 Mortality, Morbidity, and Service Utilization Service Survey (EMMUS IV), the fertility rate among 15–19-year-old women is 69 per 1,000, with wide disparities between the metropolitan region (46 per 1,000) and rural areas (86 per 1,000). One of every five women aged 15–19 years old has access to modern contraceptives. Condom use was low in this group (7%) in 2005–2006.

In 2005, there were 1,002 deliveries among girls 10–14 years old, and 6,090 among women 15–19 years old. Violence and sexual abuse are more common among 10–19-year-olds than in any other age groups.

Adults 20–59 Years Old

This age group—which includes women of childbearing age and most persons in the workforce—represents 40% of the total population. According to the 2005–2006 survey (EMMUS IV), the fertility rate among women of childbearing age has declined from 4.7 children per woman in 2000 to 4.1 in 2003, with variations depending on area of residence (five children in rural areas, and three in the metropolitan area). Information on at least one modern family-planning method has been given to 99% of women. The modern methods most commonly used by women who are in a relationship are injections (11%), condoms (5%), and the pill (3%). Only 2% opt for sterilization in both urban and rural areas, and 2%, for IUDs.

Analysis of the causes of death in 2003 reveals that AIDS is the leading cause among 20–49-year-olds, resulting in 14.5% of deaths with a specific diagnosis. Cardiovascular disease ranks second (10%), followed by assaults (5%), maternal causes (4.4%), accidents (3.9%), and tuberculosis (3.7%).

Older Adults 65 Years Old and Older

According to the 2003 Population and Housing Census, the population older than 65 years old represents 5.1% of the total population. Some 72% of this group lives in rural areas, and 7.7% indicated that they had at least one disability. Women account for 53% of the age group. Approximately 78% of the elderly do not know how to read or write.

The analysis of the causes of death in 2003 for that age group reveals a predominance of noncommunicable diseases (in descending order, cardiovascular disease, stroke, neoplasms, lung disease, diarrheal disease, and diabetes mellitus).

There is no health care program for the elderly. According to Haitian tradition and culture, the elderly live at home and are cared for by their families. However, this situation is changing, and private nursing homes for elder care are beginning to appear, although their high cost (on the order of US\$ 600 per month) makes them inaccessible to all but a minority of the population. Certain *communes* have nursing homes for the poorest among the elderly (communal nursing homes of Cap Haïtien, Port-au-Prince); other facilities are run by religious groups (the Catholic Church has a facility in Cayes); certain associations also operate homes for the elderly.

The Family

Constant relocation and emigration has contributed to a breakdown in the family structure in urban and rural areas. In major cities, a single home may house several families, either because members have emigrated or because children have lost their parents. In urban areas, 48% of single parent households are headed by women, compared to 33.3% in rural areas. Only 45% of children under 18 live with both parents. It should be noted that the Ministry of Public Health and Population has a Bureau of Family Health, which works with UNFPA to ensure, among other things, that family planning supplies reach outlying warehouses.

Prenatal check-ups with a health professional (doctor, nurse, or nursing auxiliary) are steadily increasing, with 85% coverage of pregnant women, in contrast to 67.7% coverage in 1995. Again according to the 2005–2006 survey (EMMUS IV), 60% of deliveries nationwide are attended by a professional or a skilled midwife (74% in urban areas and 53% in rural areas), in contrast to 46% in 1994. The fact that there are still so many women who die in childbirth should be cause for reflection, including concerns about the skills of the personnel involved. The fact that only 24.7% of deliveries take place in health facilities (2000–2001 survey [EMMUS III]) is probably more indicative of the real situation than the figure of deliveries attended by skilled personnel.

The Institute for Social Welfare and Research of the Ministry of Social Affairs and Labor provides some services to disadvantaged and handicapped children.

Workers

The employment rate is very low (46%). The informal sector, comprised mainly of women workers, and the agricultural sector together employ 96% of the workforce. A national vocational assistance program to promote productive employment and fight social exclusion, under the aegis of the Ministry of Planning and External Cooperation and with support from UNDP and ILO, has financed an inventory of organized groups from Haiti's informal sector that extend some form of social protection to their members or adherents. The program, offered by microfinancing institutions or health NGOs, reaches only around 2% of Haiti's

population and generally covers illness and death. The social assistance systems that have been set up are similar to insurance or mutual insurance. They cover groups of 400 to 115,000 individuals and are managed by their members or by health care providers. Access to health services is linked to a low premium paid periodically by subscribers. These initiatives respond to the desire of groups in the informal sector to have insurance mechanisms to cover their basic needs. In addition, the Ministry of Social Affairs and Labor's Institute for Social Welfare and Research provides some services to female sex workers.

Another study shows that state-sponsored social protection covers 1%–3% of the formal sector. The law grants three months' maternity leave for working pregnant women. Government employees and their families (about 215,000 people) are covered by a specific insurance system but services are considered unsatisfactory, particularly outside the capital.

Coverage for private-sector employees is provided by the Office of Labor, Illness, and Maternity Insurance, a decentralized autonomous agency that runs a hospital offering basic services and some specialized services, such as trauma and obstetrics and gynecology. In addition to medical care, beneficiaries are paid an indemnity for temporary or permanent disability. Some 43,000 people regularly receive benefits from this system. Certain companies offer protection to their day workers or regular staff.

Persons with Disabilities

According to the 2003 census, 1.5% of the population, or 125,600 people, had a handicap; 11% were under 15 years old, 57% were 15–64 years old, and 32% were 65 years old and older. More than 65% lived in rural areas and around 70% had no schooling. The most commonly reported disability was blindness; an estimated 1% of the population was blind and between 75,000 and 200,000 people were visually impaired as a result of trauma, glaucoma, cataracts, corneal infections, and diabetic retinopathy.

The disabled are often the poorest of the poor in Haiti. Deprived of financial resources, they have little access to curative care (three permanent and two temporary facilities provide prosthetics in Haiti, but only one-quarter of amputees have been able to obtain a prosthetic, whose cost is prohibitive for most disabled persons). In 2005, 28 national institutions or associations and 10 international institutions or associations were working in this area in Haiti.

Highly Vulnerable Children

Orphans, street children, and children working as domestic servants are particularly vulnerable. The 2005–2006 Mortality, Morbidity, and Service Utilization Survey (EMMUS IV) estimates that 11% of children under 18 have lost their father and/or mother. The most recent study on children living on the street

(those who sever ties with the family home) and children who work on the street (those who maintain ties and stay in more or less regular contact with their families or return home to sleep or bring the fruits of their labors) dates to 1999 and was conducted by Quisqueya University's Unit for Research on Children in Difficult Situations. According to the study, there are between 6,226 and 7,833 children 5–17 years old living in such precarious situations in Port-au-Prince, 163 in Cap-Haïtien, and 41 in Jacmel. Often abused by the police, who regard them as delinquents, they are prone to diseases and stomach problems. According to these sources, as many as 300,000 children and adolescents live with so-called "foster families," in a situation known as *restavèk* ("stay with"); 81% live in rural areas, 75% are girls, and the majority are between the ages of 7 and 14. Only 55% attend school.

Prisoners

An analysis of medical statistics on the care of inmates in three metropolitan prisons in 2005 shows that, out of a total of 10,969 visits, the leading reasons for consultation were headaches, gastric problems, urogenital infections, hypertension, fever, scabies, arthritis, acute respiratory infections, and diarrhea. There were 75 cases of beri-beri reported during this period and 65 pregnancies. The Ministry of Public Health and Population provides tuberculosis treatment in 17 prisons, which covers more than 4,000 prisoners.

