INTRODUCTION

Ecuador is situated on the northwestern coast of South America and has a land area of 256,370 km²; it is geographically divided into coastal, mountain, Amazon, and island regions. The country has 24 provinces with 269 cantons, which are subdivided into urban and rural parishes. The country underwent a political and administrative reorganization and as of 20 May 2010 the territory was divided into nine zones with decentralized, autonomous governments, districts, and circuits. Ecuador has a population of 14,483,499 and recorded an annual average growth rate of 1.7% between 2001 and 2010 (2).

Urban dwellers account for 60.4% of the nation’s population. Approximately 50% of the population lives in coastal areas, 45% in the mountains, 5% in the Amazon region, and 0.2% on the islands. Some 71.9% of the population is considered mestizo (or of mixed heritage), 6.1% white, 6.8% indigenous, 7.2%
Afro-Ecuadorian, and 7.4% Montubio. The provinces with the largest indigenous populations are Chimborazo, Pichincha, and Imbabura (1). Figure 1 shows Ecuador’s population structure in 1990 and 2010.

Life expectancy at birth for the period 2005–2010 was 75 years (men, 72, and women, 78). The total fertility rate for the same period was 2.6 children per woman (2). Timely registration of live births rose from 53.7% in 2006 to 62.3% in 2010. During that same period, the crude death rate held steady at 4.3 deaths per 1,000 population. Medical certification took place for 90.1% of deaths; 9.4% of deaths were from ill-defined causes (3).

The outward migration that began early in the last decade has had a tremendous social and economic impact from the resulting inflows of remittances, a category that in recent years has ranked second in Ecuador’s balance of payments (4). In 2010 the economically active population numbered 6,535,240. Employment stood at 37.3%, unemployment at 5%, and underemployment at 56.8%. The unified basic wage rose from US$ 170 per month in 2007 to US$ 264 in 2011 (5, 6, 7).

The percentage of women holding public office and participating in policy making varies. In 2009, 42 women, or 34% of the 124 delegates, were elected to the Constitutional Assembly. In other public bodies, their presence ranges from 4.8% (Ministry of Justice) to 60% (Andean Parliament).

In 2007, a new administration submitted a proposal to conduct sovereign policy, carry out regional integration, and increase social investment. In September of that year, the National Constitutional Assembly drafted a new Constitution, which was adopted by referendum on 30 September 2008. A development plan, known as the National Plan for Good Living 2009–2013, was drafted that links policies, management, and public investment with the object of strengthening the plurinational and intercultural nature of the State.

The most noteworthy health achievements in 2006–2010 include: (1) the State-guaranteed right to health, which was incorporated in the 2008 Constitution as part of a system of inclusion and social equity; (2) a budget increase for the Ministry of Public Health, which between 2007 and 2010 invested US$ 3.4 billion in the health sector; and (3) the gradual introduction of free health care,
including free medicines. In 2009, public health expenditure accounted for 2.9% of the gross domestic product, while the figure for national health expenditure for the same period was 7%.

Another major achievement in the 2006–2010 period was the launch of the Manuela Espejo Solidarity Mission, which studies disabilities to gain a better understanding of the biopsychosocial situation of people who suffer from these conditions and provide an immediate response to those with severe disabilities. Also important was the passage of the Organic Law for the Regulation and Control of Tobacco, which was drafted with extensive input from different sectors of society and approved by the President.

**HEALTH DETERMINANTS AND INEQUALITIES**

In 2010, a study using the unmet basic needs methodology revealed that 37.1% of Ecuadorian households were poor, a four-percentage-point reduction in the 41.7% recorded in 2008. Nationally, 13.4% of households were living in extreme poverty in 2010, down from 17.4% in 2008. During that same period, the proportion of urban households living in extreme poverty fell from 10.3% to 7.4%, while for rural households, it fell from 42.9% to 34.9% (5).

Los Ríos and Manabi provinces have the highest proportion of poor households, with 59% and 55%, respectively, while Pichincha, with 13%, has the lowest. Extreme poverty follows the same geographical pattern, with 27% in Manabi, 23% in Los Ríos, and 4% in Pichincha (6).

According to the 2010 census, 6.8% of the population over age 15 is illiterate (1), with 59% of illiterates living in rural areas. Provinces with the greatest concentration of illiterates are Cañar, Chimborazo, and Cotopaxi, with 12%, and Bolívar, Imbabura, and Manabi, with 11%. Some 19% of the indigenous population and 13% of the Montubio population are illiterate. However, the highest number of illiterates over the age of 15 in the country is found in the group that self-identifies as mestizo (4.7%) (1).

Regarding nutrition, in 2006 roughly 25.8% of children under 5 suffered from chronic malnutrition (8), with much higher rates in the mountainous provinces of Bolívar, Chimborazo, Cotopaxi, and Imbabura, where there is a higher concentration of indigenous people. The government has set as critical goals the eradication of malnutrition in children under age 5 by 2015, a 50% reduction in the prevalence of anemia in children under 5 and pregnant women by 2013, and getting the prevalence of overweight and obesity under control in the under-5 population by 2013 (10).

