INTRODUCTION

Colombia has a surface area of 1,141,748 km² and is located in the northwest extreme of South America. It has two hydrographic regions, one on the side of the Pacific Ocean, with small basins of short but voluminous rivers, and the other one on the side of the Atlantic Ocean and the Caribbean sea, with the Amazon and Orinoco river basins.

Under the National Constitution of 1991, the country is organized in the form of a unitary republic. State administration is to a great extent decentralized among the 32 departments, the Capital District (Bogotá), 1,121 municipalities, and the indigenous territories (1).

In 2010 the population was 45,508,205 inhabitants, of whom 49.4% were men and 50.6% women, and the dependency ratio was 54.6% (Figure 1). Bogotá is the country’s most populous
city, with 7,363,782 inhabitants. Taken together, Bogotá and four other major cities—Medellín, Cali, Barranquilla, and Cartagena—make up 40.6% of the national population. The country’s overall population density is 39.9 inhabitants per km$^2$, and the population is predominantly urban (75%). That said, the 10 departments of the lowlands of the Orinoquía region and the Amazon region have less than 3% of the population and a population density lower than one inhabitant per km$^2$ (2).

Colombia has experienced an important demographic transition since the middle of the 20th century. For the 2010–2015 period, the estimated life expectancy at birth is 75.2 years (78.5 for women and 72.1 for men), the crude death rate is 5.8 per 1,000 population, the crude birth rate is 18.9 per 1,000 population, and the total fertility rate is 2.4 children per woman. The resulting annual average rate of growth is 1.15% (3).

Forced violent displacements constitute the most important factor in internal migration, with a cumulative figure of 4,667,942 displaced people (4). It is estimated that 3,378,345 Colombians reside abroad, notably in the United States (35%), Spain (23%), and Venezuela (19%) (5, 6).

The economy experienced sustained growth between 2000 and 2010. The principal sectors of economic activity are mining, trade, and construction. The average annual growth in gross domestic product (GDP) was 3.3% for 2006–2010 (7). In 2009, GDP per capita came to US$ 4,990 (current dollars), or US$ 8,600 when adjusted for purchasing power parity (8). This growth masks corruption, precariousness of employment, and inequality, reflected in a Gini coefficient of 0.578 in 2009 (9). In 2006, the richest 20% of the population held 24.8 times the wealth of the poorest 20% (8). Between January 2006 and January 2010, unemployment ranged between 11.3% and 11.8%, but subjective underemployment¹ was between 30.5% and 30.9%; 75% of those who worked were self-employed (10). Between 2005 and 2009, the proportion of the

¹ This refers to workers’ desires to improve their income, increase their working hours, or secure employment more suited to their skills.
population living in poverty declined from 50.3% to 45.5%, but the proportion in extreme poverty increased from 15.7% to 16.4%. These figures indicate that Colombia has made only limited progress in attaining Millennium Development Goals (MDGs) of reducing poverty to 28.5% and extreme poverty to 8.5% by 2015 (11).

HEALTH DETERMINANTS AND INEQUALITIES

Between 1980 and 2010, social progress helped to diminish the gap between Colombia and developed countries. Progress in education has been remarkable. The country reached the goal of 100% coverage for preschool, primary, and secondary basic education. But the achievements have not been comparable with respect to illiteracy (2.1%) and average years of education among the population from 15 to 24 years old (9.2 years) (9). In addition, among women there are marked inequalities in demographic and health indicators in terms of their level of education (Table 1) (12).

Colombian women have substantially increased their education level and their participation in the job market. With regard to political participation, for the 2010–2014 parliamentary period, women in the National Congress will hold 11.4% of the seats in the Chamber of Representatives and 16.7% of the seats in the Senate. With respect to paid employment, in 2009 the difference between the rates of female and male participation diminished to 23.5% (goal of 20% for 2015 to comply with the MDGs), and the difference in average monthly income decreased to 20%. However, in 2009 there was still a difference in the unemployment rate of 6.4% (goal of 3% for 2015) (9).²