HEALTH CONDITIONS AND PROBLEMS

COMMUNICABLE DISEASES

Vector-borne Diseases

Malaria (*Plasmodium falciparum*) is endemic in Haiti, with higher transmission rates in certain communal sections after the rainy seasons from March to May and October to November. In 2003, 109 deaths were attributed to malaria (63 females and 46 males), 12% of whom were children under 5 years old. There were 86,768 cases of malaria reported in 2004, of which 24,205 were laboratory-confirmed. The figures for 2005 are 106,152 and 26,021, respectively. (There are 50 operational sentinel surveillance sites in the country.)

A five-year project (2004–2009) financed by the Global Fund to Fight AIDS, Tuberculosis, and Malaria (US\$ 14.8 million) is under way, aimed at reducing morbidity to less than 10% and eliminating mortality from malaria by 2010.

Dengue hemorrhagic fever has not yet been documented in Haiti. All four serotypes (I–IV) circulate in the country, but no structured treatment program is in place. Suspected cases of dengue hemorrhagic fever are regularly reported by the routine surveillance system. *Aedes aegypti* is found throughout the country, especially in urban areas, where the presence of larval breed-

ing sites facilitates its propagation, especially during the rainy seasons.

Lymphatic filariasis is found in both urban and rural areas, especially in the Nord department, on the Gulf of Gonâve, where it is a major public health problem. The entire country is at risk of the transmission of this disease by the *Culex quinquefasciatus* vector, which tends to multiply in urban areas and leeward coastal regions. In cities such as Léogâne, Arcahaie, Plaine du Nord, and Limbé, more than 20% of the population is infected with microfilaria. Certain *communes* in the Nord and Centre departments have positivity rates of over 30%.

A national prevalence study of 22,058 students aged 6–10 years old in 10 departments was conducted in three phases (November/December 1999, May/June 2000, and January/May 2001). The 898 children with a positive immunochromatographic card test (ICT) were treated with Diethylcarbamazine (DEC) at a dosage of 6 mg/kg. A 2003 project financed by the Bill and Melinda Gates Foundation, with assistance from PAHO/WHO, aims at the elimination of this disease by 2010 and has begun to bear fruit.

Following Hurricane Jeanne in September 2004, surveillance for mosquito-borne diseases in Gonaïves identified three patients with malaria, two with acute dengue infections, and two with acute **West Nile virus** infections among 116 acutely febrile patients.

Vaccine-preventable Diseases

Haiti's immunization program covers the following diseases: tuberculosis, poliomyelitis, diphtheria, tetanus, whooping cough, and measles (see Table 3). Vaccination coverage for infants 12–23 months is 41.3% (EMMUS IV). **Measles** is on the way to elimination. A total of 990 measles cases were confirmed in 2000, and the last epidemic was in 2001, with 158 confirmed cases, and no case of measles has been confirmed since.

In Haiti, a single laboratory-confirmed case of a non-wild poliovirus type 1 originating from a laboratory was reported in an inadequately vaccinated 2-year-old child; paralysis onset was August 30, 2000. Despite intensive case-finding activities, no additional cases have been identified.

There also was a **diphtheria** epidemic in 2004, with 801 suspected cases, 101 of which were investigated; 27 of them were confirmed by laboratory and 10 by epidemiologic contact. In 2005, data available to the Ministry of Public Health and Population indicated that there were 495 cases that year. Among the 17 reported cases that were investigated, 9 were confirmed, with 8 deaths. **Neonatal tetanus** remains a major public health problem. Despite concerted efforts to control the disease, 119 cases of tetanus were reported in 2005, 71 of which were neonatal; of these, 46 were investigated. Certain *communes* currently have neonatal tetanus rates in excess of 1 case per 1,000 live births. According to the 2005–2006 Mortality, Morbidity, and Service Utilization Survey (EMMUS IV), in almost three-quarters of births in the last five years (74%), the mother had received one dose of

TABLE 3. Expanded Program on Immunization coverage rate (%), by antigen, Haiti, 2001–2005.

Antigens	Year				
	2001	2002	2003	2004	2005 ^a
BCG	49	45	54	43	62
Polio1					55
Polio2					45
Polio3	53	41	48	61	65
DPT1					57
DPT2					47
DPT3	52	39	50	62	68
Chickenpox	53	34	52	57	59
TT2+	ND	ND	ND	ND	19

^aThe percentages provided for polio 1–3 and DPT 1–3 in 2005 are based on data for multiple years, rather than for a single calendar year.

Source: Ministry of Public Health and Population, Expanded Program on Immunization, PAHO/WHO, administrative data.

tetanus vaccine during pregnancy. With regard to **whooping cough**, all cases are not reported or investigated. Available data show 4 cases in 2004 and 21 cases investigated out of the 697 reported by the Ministry of Public Health and Population in 2005.

Intestinal Infectious Diseases

Intestinal infectious diseases continue to rank high as a cause of infant morbidity and mortality. According to the 2005–2006 Mortality, Morbidity, and Service Utilization Survey (EMMUS IV), 24% of children under 5 years old had had one or more episodes of diarrheal disease in the two weeks preceding the survey. Of these children, 40% had been treated with a packet of oral rehydration therapy (ORT) and 7% had been treated at home with a solution prepared by the mother. At the national level, 57% also received fluids during a diarrhea episode, a net increase over the rate estimated for 2000 (41%). It should be pointed out, however, that ORT use is more prevalent in the cities (72% in the metropolitan area) than in the countryside (52%).

In terms of prevalence, children aged 6–11 are the most affected (41%), followed by infants 12–23 months old (38%). All the other age groups also are affected.

These pathologies ranked third, behind AIDS, on the list of leading causes of death in 2003, for all age groups and sexes combined (or 8.6% of deaths with a defined cause). Typhoid fever is responsible for 2.8% of deaths in children aged 5–9, 8.9% in the 10–14 age group, 3.2% in the 15–19 age group, and 1.5% in the 20–49 age group.

Chronic Communicable Diseases

Tuberculosis, which is endemic in Haiti, is the seventh leading cause of death according to the analysis of death certificates from 2003. Tuberculosis tends to strike persons in their productive years, between the ages of 15 and 44 years old.

The estimated incidence of tuberculosis was 12,632 (all forms) in 2005 and from 6,828 to 7,340 for sputum-smear positive cases. The objectives of the national tuberculosis program (70% detection and 85% cure) have not yet been met. The detection rate was estimated at 49% in 2006 and the cure rate, in the neighborhood of 70% in 2004.

In 1997, the cornerstone of a structured national tuberculosis program was laid with the application of the Directly Observed Treatment, Short Course (DOTS) strategy. An 8-month regimen was introduced, along with a National Tuberculosis Plan for 2001–2006. Between 2001 and 2005, the percentage of tuberculosis-infected individuals who were defined as “cured” ranged from 62% in 2001 to 70% in 2005. In 2005, 198 facilities participated in the program, four of them sanatoriums. Patients receive drugs free of charge. Haiti’s HIV epidemic has greatly exacerbated the country’s tuberculosis situation, making tuberculosis the leading opportunistic infection in people living with HIV. Available epidemiologic information indicates a TB/HIV co-infection rate of 29%.

Efforts to combat **leprosy** have been under way in Haiti for more than a century; the Ministry of Public Health and Population has declared leprosy elimination a priority.