In 2010, 77% of dwellings in Ecuador had household connections to the public water supply, with greater coverage in urban areas. According to ethnic self-identification, in the white and mestizo populations, 81% and 75%, respectively, had the greatest access to water through the public water supply, while the figure for the Montubio and indigenous populations was only 41% and 49%, respectively. The province with the least access was Sucumbíos (38%), followed by Orellana and Santo Domingo de los Tsáchilas, with 43% and 47%, respectively. The province with the greatest access was Pichincha (93%), followed by Carchi (85%) and Galápagos (83%) (1). During that same year, 54% of dwellings in Ecuador were connected to the public sewage system and 34% had seepage pits or septic tanks for excreta disposal. In rural areas, just 15% of households had access to a public sewage system, while in the urban areas, the figure was 85% (1).

In the National Population and Housing Census (2010) participants were asked to identify themselves by culture and customs.
THE ENVIRONMENT AND HUMAN SECURITY

ACCESS TO CLEAN WATER AND SANITATION

Under the Organic Health Law of 2006, the Ministry of Health is responsible for monitoring the quality of water for human consumption. The 2010 census reveals that 79% of the urban population receives water from the public water supply, while in rural areas this figure falls to just 46%. Some 72% of the nation’s population receives water from the public water supply.

The water from the public water supply is not quality-assured. Access to drinking water is characterized as follows: 40% of the population boils it, 3% treats it with chlorine, 1.3% filters it before drinking it, and 22% drinks purified water sold in plastic bottles. According to the National Institute of Statistics and the Census (INEC), nationwide, 33% of the population consumes water the way it arrives in the home. The gaps between urban and rural areas are wide: 49% of rural residents drink water the way it arrives in the home.

SOLID WASTE

In 2010, 77% of Ecuadorian dwellings nationwide had access to trash collection services, although for populations in rural areas, barely 45% of dwellings had this service. The main source of river pollution, in addition to the uncontrolled and as yet unquantified dumping of industrial waste, is solid household waste, which is not collected from 23% of homes, and household wastewater. Some 10% of dwellings do not have toilets and discharge directly into the sea, rivers, lakes, or ravines. Added to this is the wastewater eliminated through the sewage system (66.6%), only 5% of which is actually treated (11).

DEFORESTATION AND SOIL DEGRADATION

Around 180,000 hectares of forest are lost each year in Ecuador, with a deforestation rate of 1.6%, according to the United Nations Food and Agriculture Organization (FAO), and from 0.8% to 3% according to other sources (12). In 2006, protected areas represented 19% of the nation’s territory.

AIR POLLUTION

Ecuador ranks fourteenth in Latin America and the Caribbean in terms of per capita CO₂ emissions, and eighth in terms of total CO₂ emissions. Air quality is monitored primarily in the cities of Quito, Guayaquil, and Cuenca, but no data are collected on related respiratory illness.

PESTICIDES

The pesticide poisoning rate per 100,000 population rose from 14.4 in 2010 to 17.4 in 2011. In 2011, 49% of the reported poisonings, by any agent, were pesticide-related (13). The Toxicology Information and Advisory Center keeps records on acute pesticide poisonings, but the number of chronic poisonings related to occupational and environmental exposure to these substances is unknown.

ROAD SAFETY

The annual incidence of traffic accidents rose from 98.3 per 100,000 population in 2006 to 164.9 in 2010. The goals of the National Plan for Good Living include “reducing traffic accident mortality by 20% by 2013.”

CLIMATE CHANGE

The most important global trends in climate change that are anticipated for Ecuador include a higher risk of: (1) mortality from heat or cold waves, particularly among the elderly, the chronically ill, the very young, and people living in isolation; (2) food and water shortages, malnutrition, and water- and foodborne
diseases; (3) drowning deaths and near-drowning injuries, deaths and injuries from floods and mudslides, and the impacts of population displacement on health; and (4) vector- and rodent-borne diseases. Mental health problems and posttraumatic stress disorder are also anticipated. In fact, the impact of climate change could adversely affect achievement of the Millennium Development Goals related to health. Since 2010, Ecuador has been working on an intersectoral, strategic plan that includes action between the Ministry of Environment, the health sector, and civil society, and focuses on raising awareness, training, research, mitigation, and adaptation, with emphasis on work at the local level.

**Food and Nutritional Security**

The food poisoning rate fell from 66.3 per 100,000 population in 2006 to 30.7 in 2010, while the acute diarrheal disease rate rose from 3,363.3 to 4,850.9 per 100,000 population during the period. The hepatitis A rate fell from 43.8 to 43.1 per 100,000 population between 2006 and 2010, while the typhoid fever rate plummeted from 43.6 per 100,000 population in 2006 to 14.5 in 2010.