### TABLE 1. Health inequalities, by women’s educational level, Colombia, 2010.

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Women with no education</th>
<th>Women with higher education</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total fertility (children per woman)</td>
<td>4.3</td>
<td>1.4</td>
</tr>
<tr>
<td>Desired fertility (children per woman)</td>
<td>2.6</td>
<td>1.3</td>
</tr>
<tr>
<td>Use of all modern contraceptive methods by women (%)</td>
<td>63.1</td>
<td>70.3</td>
</tr>
<tr>
<td>Age of women at first sexual relations (years)</td>
<td>15.8</td>
<td>18.9</td>
</tr>
<tr>
<td>Mortality of children under 1 year (deaths per 1,000 live births)</td>
<td>38</td>
<td>16</td>
</tr>
<tr>
<td>Mortality of children under 5 (deaths per 1,000 live births)</td>
<td>53</td>
<td>18</td>
</tr>
<tr>
<td>Did not receive prenatal care (%)</td>
<td>23.9</td>
<td>0.4</td>
</tr>
<tr>
<td>Institutional care in childbirth (%)</td>
<td>75.9</td>
<td>99.7</td>
</tr>
<tr>
<td>Sought treatment for acute respiratory infection in child under 5 (%)</td>
<td>43.6</td>
<td>63.3</td>
</tr>
<tr>
<td>Acute diarrheal disease in child under 5 (%)</td>
<td>16.2</td>
<td>9.2</td>
</tr>
<tr>
<td>Oral rehydration therapy in child under 5 with acute diarrhea (%)</td>
<td>67.2</td>
<td>82.9</td>
</tr>
<tr>
<td>Folic acid intake during pregnancy (%)</td>
<td>51.3</td>
<td>88.1</td>
</tr>
<tr>
<td>Malnutrition in women (%)</td>
<td>4.4</td>
<td>3.5</td>
</tr>
<tr>
<td>Chronic malnutrition in children under 5 (%)</td>
<td>10.8</td>
<td>1.6</td>
</tr>
<tr>
<td>Comprehensive knowledge of HIV/AIDS in young people (%)</td>
<td>7.8</td>
<td>41.8</td>
</tr>
<tr>
<td>High-risk sexual behavior in last 12 months (%)</td>
<td>10.2</td>
<td>44.4</td>
</tr>
<tr>
<td>Physical violence (rape) by the husband (%)</td>
<td>11.7</td>
<td>6.5</td>
</tr>
</tbody>
</table>


² For additional explanation see the Methodological Files for the MDGs at [http://www.dnp.gov.co/LinkClick.aspx?fileticket=IdXi7YjHCq8%3D&tabid=340.](http://www.dnp.gov.co/LinkClick.aspx?fileticket=IdXi7YjHCq8%3D&tabid=340).
The Environment and Human Security

Colombia’s forest surface encompasses 69.6 million hectares. Of the 30,000 hectares proposed to be reforested by 2015 in compliance with the MDGs, 88% of that level had been achieved by the end of 2010 (9). Of the productive systems of the country, 85% are in areas vulnerable to desertification and 48% of the country is susceptible to erosion. This results in the degradation of 2,000 hectares a year in the Andean region and affects the competitiveness of the agricultural sector, the availability of food, and the quantity and quality of water. Furthermore, environmental degradation represents losses equivalent to 3.7% of GDP (13).

Uncontrolled urban growth has increased vulnerability and has altered the landscape, biodiversity, public space, air quality, the supply and quality of water resources, waste generation, and soil availability. The unusually heavy 2010 rainy season affected 2.27 million people, 341,000 dwellings, 751 roads, 807,609 hectares, 813 educational centers, and 15 health centers (13). Since its accession to the Montreal Protocol in 1994, Colombia has reduced its use of substances that affect the ozone layer. Consumption of chlorofluorocarbons (CFCs) was cut from 2,179 tons in 1995 to zero in 2010 (9). The importation of CFCs and halons has been prohibited since 1 January 2010 (9).

Between 2008 and 2010, the coverage of public services increased, with the exception of fixed telephone lines. There were gaps between services available in municipal seats of government and elsewhere in the country, with the exception of electric power (Table 2) (13). The proportion of the population with access to waste collection services increased from 92.2% to 95.9%, while for public sanitation services, the increase was from 83.8% in 2005 to 89.5% in 2008. In 45 municipalities, 65.5% of final waste disposal was in sanitary landfills, 6.6% in controlled landfills, and 27.8% in dumps, open-air incineration, burial, or disposal in a body of water (14). In 2008, 15.2% (1.4 million) of households were in slums, a progress of 47.5% towards fulfillment of the goal set for 2015 in the MDGs (9).

Disasters

During 2010 and the first quarter of 2011, nearly 3.2 million people in Colombia were affected by floods, with 400 deaths, and the heaviest impact in the departments of the northern coast. Thousands of homes and hectares of crops were destroyed. Colombia is the third most vulnerable country in the world to natural disasters, since most of the population lives in areas that are at a high risk for earthquakes, landslides, tsunamis, or volcanic eruptions.

| TABLE 2. Coverage (%) of public services in households, Colombia, 2008 and 2010. |
|---|---|---|
| Indicator | 2008 | 2010 |
| National | Municipal seats of government | Rest of the country | National | Municipal seats of government | Rest of the country |
| Drinking water | 86.7 | 94.8 | 58.3 | 87.6 | 95.9 | 57.1 |
| Sewerage | 73.9 | 90.6 | 14.9 | 75.3 | 91.8 | 15.1 |
| Electric power | 97.2 | 99.4 | 89.4 | 97.7 | 99.6 | 90.7 |
| Natural gas | 47.4 | 59.8 | 3.4 | 52.4 | 65.3 | 5.1 |
| Fixed telephone | 44.3 | 55.4 | 5.3 | 39.8 | 49.4 | 4.7 |
| Cell phone | 83.8 | 87.5 | 70.8 | 88.1 | 90.5 | 79.4 |

Source: Reference (12).
HEALTH CONDITIONS AND TRENDS

Health Problems of Specific Population Groups

Maternal and Reproductive Health

According to the National Survey of Demography and Health 2010 (12), the average national total fertility rate was 2.1 children per woman between 2008 and 2010. Between 2005 and 2010, a woman’s average age at the birth of her first child was 21.6 years, and the median birth interval increased from 42 to 48 months. The use of modern family planning methods by married women increased from 68.2% in 2005 to 72.9% in 2010. Female sterilization was the most used method, followed by injectable contraceptives. Seventy percent of married women did not wish to have more children, and the ideal number of children desired averaged 2.4. The proportion of women who received prenatal care by physicians or nurses was 97%, and 89% of these women had four or more checkups in 2010. Delivery occurred in a health institution in 95% of cases, and 93% were seen by a physician; a third of these deliveries were by cesarean section (12).