Between 1998 and 2002, 1,718 cases of leprosy were detected and 75% of them were treated. Furthermore, more than 1,000 health professionals received training. The closing of the Gonaïves center¹ in the wake of tropical storm Jeanne in September 2004 led to a drastic reduction in the number of new cases detected, which fell from 56 in 2000, to 26 in 2004, and 24 in 2005. After 2004, the Ministry of Public Health and Population created a program office for leprosy and drew up a new strategic plan for 2006–2008. The Ministry signed a cooperation agreement with the Fame Pereo Institute and entered into an understanding with Fontilles, a Spanish NGO devoted to caring for leprosy patients.

In 2005, the Falciform Anemia League (LAAF), created in 1989 in Port-au-Prince, identified 706 individuals with **sickle-cell disease** in 679 families, 27 of which had two or three children with the malady. Among them, 540 (or 76% of those detected) were of the SS genotype. The distribution by age was 16% in the age group 0–10, 41% in the age group 11–20, 26% in the age group 21–30, and 16% in the age group older than 30. The highest morbidity was observed in subjects aged 0–24 (sequelae of stroke/ seizures, deafness, mutism, or priapism in 5% of young men over the age of 15; open leg ulcers in 4% of SS sickle cell patients older than age 12 years, with no clear preponderance in either sex). In May 2005, in the *commune* of Mirebalais (Central Plateau), a preliminary study provided a series of tests for 412 of the 900 people who had sought medical care (pa-

tients aged 22–45). Cellulose acetate electrophoresis of hemoglobin, followed by the falciformation test, identified 115 people with abnormal hemoglobin S and C (13.3% heterozygotic for hemoglobin S and 3.6% for hemoglobin C), percentages close to those observed in the capital. A high percentage (9%) of S, + thalassemia was observed in this region, calling for more systematic investigation (family study, neonatal detection, quantitative electrophoresis of hemoglobin).

Acute Respiratory Infections

According to the mortality, morbidity, and service utilization surveys, in 2005–2006, no less than 40% of children under 5 years old had had fever or symptoms compatible with ARIs in the two weeks preceding the survey. Only 20% of them had been formally examined to obtain treatment (26% in the cities, 18% in the countryside). The mother’s schooling level also is associated with whether or not treatment is sought (28% with a secondary education versus 15% when the mother has had no schooling).

Analysis of the death certificates from 2003 reveals that mortality attributable to acute respiratory infections in children ranks just behind the number of deaths from malnutrition or diarrhea.

HIV/AIDS and Other Sexually Transmitted Infections

HIV/AIDS and sexually transmitted infections (STIs) are common in Haiti. Estimates put HIV prevalence at 2.2%, or 2.3% among women aged 15–49 and 2% among men aged 15–59 (EMMUS IV)—Haiti is in the throes of a generalized HIV epidemic. The virus strikes men and women of reproductive age, leads to death at a very young age, and leaves vulnerable orphans in its wake.

An estimated 40,000 HIV-positive persons needed antiretroviral therapy in 2005. Starting in 2003, antiretroviral therapy has been available in Haiti, chiefly through centers run by two organizations: the Haitian Group for the Study of Kaposi’s Sarcoma and Opportunistic Infections (GHESKIO), and Zanmi Lasanté, a nongovernmental organization.

The number of treatment sites has substantially increased and the number of people receiving antiretroviral therapy rose from 5,500 in January 2006 to 9,412 in September 2006 (43% men and 57% women, for a male-to-female ratio of 1:1.3).

The vast majority of patients receive antiretroviral therapy at GHESKIO centers and the Zanmi Lasané network. Other patients are treated at 24 other treatment sites throughout the country, but coverage is still highly inequitable.

The number of treatment sites designed to prevent mother-to-child transmission has substantially increased, from 40 in 2003 to 74 in September 2006; effective care for pregnant women and their babies has yet to be achieved, however. Between October 2004 and September 2005, around 53,000 pregnant women were screened for HIV, and between October 2005 and September 2006, over 70,000 or just over 80% of pregnant women were seen in these centers. The HIV prevalence rate in this selected group

¹On 26 September 2004, tropical storm Jeanne left 3,000 people dead, among them Father Olivier, who had devoted his life to leprosy patients in Artibonite. He was swept away while trying to bring help to patients in the flooded Hôpital de la Providence in the city of Gonaïves.

was 3.3%, and 91% of the women tested returned for their results and received post-testing counseling on site. But only 10% of these seropositive women and their babies received antiretroviral therapy to prevent mother-to-child transmission.

In 2005–2006, approximately 180,000 persons were tested for HIV (M:F ratio of 1:1.9) in 98 voluntary screening centers, with a positivity rate of 9.3% (10.7% for men and 8.6% for women).

In the 2005–2006 Mortality, Morbidity, and Service Utilization Survey (EMMUS IV), virtually all respondents had heard of HIV/AIDS, and 75% of the women and 85% of the men said that there was a way of preventing it; responses varied widely from department to department. Irrespective of these responses, condom use is very limited (11% of women and 23% of men who had had sexual relations in the 12 months prior to the survey had used them in their last sexual encounter). Singles stated more often that they used condoms (38% of women and 42% of men), and condom use was more common among young people (26% of girls and 33% of boys aged 15–19 years, versus only 6% or less among women over 30 and men over 40). Educational level also influences condom use (24% of women and 40% of men with a secondary education used them, versus 2% of women and 3% of men who had not attended school). People with HIV/AIDS continue to be stigmatized and discriminated against, and may even be rejected by their own families.

NONCOMMUNICABLE DISEASES

Metabolic and Nutritional Diseases

The 2000–2001 Mortality, Morbidity, and Service Utilization Survey (EMMUS III) revealed high levels of **anemia** in children (65%), women in general (54%), and pregnant women (63%).

Moreover, in 2005, the Haitian Children's Institute (l'Institut Haïtien de l'Enfance [IHE]) conducted a study on the prevalence of **vitamin A and iodine deficiencies**. One-third of children 6–59 months old had plasma retinol levels of $\leq 0.70 \mu\text{m/L}$ and suffered from vitamin A deficiency (essentially of nutritional origin) and 1.47%, from severe deficiency (≤ 0.35); there was no difference between the sexes. Children 24–35 months old were the most affected. Haiti can be considered a country with mild iodine deficiency (median $84 \mu\text{g/l}$): 24% of the population suffers from moderate deficiency, and a very small fraction from severe deficiency. Rural areas are the ones with most of the severe iodine deficiency, but even the metropolitan area has pockets of severe deficiency. This deficiency has had an adverse effect on the health of pregnant women and children.

From September 2002 to May 2003, the Haitian Foundation for Diabetes and Cardiovascular Disease conducted a cross-sectional study of 1,620 adults older than 20 years old in metropolitan Port-au-Prince. The age-adjusted prevalence of **diabetes** was 4.8% in men and 8.9% in women, with 70.6% of cases already known. **Hypertension** was found in 48.7% of men and

46.5% of women. The rate in the group older than 40 was 69.1% in men and 67.2% in women.

Cardiovascular Diseases

Based on a review of a sample of death certificates for the years 2000 to 2003, cerebrovascular disease accounted for one-third of all deaths. Heart disease, diabetes, and hypertensive diseases were also important causes of death.

Malignant Neoplasms

In 2003, malignant neoplasms ranked fifth as the specific cause of death in Haiti, accounting for 5.1% of all recorded deaths with a certified diagnosis. A total of 292 cases of malignant neoplasms, 157 in women and 135 in men, were reported at that time. In women, the areas most affected were: the reproductive system (28% of malignant tumors), the digestive system (26%), the breast (18%), the respiratory system (9%), the blood and lymphatic system (7%), and the aerodigestive tract (5%). There is no systematic screening for cervical, breast, or prostate cancer.