**Health Conditions and Trends**

**Health Problems of Specific Population Groups**

**Maternal and Reproductive Health**

As reported in the 2010 National Report on Millennium Development Objectives, the maternal mortality ratio in Ecuador is one of the hardest indicators to assess because of the diversity of sources and inaccuracies in selecting both the numerator and denominator. In some cases, the denominator was the estimated number of live births for the period, and in others it was the number of live births recorded in a particular time period. According to INEC, the maternal mortality ratio in 2009 was 69.7 per 100,000 live births. Hospital discharge data indicate that the main causes of mortality were gestational hypertension with significant proteinuria, eclampsia, postpartum hemorrhage, puerperal sepsis, ectopic pregnancy, and nonspecific abortion.

In 2006, 38.5% of births in the country occurred in Ministry of Health facilities, a figure that increased to 47.4% in 2010. Nationally, only 30.1% of births by indigenous women occurred in hospitals or health centers. Over 40% of women from the provinces of Bolivar, Chimborazo, Cotopaxi, and Esmeraldas, and 30% of women throughout the Amazon region, gave birth at home. The average number of prenatal check-ups was 3.3 and, of the total check-ups, just 29.9% of the patients were primiparae; postpartum coverage (excluding immediate postpartum care) was 41.5%.

**Children (under 5 years old)**

In 2010, the country had an infant mortality rate of 14.6 per 1,000 live births, with no significant difference between the sexes. The main causes of infant mortality are directly associated with complications in the neonatal period. Moreover, of the 1,431 early neonatal deaths recorded by INEC in 2008, 33.2% occurred on the day of birth and 63.8% between days 0 and 3.

The under-5 mortality rate stood at 14.9 per 1,000 live births in 2009. However, 11 of the country’s 24 provinces had rates above the national average, with higher rates in Los Ríos (17.5) and Santo Domingo de los Tsáchilas (17.7). The official birth registries put underregistration at approximately 35%.

The leading causes of death in children aged 1–4 are acute respiratory infections (16.4%), followed by traffic accidents (9.3%), and congenital malformations, deformations, and chromosomal abnormalities (7.1%). Over half of these deaths occur in males.

**Children (5–9 years old)**

Mortality in children aged 5–9 was 42.3 per 1,000 in 2008 and 37.6 in 2010. The main causes of mortality...
in this age group were traffic accidents, acute respiratory infections, and leukemia. In 2008, the leading causes of morbidity were acute respiratory infections, surgical events, and trauma (3, 16).

Adolescents (10–19 years old)

In 2008, mortality in the 10–19-year age group was 70.9 per 100,000 population, with 38.8% of these deaths due to external causes. Some 60% of adolescent hospitalizations are related to pregnancy, childbirth, and the puerperium—28% to natural single births, 8.4% to cesarean-sections, and 4.5% to abortions—rates that put adolescents at risk. According to the Ministry of Health, the specific fertility rate is 91 per 1,000 women in this age group. An estimated 2 out of 10 maternal deaths occur in adolescents. In 2010, 19.3% of pregnancies occurred in the 15–19-year age group.

Adults

The leading causes of hospital discharge for adults were related to pregnancy, childbirth, and the puerperium, accounting for 44.5% (16).

The Elderly (65 years old and older)

In 2010, mortality in older adults (aged 65 and over) was 35.6 per 1,000 population, with 50.9% of the deaths occurring in men. The leading causes of death included pneumonia, hypertension, diabetes, cardiac insufficiency, and acute myocardial infarction. Diarrhea and gastroenteritis of presumed infectious origin and chronic diseases are among the leading causes of morbidity.

Ethnic or Racial Groups

The Constitution of 2008 proclaims Ecuador an intercultural, plurinational State; recognizes that indigenous peoples and nationalities, Afro-Ecuadorian people, and Montubio people are part of the Ecuadorian State; and expands the rights of these communities, peoples, and nationalities (Articles 56 to 60). According to the Survey of Living Conditions for 2006, 60.9% of indigenous women had at least one prenatal check-up.

Other Groups

People with Disabilities

Between 2009 and 2010 the Manuela Espejo Solidarity Mission visited 1,286,331 households, identifying 249,166 persons with disabilities, a number that represents a national rate of 2.43 per 100 population. Of that total, 36.6% of disabilities are related to physical-motor function, 24.3% to cognitive ability, 11.5% to hearing, 9.3% to vision, 4.3% to mental disabilities, and 14% to a combination thereof (17). According to the 2010 census data, 42% of disabilities are physical, 22% are visual, 14% are mental, and 7.3% are hearing-related. People aged 30–64 are the most affected age group, accounting for 41.9% of the disabled, followed by those 65 and over, with 27.2% (1). The prevalence of permanent disability for more than one year in the country’s total population is 6%.