Zoonoses

There were 21 cases of **human rabies** confirmed between 2001 and 2005, nine in 2001, four in 2002, four in 2003, three in 2004, and one in 2005. Most cases were in the metropolitan area. Currently, many foci that are reported are not investigated, due to the inadequacy of the epidemiological surveillance system.

Anthrax is endemic in the Nord, Sud-Est, Nippes, and Artibonite departments. These four departments are active foci.

OTHER HEALTH PROBLEMS OR ISSUES

Natural Disasters

Torrential rains flooded the cities of Cayes in 2002 and Saint-Marc in 2003. In 2004, the rural areas of Mapou and Fonds Verrettes also were hard hit by floods. In the latter, 1,800 deaths were reported and two villages were completely destroyed by mudslides. In September 2004, tropical storm Jeanne flooded the cities of Gonaïves and Port-de-Paix, resulting in 2,000 deaths and leaving 100,000 families homeless; eight hospitals and several clinics were destroyed.

The 2005 hurricane season was especially intense. Storm activity was more than twice as great as the average, with 26 storms and 14 hurricanes. Heavy rains and violent winds from these storms swelled most of the rivers and flooded several regions. Tidal waves were reported in some coastal areas in the departments of Sud and Grand'Anse.

Violence and Other External Causes

Accidents and violence contribute significantly to morbidity and mortality in Haiti, especially among the economically active population and adolescents and young adults. In 2003, 6% of

deaths in the group aged 15–19 and 5% in the 20–49 age group were connected with assaults. In 2006, data were gathered by different agencies, such as the Police, the United Nations Stabilization Mission in Haiti, the Ministry on the Status of Women and Women's Rights, the National Network for the Defense of Human Rights, and Doctors without Borders. A review of these data showed that almost 90% of emergency care was treatment for assault with a deadly weapon and 10% for sexual assault or domestic violence.

Since opening its doors, the center operated by Doctors without Borders, France (MSF/F), has treated an average of 700 emergency cases each month, 200 of them the result of violence. MSF/F statistics show that there were an average of 232 victims of traffic accidents each month (70% among 19–49-year-olds, with an M:F ratio of 1.8:1, and 20% under the age of 18) and 414 monthly patient consultations due to accidents in the home. Kidnappings for ransom are another form of violence: in December 2005 alone, there were 237 cases of kidnapping for ransom.

Addictions

A Government study commissioned in 2000 that interviewed 778 children living in difficult situations and 4,317 students in secondary schools in metropolitan Port-au-Prince showed that there is easy access to psychoactive substances in Port-au-Prince. The number of individuals who consider access to be easy, however, varies with the substance in question: cigarettes (98%); alcohol (97%); analgesics (72%); tranquilizers (39%); and inhalants (paint thinner) (31%). Alcohol is the most common drug used (55% of the sample), with use beginning at the age of 14; it is followed by amphetamines (29%), sleeping pills (15%), and tranquilizers (11%). Boys who were questioned in the survey said that they had started using marijuana at around age 17, girls reporting starting around age 11.

The Association for the Prevention of Alcoholism and other Chemical Addictions offers rehabilitation services that follow the 12-step approach of Alcoholics Anonymous during 12 months. Between 2001 and 2006, the Association treated 143 persons, 88% of them men and 61% who had been addicted for more than five years. The breakdown of addictions by type of substance is as follows: alcohol (27%); marijuana (19%); crack cocaine (30%); Juicy Lucy (marijuana plus crack cocaine) (6%); and tobacco, prescription drugs, and heroin (8%).

RESPONSE OF THE HEALTH SECTOR

Health Policies and Plans

In 2005, the Ministry of Public Health and Population published a national strategic plan for health sector reforms to be

carried out in 2005–2010. The plan identifies health as a basic human right of all Haitians, without discrimination, and underscores the direct link between health and human development and the necessary respect for the principles of solidarity, equity, and social justice.

Haiti's health policy's main mandate calls for strengthening the Ministry's steering role in planning, executing, and evaluation of health programs. Community Health Units are decentralized administrative entities responsible for carrying out health activities of guaranteed quality, in partnership with public and private health organizations and with the community's participation, in each Unit's assigned geographical area.

Traditional medicine, which is widely accepted regardless of social class or religious affiliation, is practiced by various healers ("doktè-fèy," midwives, voodoo priests, masseurs, bonesetters, herbalists, spiritualists).

In 2006, a decree created a Pharmacy, Drug, and Traditional Medicine Bureau within the Ministry of Public Health and Population. It is responsible for ensuring that a national policy on traditional medicine and drugs is developed and that research in this area is promoted.

The development of strategies and the execution of activities to guarantee basic services are hampered by a deficient, outdated legal framework and inadequate institutions. The absence of basic laws and a lack of consistency in the existing services have led to a state of anarchy in which the Government has been unable to regulate, direct, or monitor the quality of services and supplies offered.

As of the end of 2005, Haiti had no national drug policy.

In 2002, the Ministry of Public Health and Population launched a program to restructure and rationalize the national health system, including functionally decentralizing the Ministry based on the concept of Community Health Units. Decentralization is still in the early stages—11 Community Health Units in 5 departments were up and running by 2006. The development of an effective financing system, the strengthening of community participation, inter- and intrasectoral coordination, the development of a human resources policy compatible with Ministry needs, and the amendment of health legislation to safeguard the interests of the greatest number of people are other important strategies.

Organization of the Health System

Haiti's health system is made up of the public sector, the private for-profit sector, the mixed nonprofit sector, and the traditional sector. The public sector consists of the Ministry of Public Health and Population and the Ministry of Social Affairs. The private for-profit sector includes all health professionals in private practice, working on their own or in clinics. The mixed nonprofit sector consists of Ministry of Public Health and Population staff

who work in facilities run by the private sector, by nongovernmental organizations, or by religious organizations.

The Ministry of Public Health and Population is headed by the Minister and the Director-General; it encompasses ten national bureaus and four coordinating units, each one dealing with infectious and communicable diseases, the Expanded Program on Immunization (EPI), nutrition, and hospital safety. There are also 10 departmental health bureaus, one for each of the country's 10 departments, which are headed by a Departmental Health Director, assisted by the professionals who oversee the national programs. The Community Health Units report to the departmental health bureaus. The number and location are dictated by the size of the population under their jurisdiction and their geographical location. The most recent organic law is from 2005–2006, but new structures have been created since its enactment, pursuant to the resolutions adopted by the country following international health and development conferences. Pending matters include the passage of the health and drug laws by the New Parliament and the creation of a Health Commission to support these processes.

All health system facilities are overseen and coordinated by the Ministry of Public Health and Population as part of the Ministry's regulatory role. The Ministry has not been able to fully assume this role, however. International cooperation resources have been directed more to the nonprofit private sector and, therefore, some private facilities have acquired greater capacity than the public sector. The Ministry of Social Affairs is theoretically responsible for workers' health in the formal private sector. To that end, several decentralized agencies fall under its responsibility, the most important of which are the National Old-age Insurance Office; the Insurance Office for Workplace Accidents, Illness, and Maternity; and the Social Welfare and Research Institute.

The private, for-profit sector is concentrated in the metropolitan area, where most professionals work. Private facilities, including clinics, laboratories, and pharmacies, operate without restriction but do not participate in the national health programs and epidemiological surveillance of diseases subject to mandatory notification.

The health services are distributed into first-level health services, communal referral hospitals, and departmental referral hospitals. The public sector encompasses about 35.7% of the health infrastructure; the mixed private sector, 31.8%; and the private sector, 32.5%. Under the old nomenclature, there were 402 dispensaries, 198 health centers with no beds, 54 centers with beds, and 63 hospitals, found primarily in the main locations of the departments. Some of the hospitals are specialized—in particular, the Hospital of the State University of Haiti, which is the national referral hospital, although its operations are often affected by budget constraints and repeated strikes. Certain *communes* have health centers, but they cannot meet the needs of their populations. An estimated 40% of the population lacks access to health services. Around 80% of the general population has

access to traditional medicine; most live in rural areas, where 13% of the population lives more than 15 km from the nearest health center.

Concerted efforts to set up a social security system are still incipient, despite the Government's efforts to provide a pension to employees over age 55 years with 25 years of service through the Ministry of Finance. The National Office for Old-age Insurance, created in 1965, covers employees in the private sector, but a very small percentage of the population is covered and the sums provided are often paltry.

Public Health Services

The Ministry of Public Health and Population relies on the primary health care strategy to attend to the health needs of the population. Care is delivered through a basic package of services, including child, adolescent, and women's health; emergency medical and surgical care; communicable disease control; health education; environmental health; and provision of drinking water and essential drugs. The provision of this basic package is still experimental, and limitations in national health programs prevent them from providing maximum coverage.

Priority is given to programs to combat HIV/AIDS and tuberculosis; these programs receive support from financial institutions working in the health sector. In addition, networks of NGOs and public and private health services have been developed to ensure better compliance with the strategies and activities in effect. These networks are too incipient to guarantee an effective national coverage, however. With regard to AIDS prevention, public-private cooperation with NGOs is under way in aspects that range from the implementation of five-year plans to serological sentinel surveillance and the prevention of perinatal transmission. As a result of a lack of organization and the absence of a performance evaluation system, the Expanded Program on Immunization was unable to prevent the accumulation of a large number of susceptibles, which was associated with a 2001 measles epidemic.

Since 1991, the Ministry of Public Health and Population has conducted epidemiological surveillance of HIV. Four sentinel studies of pregnant women yielded prevalence rates of 6.2% in 1993, 5.9% in 1996, 4.5% in 2000, and 3.1% in 2004. The decline in the prevalence rates over the last decade does not necessarily mean that the risk itself has decreased. It is also noted that the percentage of women under 20 years of age infected with the virus rose between 1996 and 2004.

A lymphatic filariasis program has demonstrated that it is possible to meet the regional objective of eliminating lymphatic filariasis by the year 2010.

In 2004 and 2005, two joint vaccination campaigns to combat canine rabies were carried out by the Ministry of Health and the Ministry of Agriculture. Some 100,000 dogs and cats were vaccinated in the capital, the Ouest department, and part of the Central

Plateau, where the alert had been sounded. (Brazil offered 5,000 doses of the vaccine and PAHO/WHO furnished the logistics.)

The Ministry of Agriculture has sponsored vaccination efforts against anthrax, although activities have been sporadic and have had little community participation. In 2004–2005, nearly one million animals were vaccinated against anthrax (FAO financing, implementation by VETERIMED).

In 2005, a national public health laboratory was built. It began functioning in 2006, albeit with insufficient physical resources or skilled human resources.

Two pilot initiatives for sustainable development were launched in Port Salut and Aquin; public sanitation and solid waste disposal systems were developed in the two *communes*, benefiting some 250,000 people. In the Lison neighborhood in north Port-au-Prince, a public sanitation and storm drainage system was constructed. The Ministry of Public Health and Population now has a Bureau for Health Promotion and Environmental Protection.

To improve sewage disposal, a project was initiated in 2005–2006, which provides technical and financial assistance to the community for building latrines.

Individual Care Services

In 1986, the Ministry of Public Health and Population decreed that the Haitian Red Cross would be in charge of blood transfusion services. In 2004, with support from the United States President's Emergency Plan for AIDS Relief project, the Ministry launched a national blood transfusion safety program and prepared a draft decree aimed at reorganizing the national blood safety system. The program involves the creation of blood transfusion posts and blood banks in every department in the country. Substantial improvements have been made in the collection of blood and the appropriate use of whole blood and blood products; this improvement is due primarily to the shift from a system based on replacement blood donors to one based on regular, volunteer, altruistic blood donation (volunteer blood donations increased from 5% in 2004 to 27% in 2006). Nevertheless, coverage is generally inadequate; the blood transfusion center in Port-au-Prince was able to meet only 47% of the demand in 2004 and 60% in 2005; the only blood bank set up outside the capital in 2006 is located in Miragoâne. In 2005, the screening of about 11,000 units of blood found 1.6% positive for HIV, 4% for hepatitis B, 0.7% for hepatitis C, 1% for HTLV-1, and 3% for syphilis.

The mental health sector is the responsibility of the Bureau of Health Promotion and Environmental Protection. The Centre de Psychiatrie Mars et Kline and the Hôpital Psychiatrique Défilé de Beudet are the government-run facilities in metropolitan Port-au-Prince. No public institution offers mental health services outside the capital, but several small, private centers have emerged. Available mental health care cannot keep up with demand, which has been exacerbated by the country's persistent stress and violence.

Health Promotion

In 2005, a new health promotion strategy was instituted in the country: ecoclubs were created to foster youth leadership and improve environmental conditions by promoting clean and green spaces, safe drinking water, sanitation, and vector control. In 2006, more than 500 young people were trained to work in a national network. Other initiatives, such as the promotion of healthy cities, also have emerged.

Human Resources

There are not enough human resources to meet demand and they are distributed unequally throughout the country.

In the past, only the public sector provided training for health personnel through its institutions—a medical school, a pharmacy school, a dental school, a medical technology school, and four national nursing schools in Port-au-Prince, Cap-Haïtien, Cayes, and Jérémie. In the past 10 years, private schools have proliferated, creating accreditation problems. Only two of the four private medical schools are officially recognized by the Government. Several schools for nurses and nursing auxiliaries operate without authorization, and others have not even been registered. In 1998, nine nursing schools were officially recognized and nine others were being evaluated.

In 2000, a school for nurse-midwives opened; it is currently training its sixth class of 30 students. In 2000–2005, the University of Haiti's Medical School graduated 463 doctors; the University's Pharmacy School graduated 153 pharmacists and 38 lab technicians. For these graduates to obtain a license to practice in Haiti, the government requires that they perform one year of social service in a rural public health facility. The lack of a national exam or any other official certification is a major obstacle to the regulation and standardization of competencies in the various medical professions in the country. The Ministry of Public Health and Population has developed and implemented a nursing school curriculum. Since 1998, with aid from France, the Public Health Administration Information and Training Center (CIFAS) has trained hospital administrators and directors for the public sector every year. The State University of Haiti trained 100 managers between 2001 and 2005. During that same period, the Haitian Foundation for Diabetes and Cardiovascular Disease offered basic training for health personnel in early diagnosis and treatment of diabetes and hypertension.