Refugees

Between 2009 and 2010 an “expanded registry” was created in Ecuador’s northern region to handle applications for asylum, with 27,740 people recognized as refugees. By December 2010, the number of applicants for asylum totaled 25,312 and 53,342 had refugee status. Sixty percent of these people live in urban areas, and 40% live near the border in isolated, underdeveloped regions with limited basic services and infrastructure. An estimated 1,500 refugees enter Ecuador monthly through the northern border (18).

Mortality

The causes of death in the Ecuadorian population over the past 10 years reflect a reduction in deaths caused by communicable diseases and an increase in deaths caused by chronic, noncommunicable diseases and the so-called “social diseases.”
In 2009, mortality in the 20–64-year age group was 278.9 per 10,000 inhabitants, with over two-thirds of these deaths in men. The causes of death, in order of frequency, included traffic accidents, assaults (homicides), diabetes mellitus, hypertensive diseases, and HIV infection. The total death rate in 2010 was 43.4 per 10,000 population, more than 6 points below the 49.9 reported in 2008. The leading cause of death in 2008 was diabetes mellitus, with a rate of 25.4 per 100,000 population, while in 2010, it was hypertensive disease (30.3), followed by diabetes mellitus (28.3) and influenza and pneumonia (23.7). There was a steady increase in the number of deaths from traffic accidents and assaults, which ranked third and sixth, respectively. Pneumonia and influenza are the only communicable diseases among the 10 leading causes of death in this age group.

The total death rate among males in 2010 was 49.6 per 10,000 population—barely three-tenths of a percent lower than in 2008. That year, the leading causes of death in males were assaults and homicides (32.3 per 100,000), followed by traffic accidents (31.6). The two leading causes of male mortality in 2010 were traffic accidents (37.2 per 100,000 population) and hypertensive disease (31.3). Female mortality in 2010 was 37.8 per 100,000 population, similar to the 37.1 observed in 2008. In both years, the leading cause of death was diabetes mellitus (26 per 100,000 in 2008 and 31.6 in 2010), followed by cerebrovascular disease (24.9 in 2008) and hypertensive disease (29.6 in 2010). This list also includes malignant neoplasms of the uterus, which ranked as the seventh leading cause of death (10.2 per 100,000 population).

**Morbidity**

**Communicable Diseases**

**Vector-borne Diseases**

The prevalence of malaria in Ecuador has been on the decline since 2003, when the national control program was strengthened and patient management was improved. Between 2006 and 2010, the number of cases fell from 8,957 to 1,888, with an incidence rate of 0.14 per 1,000 population, the lowest among the countries of the Amazon basin. In 2010, *Plasmodium vivax* predominated, with 1,630 cases, followed by *P. falciparum* (258 cases), the latter concentrated along the northern border of Esmeraldas Guayas-Canar. If the current trend persists, Ecuador will be on the road to eliminating malaria in its territory.

Dengue is endemic in the country. It is highly seasonal in nature and predominates in the coastal provinces, especially during the winter months when the rains arrive and temperatures are above 28°C. Four serotypes of the dengue virus have been identified. Between 2007 and 2010, circulation of dengue virus serotype 1 predominated, including in the Galápagos Islands, while in 2010, serotypes 2 and 4 were identified in a limited number of cases.

Cutaneous leishmaniasis is found in 23 of the country’s 24 provinces, especially in the rural coastal, mountain, and Amazon regions. Around 1,500 cases are reported annually, and the disease is subject to underreporting owing to its occurrence in remote, rural areas.

Chagas’ disease largely impacts Loja, El Oro, Manabí, Guayas, Orellana, and Sucumbíos provinces. National prevalence of Chagas’ fell from 0.15 per 100,000 population in 2006 to 0.03 in 2010. Yellow fever vaccination coverage remains high in the country, and no new cases of the disease have been reported since 2002.

**Vaccine-preventable Diseases**

Vaccination is guaranteed as a public good in Ecuador’s Constitution, the National Vaccine Law, and the Organic Health Law, thereby ensuring legal support for the Expanded Program on Immunization (EPI). Progress between 2006 and 2010 is reflected in the national coverage levels, which exceed 95% for all vaccines.

Beginning in epidemiological week 26 of 2011, Ecuador experienced a measles outbreak that began with an imported case of genotype B3. As of epidemiological week 45, the country had 122 confirmed cases—89% of them in the province of
Tungurahua, with a high proportion occurring in the indigenous population. Some 68% of the reported cases were children under age 5. The country took steps to control the outbreak and advanced the mop-up vaccination campaign. As for surveillance of acute flaccid paralysis, the reporting rate (0.70) is less than 1, which is the recommended indicator, while rubella and measles notification meets the expected percentage (84%). Use of the *Haemophilus influenzae* type b (Hib) vaccine has led to a decline in cases of Hib meningitis.