Health Supplies

There are four private-sector pharmaceutical laboratories that are officially authorized to manufacture drugs for national use. Their combined production covers some 30%–40% of the Haitian market. Since Haiti has no national drug quality control laboratory, it must resort to quality monitoring carried out through PAHO/WHO. There is no medical materials manufacturer, and

Hope in Haiti

Haiti is in the thick of a generalized HIV epidemic. Fanned by rampant poverty, illiteracy, and years of political and social turmoil, the country's HIV prevalence rates are the highest in the Region. Against this dismal background rises a story of success and inspiration—a story of preventing and fighting disease, treating the sick, and bringing hope to those who have lost hope. Zanmi Lasanté (meaning Partners in Health in Haitian Kreyol) is bringing first-rate comprehensive health care to the country's Central Plateau; it is the only provider of comprehensive primary care to the impoverished populations in the Plateau. The nongovernmental health care provider has come a very long way since it established the Clinique Bon Sauveur, a two-room clinic in the village of Cange, in 1985. In 1998, Zanmi Lasanté pioneered a program providing antiretroviral therapy to 50 patients suffering from advanced AIDS. Among other ventures, today Zanmi Lasanté operates a 104-bed full-service hospital that encompasses two operating rooms, adult and pediatric inpatient wards, an infectious disease center, an outpatient clinic, a women's health clinic, clinics for ophthalmology and general medicine, a laboratory, a pharmaceutical warehouse, a blood bank, radiographic services, and a cluster of schools. In partnership with Haiti's Ministry of Health, Zanmi Lasanté has expanded to other sites besides Cange, where it trains and pays community health workers and complements Ministry of Health personnel. Its hallmark approach, however, is the training of *accompagnateurs*, health foot soldiers who march into the community to prevent illness, monitor medical and socioeconomic conditions, and deliver quality care to people with chronic diseases. Zanmi Lasanté currently provides health care to half a million persons in the Central Plateau. It has become a model for how to provide effective health care to the poorest of the poor.

one agency produces laboratory reagents locally. In August 2004, a census found 42 agencies that import pharmaceuticals and 6 offices authorized to handle their distribution. Added to these are some NGOs and institutional partners that import drugs and distribute them directly. In 2004, Haiti had 215 official pharmacies; the country also has an informal distribution system in which drugs are freely sold on the street, in the markets, and in malls.

The public sector has an essential drugs program, as well as a decentralized logistical system that operates nationwide, guaranteeing the availability of drugs and their distribution in public, private, and mixed nonprofit establishments.

In 2005, the total value of drugs and health supplies distributed to the country's health institutions through PAHO's Essential Drug Program (PROMESS) was US\$ 4,315,326, broken down as follows: US\$ 1,328,043 for drugs sold under the cost-recovery policy; and US\$ 2,987,283 for drugs subsidized by the priority programs of the Ministry of Public Health and Population, including vaccines, contraceptives, and drugs for treating tuberculosis, malaria, and AIDS. This figure has fallen dramatically since 2001, when the value of drugs was US\$ 7,748,907 for drugs and supplies distributed to health institutions by PROMESS; US\$ 1,861,123 for drugs sold under the cost-recovery policy; and US\$ 5,887,784 for drugs subsidized by the priority programs of the Ministry of Public Health and Population. Government outlays for drug procurement are extremely low, even when it is not expressed as a percentage of the total budget of the Ministry of Public Health.

Although the national list of essential drugs was drawn up by the public sector in 2003, it has numerous inadequacies and

should be revised. To a certain extent, the basic markets for health technology, drugs, and other supplies are under the control of the Ministry of Public Health and Population.

Research and Technological Development in Health

The Bureau of Epidemiology, Laboratories, and Research, created in 2006 under the responsibility of the Ministry of Public Health and Population, is charged with planning and conducting research that contributes to the development of policies and programs on disease prevention and control. Financial constraints, along with a shortage of trained personnel, have prevented the Bureau from exercising this mandate. Several private and public facilities conduct research, but their studies are not always authorized or overseen by the Ministry's Committee on Bioethics and Protection of Human Subjects. The 11-member Committee has issued rulings on 23 research projects since it was created in 1999; most research projects reviewed were related to HIV/AIDS and vaccine trials.

Health Sector Expenditures and Financing

Public health expenditure represents only 0.8% to 1% of GDP. While the government regularly increases the health budget (HTG 661,121,148 per year in 2003–2004; HTG 871,239,000 in 2004–2005, or 3.5% of the national budget), it is not enough to cover the population's health needs. Since the national budget is very small, the funds currently disbursed are lower in real

terms than in the 1980s, taking inflation and the depreciation of the Gourde against the US\$ into account. Most of the funds go to salaries; priority programs and investment costs must be funded by multilateral and bilateral international cooperation. Decentralized resource management is beginning to emerge with the creation of the Community Health Units: the sluggishness observed in the disbursement of funds, rendering outlying facilities inoperable, is beginning to ease, making way for more rational execution of departmental operating plans.

Clearly, the issue of health financing is at the heart of the problem of access to care. Some studies argue for a policy of free care. Other initiatives, such as the debt forgiveness one with the International Monetary Fund and the World Bank, envisage using earmarked funds to offer a basic package of free services to the poorest population and, in the medium term (10–15 years down the road), putting a social protection system in place. Health financing in Haiti should be viewed from a macroeconomic perspective; to address it, various initiatives have been implemented in the formal and informal sectors, using microfinancing and microinsurance mechanisms to improve financial access to quality services at an acceptable price for users.

Technical Cooperation and External Financing

External aid to the health sector dropped from US\$ 48 million in 1998–1999 (when it reached its highest level between 1997 and 2005) to US\$ 28 million in 2001–2002 (the lowest level between those same years). The main providers of multilateral funds are the Global Fund to Fight Aids, Tuberculosis, and Malaria (with US\$ 66.9 million over five years, beginning January 2003) and the IDB (with US\$ 22.5 million in four years, beginning in late 2003). After providing critical support for the establishment of the Community Health Units, the European Union virtually suspended aid after the political crisis of 2000. Nine specialized United Nations agencies have representative offices in Haiti, and six of them work in the health sector (PAHO/WHO, UNICEF, FAO, WFP, UNAIDS, and UNFPA). A representative of the United Nations Secretary-General deals chiefly with political matters, in close collaboration with the Coordinator of the International Civilian Support Mission in Haiti. The health sector has been designated as a priority by bilateral cooperation agencies from countries including Canada, France, Japan, Spain, and the United States.

PAHO's Essential Drug Program (PROMESS) plays a key role in procuring drugs, essential supplies, laboratory products, and medical consumables in the international market and overseeing their distribution to Haiti's public health facilities, 12 outlying warehouses, and 2 drug banks, which together constitute the national drug distribution network.

The Minister of Public Health and Population and the Ministry of Planning and External Cooperation coordinate health activities with bilateral, multilateral, and private cooperation agencies. The United Nations agencies have been specifically involved

in health sector reform, reproductive health, child health, family planning, immunization, nutrition, drinking water and sanitation, health services development, AIDS and sexually transmitted infections, gender issues in health, and essential drugs. The 2000–2005 period has been extremely difficult in Haiti. International aid has not always responded to the country's specific needs, and the Government's lack of liquidity has not allowed it to coordinate aid needs. Regional integration has been strengthened since Haiti joined CARICOM.

Several cooperation agreements have been signed with the Dominican Republic. Among them is the 2005 binational tuberculosis control project supported by PAHO/WHO; results have been meager, however. Another effort, a 2005 technical cooperation project for preventing and controlling rabies transmitted by dogs, has seen good results in both countries.

Several intercountry projects have been carried out. Highlights include a 2003–2005 project with support from Cuba (US\$ 144,247) and a 2004–2005 project with Paraguay in environmental health that involved solid waste management and training in Haitian institutions in engaging the community's participation for installing drinking water and sanitation systems.