Since 2006 the country has been administering the seasonal, northern hemisphere flu vaccine to older adults; in 2007 it expanded the coverage to infants aged 6–11 months, and in 2010, to children aged 1–4 years. The yellow fever vaccine is administered in the 24 provinces to children aged 12–23 months and is offered to travelers bound for the Amazon region and other countries where there is risk. Ecuador introduced rotavirus vaccination in 2007, using the two-dose series at 2 and 4 months of age, and introduced the pneumococcal vaccine in 2010. The program’s greatest challenges are to vaccinate remote populations where there are concentrations of susceptibles and to strengthen surveillance of eliminated diseases (polio, rubella, and measles) to ensure timely detection and control of imported viruses. In 2010, the immunization program procured 12 vaccines through the PAHO Revolving Fund; these vaccines account for 87% of the biologicals used and 85% of the EPI budget. Purchases through this fund totaled US$ 47.6 million.

**Zoonoses**

Foot-and-mouth disease is endemic and a serious veterinary public health problem in Ecuador. Despite stepped-up vaccination efforts in 2010, 74 foot-and-mouth disease foci were reported (type O virus was laboratory-confirmed in 42 cases and 32 cases were confirmed clinically) in the mountain, Amazon, and coastal provinces; cases mainly occur in April through August. A new vaccination campaign was launched in May 2011, targeting large herds and properties where recent outbreaks had occurred. In 2009, there was one case of human rabies transmitted by a cat with the wild virus; there have been no cases of urban rabies transmitted by dogs since 2006 (19). In that same period, no cases of plague were reported.

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

In 2010, the Onchoceriasis Elimination Program for the Americas declared Ecuador the second country in the Americas to have interrupted onchoceriasis transmission. Leprosy was eliminated as a public health problem in 1983 and notification rates for the disease have steadily declined over the past 10 years. In 2010, 134 new cases were detected, of which 72 were paucibacillary and 62 were multibacillary.

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

Between 2005 and 2010 an increase in HIV and AIDS cases was observed—from 1,070 HIV and 474 AIDS cases in 2005 to 3,966 and 1,301, respectively, in 2010. AIDS-related mortality has held stable since 2005, at some 700 deaths annually (20). More men are infected with HIV than women (2.65:1 in 2010) and the HIV epidemic in Ecuador is concentrated primarily in men who have sex with men (21). In 2010, 213 cases of HIV were reported in children under 15. HIV prevalence in pregnant women was 0.17% in 2010. The coastal provinces are the most affected, with 74% of the country’s HIV and AIDS cases. The number of people receiving antiretroviral therapy in Ministry of Public Health facilities rose from 2,532 in 2007 to 6,765 in 2010.

In 2009, 215 cases of gestational syphilis and 111 cases of congenital syphilis were reported, along with 2,308 cases of gonorrhea (16.5 per 100,000 population) and 1,697 cases of genital herpes (12.1 per 100,000).

**Tuberculosis**

Tuberculosis (TB) prevalence in Ecuador in 2010 was estimated at 8.24 cases per 100,000 population.
Over 70% of the cases are concentrated in the province of Guayas, especially the city of Guayaquil. In 2010 the health system saw 109,822 patients with respiratory symptoms, diagnosed 3,373 new cases of smear-positive pulmonary TB, 404 smear-negative cases, and 653 extrapulmonary cases. Of the new smear-positive pulmonary cases, 2,156 were men and 1,217 were women, with those in the 15–34-year age group most affected. The directly observed treatment strategy (DOTS) is used for all cases. In 2010, 114 cases were identified as multidrug-resistant. Between 2009 and 2010, 870 out of 5,764 TB patients were HIV-positive.

**Chronic, Noncommunicable Diseases**

*Cardiovascular Diseases*

According to Ministry of Health data, in 2009 mortality from ischemic heart disease was 6.5 per 100,000 population; for 2010, INEC reported a rate of 14.1 per 100,000 population.

*Malignant Neoplasms*

During the period 2005–2007, the most common cancers in women were breast, skin, cervical, thyroid, and stomach, while in men, they were prostate, skin, stomach, colon, and rectal cancer and lymphomas. Malignant neoplasms were responsible for the greatest number of years of life lost, with an overall rate of over 770 per 100,000 population and a rate by sex of 990 in women and 590 in men.

*Diabetes and Hypertension*

Mortality from diabetes was 28.3 per 100,000 population in 2010, far higher than in 2006, when it stood at 20.6. In 2010, the leading cause of death in the general population was hypertensive disease, with a rate of 30.3 per 100,000 population. Between 2006 and 2010, diabetes mellitus prevalence dramatically increased from 142 to 1,084 per 100,000 population, as did prevalence of hypertension, which rose from 63 to 488 per 100,000 population (19).

**Nutritional Diseases**

*Malnutrition*

The survey of living conditions conducted in 2006 put the prevalence of chronic malnutrition (low height-for-age) in children under age 5 at 25.8%, a value that doubles in indigenous groups and is much higher in the provinces of Chimborazo (52.6%), Bolívar (47.9%), and Cotopaxi (42.6%). According to the same survey, low weight-for-age (general malnutrition) was a condition affecting more than 1.4 million children under age 5 (11).

**Disasters**

Ecuador is highly vulnerable to volcanic eruptions, floods, earthquakes, droughts, and tsunamis. In 2008, flooding during the rainy season devastated six coastal and six mountain provinces, impacting a total of 275,000 people, 15,822 of whom took refuge in 375 shelters. The losses from these events are estimated at US$ 1.2 billion, or 2.5% of the country’s GDP (22). The volcanic events of 2009 and 2010 affected 3,792 people directly and had indirect impacts on some 1.5 million people living in 11 provinces. The 2009 drought affected some 32,000 families of farmers and livestock producers in Manabí, Esmeraldas, Carchi, Santo Domingo de los Tsáchilas, Azuay, and Loja provinces.

“Risk management” is addressed in Articles 389 and 390 of the new Constitution as the right of citizens to be protected from the adverse effects of natural or man-made disasters. The National Secretariat for Risk Management has emerged as an important platform for intersectoral management and coordination, replacing what was formally known as “civil defense.” Provincial and hospital emergency and contingency plans are in place in 40% of the provinces considered at greatest risk for floods and volcanic eruptions, and in those on the northern border. Under the “safe hospitals” policy, vulnerability reduction activities have been undertaken in hospitals in Manabí and Chimborazo provinces and in hospitals on the northern border. The Hospital Safety Index was applied in 10 hospitals in 5
provinces, revealing the need for interventions to reduce structural, nonstructural, and functional vulnerability to hazards (23).

Mental Disorders

Between 2008 and 2010, the five leading causes of mental disorders were (1) depression, which rose from 108 to 113 cases per 100,000 population; (2) anxiety (an increase from 66 to 99 per 100,000); (3) epilepsy (from 47.8 to 63.2); and (4) mental retardation (from 25.2 to 37) (24).

Other Health Problems

Oral Health

In 2009, the prevalence of caries in schoolchildren aged 6–15 was estimated at 75.6%. The DMFT (decayed, missing, filled teeth) index for 12-year-olds fell by 2.9% in 2009. These data reflect an improvement in the oral health of schoolchildren aged 6–15, mainly due to the fluoridation of salt and other preventive actions. The Ministry of Health has begun implementing the Caries-Free-Communities Initiative and will expand the oral health promotion and education programs targeting schoolchildren (25).

Ocular Health

According to the Rapid Survey on Avoidable Blindness 2009–2010, administered to people over the age of 50, the prevalence of bilateral blindness was 1.6% (2% in men and 1.3% in women) and of unilateral blindness was 5.8% (6.4% in men and 5.2% in women). The average cataract surgery coverage for patients with visual acuity (VA) < 20/400 was 83.2%; with VA < 20/200, 63.8%; and with VA < 20/60, 45.9%, with better access for men than women. In 2008, the Plan Visión Ecuador (Vision Plan for Ecuador) was launched and initially facilitated a high volume of cataract surgeries (more than 5,000 per year since 2008). Since 2009, it has provided screening and refractive error correction for schoolchildren and treatment for diabetic retinopathy and glaucoma.

Risk and Protection Factors

Alcoholism

In 2007, the prevalence rates for alcohol and tobacco use were 76.09% and 46.8%, respectively (26). The Global School-based Student Health Survey (27) targeting schoolchildren in Quito, Guayaquil, and Zamora found that young people started drinking at an average age of 13.7 years. The alcoholism rate increased from 23.6 per 100,000 population in 2006 to 29.6 in 2010. In 2010 the same study among adolescents found that 8 out of every 10 students had first smoked before the age of 13; the smoking rate in the general population increased from 1.62 per 100,000 population in 2008 to 2.15 in 2010.

Obesity

Among Ecuadorian youth between 12 and 19 years old, the prevalence of overweight is 13.7% and obesity is 7.5%, with higher rates on the coast (24.7%) than in the mountains (17.7%). There is little difference in obesity by sex (21.5% in young women vs. 20.8% in young men) (28).

Occupational Accidents and Diseases

In 2006, 5,334 cases of disability and 161 deaths from occupational injuries were reported, while in 2007, the figures were 6,169 and 135, respectively. The greatest number of accidents in 2007 occurred in the province of Guayas (4,445); 1,317 of them occurred in employment categories related to the financial, insurance, and real-estate sectors (29).
public health network under the leadership of the National Health Authority.

The Ministry of Health has launched an ambitious program to begin what it calls “Ecuador’s Sectoral Transformation of Health” (TSSE), whose purpose is to reorganize the sector into a comprehensive, coordinated, integrated group health system that does not require direct payment by the user. The system should guarantee equity and progressive, universal access to quality public health services for the entire population, free of charge, through a network of public providers. The objectives of the system are to promote a comprehensive care model that prioritizes health promotion, disease prevention, and primary care, and avoids duplication of efforts among the main providers.