Bibliography

- Bureau international du Travail, Programme STEP; Financial Services Network for Entrepreneurial Empowerment (DAI/FINNET). Louis dit Guerin O, Viau J. Mise en place d'un système d'assurance santé à l'hôpital Albert Schweitzer. Etude de faisabilité. Draft. October 2001.
- Coalition Nationale Pour les Droits des Haïtiens. Non Au Système Restavek. Vers l'élimination de l'esclavage de l'enfant en Haïti. April 2002.
- de Rochars MB, Kanjilal S, Direny AN, Radday J, Lafontant JG, Mathieu E, et al. The Leogane Haiti demonstration project: decreased microfilaremia and program cost after 3 years of mass drug administration. *Am J Trop Med Hyg.* 2005; 73(5): 888–94.
- Facultad Latinoamericana de Ciencias Sociales; Organización Internacional para las Migraciones. Encuesta sobre Inmigrantes Haitianos en República Dominicana. Santo Domingo, March 2004.
- Facultad Latinoamericana de Ciencias Sociales; Organización Internacional para las Migraciones. Las migraciones: la incapacidad de ofrecer una vida digna. In: Informe nacional de desarrollo humano 2005. Chapter V. p. 119–44.
- Fleurival J. L'anémie falciforme à l'usage des généralistes et des étudiants en sciences de la santé en Haïti. Port-au-Prince, Imp. Collection Procédure. March 2006.
- Fonds des Nations Unies pour la population; Unissons-nous pour les enfants. Evaluation des dépôts périphériques. Rapport consolidé. November 2005.

- Gaillard EM, Boulos L-M, Cayemittes MPA, Eustache L, Van Onacker JD, Duval N, et al. Understanding the reasons for decline of HIV prevalence in Haiti. *Sex Transm Infect.* 2006 Apr;82 Suppl 1:i14–20.
- Haïti, Association pour la prévention de l'alcoolisme et autres accoutumances chimiques; Institut Haïtien de l'Enfance; Programme des Nations Unies pour le contrôle international des drogues. Etude Connaissances, Attitudes et Comportements des élèves et des enfants des rues de la région métropolitaine de Port-au-Prince. November 2000.
- Haïti, Conseil National pour la Réhabilitation des Handicapés; Ministère des Affaires sociales et du Travail; Programme des Nations Unies pour le développement. Vers l'élaboration d'une stratégie nationale d'intégration des personnes à besoins spéciaux. Port-au-Prince: Ed. des Antilles S.A.; May 2005.
- Haïti, Groupe d'Appui aux Réfugiés et Rapatriés. Available from: www.garr-haiti.org.
- Haïti, Groupe d'Appui aux Rapatriés et Réfugiés; Mouvement des Femmes Dominicano-Haïtiennes. En quête de la vie. Une étude sur les femmes haïtiennes impliquées dans la migration en République Dominicaine. February 2005.
- Haïti, Groupe d'Appui aux Réfugiés et Rapatriés. Rapport migration haïtienne et les droits humains à la frontière haïtiano-dominicaine en 2004. April 2005.
- Haïti, Institut Haïtien de l'Enfance; Macro International Inc. Enquête Morbidité, Mortalité et Utilisation des Services (EMMUS-III), Haïti 2000/2001. Calverton (Maryland), 2001.
- Haïti, Institut Haïtien de l'Enfance; Macro International Inc. Enquête Morbidité, Mortalité et Utilisation des Services (EMMUS-IV), Haïti 2005/2006. Résultats préliminaires. Pétion-Ville, 2006.
- Haïti, Institut Haïtien de Statistique et d'Informatique; Bureau du Recensement Général de la Population et de l'Habitat; Fonds des Nations Unies pour la population; Union Européenne; Coopération japonaise; Banque Interaméricaine de Développement; Région Wallonne. 4ème Recensement Général de la Population et de l'Habitat 2003 (RGPH-2003). Résultats définitifs. March 2005.
- Haïti, Ministère de la Planification et de la Coopération Externe; Banque Interaméricaine de Développement. Carte de pauvreté d'Haïti. Version 2004.
- Haïti, Ministère de la Planification et de la Coopération Externe; Programme des Nations Unies pour le développement; Bureau international du Travail. HAI.01.001. Expérience de promotion de micro-assurance santé: Le cas ASPAKO. Appui au développement d'un partenariat pour l'intégration économique et sociale et l'implantation d'un programme national de promotion d'emplois productifs et de lutte contre l'exclusion sociale. Port-au-Prince.
- Haïti, Ministère de la Planification et de la Coopération Externe; Programme des Nations Unies pour le développement; Bureau international du Travail. HAI/99/001. Mathieu S. Etat des lieux en matière de protection sociale gouvernementale en Haïti. Etude de référence 4 dans le cadre du Projet d'Assistance préparatoire pour la promotion d'emplois productifs et la lutte contre l'exclusion sociale. January 2000.
- Haïti, Ministère de la Planification et de la Coopération Externe; Programme des Nations Unies pour le développement; Bureau international du Travail. HAI/99/001. Ponticq F. Etat des lieux en matière d'extension de la protection sociale en milieu communautaire en Haïti. Etude de référence 5 dans le cadre du Projet d'Assistance préparatoire pour la promotion d'emplois productifs et la lutte contre l'exclusion sociale. April 2000.
- Haïti, Ministère de la Santé Publique et de la Population, Consultance en Santé Publique, VIIIème FED. Programme d'appui au développement des ressources humaines dans le secteur de la santé. Rapport final. Port-au-Prince, October 1999.
- Haïti, Ministère de la Santé Publique et de la Population, Direction Centrale de Pharmacie et de Contrôle des Substances chimiques, Direction de la Santé de la Famille; Haïti, Ministère de la Santé Publique et de la Population. Analyse du Secteur de la Santé pour la Réforme.
- Haïti, Ministère de la Santé Publique et de la Population; John Snow Inc. Données sanitaires de routine 2004, 2005. Port-au-Prince.
- Haïti, Ministère de la Santé Publique et de la Population; Les Centres pour le Développement et la Santé; Fonds des Nations Unies pour la population. Projet bi-national Haïti-Dominicaine. Etude sur les besoins en services de santé reproductive et sexuelle. Port-au-Prince, May 2006.
- Haïti, Ministère de la Santé Publique et de la Population. Liste des institutions sanitaires. Port-au-Prince, September 2005.
- Haïti, Ministère de la Santé Publique et de la Population; Ministère de l'Éducation Nationale de la Jeunesse et des Sports; Organisation panaméricaine de la Santé/Organisation mondiale de la Santé. Rapport de l'enquête sur la prévalence et l'intensité parasitaire dans le Département du Sud. March 2005.
- Haïti, Ministère de la Santé Publique et de la Population; Nations Unies; Commission Européenne; Banque Mondiale; Banque Interaméricaine de Développement. Cadre de Coopération Intérimaire (CCI) 2004–2006. Rapport de synthèse, July 2004. Port-au-Prince, 2004.
- Haïti, Ministère de la Santé Publique et de la Population; Organisation panaméricaine de la Santé/Organisation mondiale de la Santé. Analyse des causes de décès Haïti 1999. Port-au-Prince, March 2002.
- Haïti, Ministère de la Santé Publique et de la Population; Organisation panaméricaine de la Santé/Organisation mondiale de la Santé. Analyse des certificats de décès. République d'Haïti 2001, 2002 et 2003.
- Haïti, Ministère de la Santé Publique et de la Population; Organisation panaméricaine de la Santé/Organisation mondiale de la Santé. Etude sur la situation de la Médecine Traditionnelle en Haïti. Port-au-Prince, April 2003.