The Ministry of Health has created a package of services that will be offered to the entire population through the public network. The Ministry of Economic and Social Inclusion, in turn, coordinates the Social Protection Program (PPS), whose objectives include “the creation of a social protection network with other State and civil society institutions.” Coordinating the activities of the two ministries made it possible to treat 3,816 cases of catastrophic illness in PPS network facilities as of 2010.

With regard to financing, Article 366 of the Constitution states that the resources should “come from permanent sources in the General State Budget”; Article 298 provides for preallocation of budgetary resources to the health sector. It specifies the percentage of GDP allocated to health (4%) and its annual increase, an estimated additional US$ 240 million each year. While there has been a steady increase in public health expenditure since 2007, its percentage of the GDP is still low, at 3%.

**Human Resource Development Policies**

According to INEC, in 2009 Ecuador had 16.9 physicians per 10,000 population, distributed unevenly throughout the country, with the highest rates in the provinces of Azuay (26.3) and Tungurahua (25.9) and the lowest in Santa Elena (4.9) and Galápagos (6.3). As for other health professionals, it had 2.4 dentists, 7.7 nurses, and 1.1 obstetricians for every 10,000 population. Health professionals tend to be concentrated in the major cities, leaving rural areas in the provinces with much less coverage. Some 76.3% of all physicians are specialists, and of these, only 98 are in family medicine, to the detriment of primary health care.

Even though the National Health Council (CONASA) has a human resources observatory, and a census of Ministry of Health personnel was conducted in 2010, Ecuador lacks complete, up-to-date information on health workers. Approximately 66% of health workers provide direct patient care, 21% perform administrative duties, and 10% perform other services. In 2009, CONASA’s National Human Resources Commission submitted a proposal for a “National Policy for Human Resources in Health.” Regarding careers in health, work is under way to develop a post classification system, wage scale, performance evaluation, and education and training or continuing education under the Organic Civil Servant Law.

**The Health Services**

Health service delivery in Ecuador is both fragmented and segmented. A wide range of public and private facilities and services operate independently or under different organizational departments, with no coordination among actors or separation of functions between subsystems, and with subscriber or beneficiary populations that have access to different services.

The Ministry of Health is the main public-sector provider. The Ecuadorian Social Security Institute, which includes Rural Social Security, the Armed Forces, and the National Police, also pertains to the public sector. In 2010, social security coverage benefited some 3.8 million Ecuadorians, an increase of roughly 5% over 2005. Private entities that operate in the public sector and play a significant role in health service delivery include the Welfare Board of Guayaquil, the Children’s Protective Society of Guayaquil, the Society to Fight Cancer (SOLCA), and the Ecuadorian Red Cross.
The Ministry of Health has three administrative levels: the health area, the provincial level, and the national level. This structure will be modified in keeping with the territorial organization ordered by the National Secretariat for Planning and Development (SENPLADES). The territorial reorganization includes three administrative areas known as “districts,” “regions,” and “the central level.” Between 2007 and 2010 a number of proposals on a model of care for the Ministry of Health were issued. The current model is the Comprehensive Health Care Model (known as MAIS for its Spanish name), whose operations rely on basic health care teams (EBAS), with over 4,600 people hired for health activities.

**Pharmaceuticals and Health Technology**

The country has regulations and guidelines to guarantee the availability, access, quality, and rational use of pharmaceuticals. In 2007, the share of national firms in the pharmaceutical market was 14% and that of international firms was 86%; that same year, pharmaceutical expenditures by the Ministry of Health accounted for 15.2% of the budget (32).

Since 2008, the Ministry has been making efforts to provide medicines directly to users free of charge through the Unified Medications Management System. It has enhanced its regulatory role by updating the directives for the registration of medications; is promoting best practices in manufacturing, pharmacovigilance, and drug advertising and publicity; and is training human resources. CONASA’s Pharmaceuticals Commission updated the National List of Essential Medicines (CNMB) and the Therapeutic Registry (8th Revision 2010) and has put together a manual on the Commission’s functions and the methodology for including/excluding medicines in the CNMB.

**Transfusion Safety**

Until late 2010, the National Transfusion Safety System was coordinated by the Red Cross, with the participation of several other institutions (Ministry of Health, Ecuadorian Social Security Institute [IESS], the Armed Forces, the Guayaquil Welfare Board [JBG], SOLCA, and private entities). Notwithstanding, these efforts were unsuccessful in meeting demand for blood products in a timely manner or changing the system from remunerated donation to one based on repeated voluntary donations. By 2010, the proportion of volunteer donors had fallen to 34.7%. From 2008 to 2010, the Ministry allocated substantial resources to the Red Cross to build a blood bank and increased the annual allocation of resources to meet the needs of mothers and children (Free Maternity Law) and, gradually, all users of Ministry services.