- Haïti, Ministère de la Santé Publique et de la Population; Organisation panaméricaine de la Santé/Organisation mondiale de la Santé. Haïti 2004. Situation de Santé, Indicateurs de Base. Port-au-Prince.
- Haïti, Ministère de la Santé Publique et de la Population; Organisation panaméricaine de la Santé/Organisation mondiale de la Santé. Plan stratégique pour le développement de l'épidémiologie en Haïti. 2001–2004. Port-au-Prince, March 2002.
- Haïti, Ministère de la Santé Publique et de la Population; Organisation panaméricaine de la Santé/Organisation mondiale de la Santé. Saint Preux A. Rapport d'expertise. Répertoire des textes législatifs régissant la santé publique en Haïti, 2002.
- Haïti, Ministère de la Santé Publique et de la Population; Organisation panaméricaine de la Santé/Organisation mondiale de la Santé. Tétanos maternel et néonatal en Haïti. Situation et dilemmes stratégiques de l'élimination. February 2006.
- Haïti, Ministère de la Santé Publique et de la Population. Plan stratégique de lutte contre la tuberculose en Haïti 2001–2006.
- Haïti, Ministère de la Santé Publique et de la Population. Plan Stratégique National pour la Réforme du Secteur de la Santé 2005–2010. Port-au-Prince, August 2005.
- Haïti, Ministère de la Santé Publique et de la Population, Programme National d'Élimination de la Filariose Lymphatique. Nicolas MCE, St Jean Y, Milord MD, Beaudé-Rochars M, et al. Résultats de l'enquête nationale de prévalence sur la filariose lymphatique. Port-au-Prince, undated.
- Haïti, Ministère de la Santé Publique et de la Population, Programme National d'Élimination de la Filariose Lymphatique: Plan d'action pour l'élimination de la Filariose Lymphatique en Haïti (2003–2008). Port-au-Prince, 2004.
- Haïti, Ministère de la Santé Publique et de la Population; Programme National de Lutte contre la Tuberculose; Secrétariat d'État à la Santé Publique et à l'Assistance Sociale; National Tuberculosis Control Program, Organisation panaméricaine de la Santé/Organisation mondiale de la Santé. Plan binational Haïti–République Dominicaine de lutte contre la tuberculose 2005–2006, final version. June 2005.
- Haïti, Ministère de la Santé Publique et de la Population, Unissons-nous pour les enfants; Institut Haïtien de l'Enfance. Enquête sur la prévalence de la carence en Vitamine A et de la déficience en iode en Haïti. July 2005.
- Haïti, Ministère de la Santé Publique et de la Population. Voltaire HC. Les Unités Communales de Santé. Principes et Orientations Stratégiques. Port-au-Prince, June 1999.
- Haïti, Ministère de l'Économie et des Finances; Institut Haïtien de Statistique et d'Informatique; Programme des Nations Unies pour le développement. Enquête sur les conditions de vie en Haïti (ECVH-2001). Port-au-Prince, January 2004.
- Haïti, Ministère des Affaires sociales et du Travail. Les fondements de la pratique de la domesticité des enfants en Haïti. Programme des Nations Unies pour le développement; Unissons-nous pour les enfants; Organisation internationale du Travail/Programme de lutte pour l'éradication du travail des enfants; Save the Children. July 2002.
- Haïti, Ministère des Affaires sociales et du Travail; Programme des Nations Unies pour le développement; Unissons-nous pour les enfants; Organisation internationale du Travail/Programme de lutte pour l'éradication du travail des enfants; Save the Children. Domesticité des enfants en Haïti. December 2002.
- Hallett TB, Aberle-Grasse J, Bello G, Boulos L-M, Cayemittes MPA, Cheluget B, et al. Declines in HIV prevalence can be associated with changing sexual behaviour in Uganda, urban Kenya, Zimbabwe, and urban Haiti. Imperial College.
- Initiative Développement; Alter Santé Internationale et Développement. Vinard P, Boecker C, Malherbe P. Analyse de l'impact des paiements et de la gratuité sur l'accès aux soins: L'expérience d'Ennery en Haïti. Poitiers, October 2005.
- Jean-Baptiste ED, Larco P, Charles-Larco N, Vilgrain C, Simon D, Charles R. Glucose intolerance and other cardiovascular risk factors in Haiti. Prevalence of diabetes and hypertension in Haiti (PREDIAH). *Diabetes Metab.* 2006 Nov;32(5 Pt 1): 443–51.
- Joint United Nations Program on HIV/AIDS, UN Theme Groups Haiti and Dominican Republic. Interagency and bilateral project. Haiti–Dominican Republic. Prevention of HIV/AIDS on the northern border of Haiti. October 2004.
- Junot F. Ministère de la Santé Publique et de la Population. Planification stratégique du système d'information sanitaire pour l'intégration des données du VIH/SIDA. Projet Measure Evaluation. Second draft. Port-au-Prince, July 2006, p.16.
- Médecins Sans Frontières. Accès aux soins dans l'Unité communale de santé de Petite rivière, Verrettes, La Chapelle, Haïti. Résultats de deux enquêtes épidémiologiques concernant la mortalité et l'accès aux soins. September 2005.
- Milord MD. Lymphatic filariasis elimination in the third America [Presentation]. Regional Program Manager's Meeting. Port-au-Prince, 4–6 September 2002.
- Organisation panaméricaine de la Santé/Organisation mondiale de la Santé. Lacapère F. Mortalité des enfants d'âge scolaire en Haïti. Analyse des certificats de décès (2000). [PowerPoint presentation].
- Pan American Health Organization. Press release. Outbreak of poliomyelitis in Dominican Republic and Haiti: low vaccination coverage with oral polio vaccine allows Sabin-derived vaccine to circulate. December 2000.
- Programa de las Naciones Unidas para el Desarrollo. Proyecto interagencial y binacional. Haïti–República Dominicana. Prevención del VIH/SIDA en la frontera norte de Haïti. Informe de un taller de planificación operativa. Dajabon (República Dominicana), 31 May–1 June 2005.
- Programme des Nations Unies pour le développement. Plan d'urgence, 2005.

- Programme des Nations Unies pour le développement. Rapport sur le Développement humain, 2005.
- Proposition de loi modifiant certaines dispositions du Code Pénal relatives aux agressions sexuelles (attentat à la pudeur, viol, harcèlement sexuel, inceste). Port-au-Prince, December 2005.
- Rapport de l'étude sur la prévalence et l'intensité des géo-helminthiases intestinales chez les écoliers du Département de la Grand'Anse.
- République d'Haïti. (2006). Décret portant sur l'organisation et le fonctionnement du MSPP, signé le 17 novembre 2005 paru au Moniteur, 5 January 2006.
- République d'Haïti. Proposition de Décret sollicitant la création d'un système national de sécurité sanguine sous tutelle du MSPP, avec un Programme national de sécurité transfusionnelle, une Commission nationale de sécurité transfusionnelle et un réseau des services de médecine transfusionnelle.
- Réseau Associatif National pour l'Intégration des Personnes Handicapées; Mission spéciale de l'OEI en Haïti. Convention interaméricaine pour l'élimination de toutes les formes de discrimination contre les personnes handicapées. (French/Creole bilingual version). Port-au-Prince: Le Natal; January 2002.
- Système des Nations Unies, République d'Haïti. Programme Intégré de Réponse aux Besoins Urgents des Communautés et des Populations Vulnérables (PIR). March 2003.
- United States Agency for International Development, Policy Project. Smucker GR. Les orphelins et les autres enfants vulnérables en Haïti: un rapport de terrain. April 2005.
- Université Quisqueya; Unité de Recherche sur les Enfants en Situation Difficile. Bernier M, Ponticq F. Planification d'interventions. 1999.
- Vorbe C. Les droits fondamentaux et le VIH/SIDA en Haïti. January 2006.