The number of collections and blood products produced and distributed in the country has risen steadily in recent years: in 2008 the country’s blood services collected 155,146 units and produced and distributed 245,286 blood products, while in 2010, the number of collections increased to 190,260 and the number of blood products distributed rose to 489,261. The Red Cross collected, processed, and distributed 69%, while the rest was done by a subsystem of entities (JBG handled 13% of the products; IESS, 12%; the Armed Forces, 3%; and Ministry hospitals, metropolitan hospitals, and SOLCA, 3%). In 2010, 100% of the units collected were screened for HIV/AIDS, HBsAG, HCV, syphilis, and Trypanosoma cruzi; 28,066 units from endemic areas were screened for malaria. Of the total collected, 3,670 units (1.9%) were positive for markers of infection.

**KNOWLEDGE, TECHNOLOGY, INFORMATION, AND HUMAN RESOURCE MANAGEMENT**

The Ministry of Health maintains a National Directory of Health Investigators and it has spearheaded an effort to set interinstitutional priorities for health research based on surveys conducted in 2007. Initially this research was in the areas of sanitation and environmental pollution (11). In 2010, the academic sector in the city of Loja began developing a proposal for the creation of a national health
research system. In 2008, the proportion of spending on science and technology was 0.62% of GDP—0.37% for the activities and sciences component and 0.25% for experimental research and development.

With the enactment of the Organic Law on Higher Education in Science and Technology in 2010, the National Secretariat of Higher Education, Science, Technology, and Innovation was created to exercise governance in these areas. Under the new law, universities have modified their curricula in health career programs, making primary care a central theme and giving priority to scientific research. In 2008, a project was launched to upgrade the health information system and improve vital statistics, and in 2009, a situation analysis of health information system operations (SIS) was conducted, targeting statistics personnel working in the public and private health sector, INEC, and the Civil Registry. Following this, a high-level interinstitutional commission was formed, comprised of SENPLADES, the Ministry of Public Health, INEC, and the Civil Registry. This commission is currently working to implement the Plan to Strengthen the Health Information System, which contains goals, tasks, and targets based on the results of the situation analysis.

**HEALTH AND INTERNATIONAL COOPERATION**

During the period 2007–2010, international cooperation provided US$ 200.8 million (10.6% of the roughly US$ 1.9 billion multiannual amount allocated to the country) to health projects in the areas of coverage, infrastructure, equipment, insurance, prevention, and food security. Contributions from United Nations agencies in the same period amounted to 20.3% of the multiannual total. Nonreimbursable cooperation that the country receives represents, on average, some 0.71% of GDP and 2.57% of the overall national budget.

The government has promoted the South American Health Council (UNASUR–Health), whose purpose is to coordinate the efforts and achievements of other regional integration mechanisms in the interest of health, and to promote common policies and cooperation in the activities of its member countries.

**SYNTHESIS AND PROSPECTS**

Ecuador’s Constitution (Articles 358 and 359) guarantees the availability of and access to medicines and promotes the development of human resources for health (Article 363, sections 7 and 8). Furthermore, it guarantees health promotion, disease prevention, recovery, and rehabilitation activities within a primary health care system at all levels. It provides for the creation of a comprehensive public health network as part of the National Health System (Articles 359 and 360) and defines the rights of users (Article 362) as a clear demonstration of the government’s political will to prioritize the social sector and, in particular, health. The importance given to health is evident in the increase in the budget allocated to health, the strengthened leadership in the health sector, the adoption of new health technologies, and the reinforcement of human resources. There is no doubt that the free health services and medicines provided by Ministry of Health, as well as strengthening primary health care, will help improve the health status of the population.

The last national population and housing census showed that, while access by the general population to the public water supply and sanitation services has improved, only 40% of the Montubio and indigenous populations have access to these basic services. This is evidence of the enormous challenges that still persist in reducing inequities stemming from the social determinants of health. It should be pointed out that, after the mestizo population, which is the majority in Ecuador, the Montubios are the next largest group (7.4%)—larger than the group that self-identifies as indigenous (6.8%). This could be the basis for redirecting intervention activities toward Montubio groups.

The political and economic stability of the State, the promotion and strengthening of a public health system that guarantees the population increased health care coverage, the growing level of
insurance coverage for children and spouses of social security members, the guaranteed availability of medicines, and the implementation of a disease prevention and health promotion policy, among other strategies, point to an improvement in the health and living conditions of the most vulnerable population groups.

REFERENCES

17. Instituto Nacional de Estadística y Censos; Ministerio de Salud Pública. Plan estratégico nacional para la prevención y control de enfermedades crónicas no transmisibles y sus factores de riesgo, proceso de normatización y de control y mejoramiento de la salud pública. Quito: INEC; MSP; 2011.
21. Ecuador, Ministerio de Salud Pública; Organización Panamericana de la Salud/Programa Conjunto de las Naciones Unidas sobre el VIH/sida; Programa de las Naciones Unidas para el Desarrollo. Estudio
de prevalencia y comportamientos frente al VIH/sida y otras infecciones de transmisión sexual en hombres que tienen sexo con hombres en la ciudad de Quito. Quito: Ministerio de Salud Pública; 2011.