Between 2006 and 2009, the maternal mortality ratio ranged from 70 to 72.9 per 100,000 live births (Figure 2). In 2009, values higher than the national average were found in the departments of Amazonas (374.3 per 100,000 live births), Vichada (278.2 per 100,000 live births), La Guajira (222.9 per 100,000 live births), and Vaupés (173.9 per 100,000 live births). The lowest values were in Bogotá (48.9 per 100,000 live births), Arauca (42.3 per 100,000), and Huila (42.3 per 100,000). The main causes of maternal mortality were direct obstetric deaths.

Children (0–1 and 1–4 years old)

Children under 5 represented 9.4% of the total population in 2010 (1.9% under 1 year old and 7.5% from 1 to 4 years old) (2). The infant mortality rate diminished from 22.3 per 1,000 live births in 2005 to 20.6 per 1,000 in 2008 (15), while the mortality rate in children under 5 in 2008 was 24.9 per 1,000 live births. These declines represented 70.9% and 77.6% of the progress needed to achieve the MDG targets for those two respective mortality rates (9). The reduction in infant mortality occurred because of a drop in postneonatal mortality, since neonatal mortality showed almost no change (12). Despite this reduction, 30% of the poorest infant population (measured by unmet basic needs) accounted for 50% of all infant deaths, both in 1998–1999 and in 2008–2009, with a concentration index of −0.26 for the infant mortality rate in both those periods.

Disorders in the perinatal period were the leading cause of infant mortality in 2007–2009, followed by congenital malformations, influenza and pneumonia, malnutrition, intestinal infectious diseases, and septicemia, both in boys and girls. Intestinal infectious diseases, which in 1997–1999

3 PAHO calculations based on registered births and maternal deaths. For additional explanation see the MDG Methodological Files at http://www.dnp.gov.co/LinkClick.aspx?fileticket=1dXI7YjHCq8%3D&tabid=340.
were in third place (260.2 per 100,000), were in fifth place in 2007–2009 (87.9 per 100,000)4 (16).

The proportion of newborns who weighed less than 2,500 grams increased from 6.8% to 8.3% between 2006 and 2009. In 2009 the proportion of newborns with low birthweight varied from 2% in Amazonas to 12.8% in Bogotá (17).

Among children from 1 to 4 years old, influenza and pneumonia, diarrhea, meningitis, and septicemia were the major causes of death in 2007–2009. In the 1997–1999 period, intestinal infectious diseases and vector-borne diseases were more frequent causes than the ones mentioned for 2007–2009.

In 2010, 64.2% of children were breast-fed within the first hour of birth, and 42.8% of those less than 6 months old received exclusive breastfeeding (18). Forty-five percent of those less than 6 months old and 63% of those from 6 to 9 months were fed with a bottle. The food supplements most offered to children under 3 were grains, followed by nonmilk liquids, meat, fish, chicken, eggs, tubers, and bananas (12).

**Children (5–9 years old)**

Children from 5 to 9 years old represented 9.5% of the total population in 2010 (2). The leading causes of death between 2007 and 2009 were malignant lymphatic and blood neoplasms, auto accidents, influenza and pneumonia, and accidental drownings. This was similar to the causes of death seen in 1997–1999.

**Adolescents (10–19 years old) and Adults (20–29 years old)**

In 2010, adolescents (10 to 19 years old) represented 19.4% of the total population, and young adults (from 20 to 29 years old) 16.8% (2). Although in 2010 the fertility rate of adolescents from 15 to 19 years old declined to 84 per 1,000 women, 16% of adolescents were already mothers, 4% were pregnant with their first child, and 20% had been pregnant at least once (12).

In adolescents of both sexes, homicides, auto accidents, and malignant neoplasms of lymphatic and hematopoietic tissue represented the three leading causes of death and nearly half of the causes of death in the periods of both 2007–2009 and 1997–1999. Among adolescent girls, suicides, which occupied the fourth place as a cause of death in 1997–1999, were in second place in 2007–2009.

Among young adults, homicides, auto accidents, suicides, and HIV infection were the leading causes of death in both sexes in 2007–2009. Among young women, between 1997–1999 and 2007–2009, pregnancy and childbirth moved from sixth to third place as a cause of death, after homicides and auto accidents.

**Adults (30–64 years old)**

In 2010 the population from 30 to 64 years old represented 38.2% of the total population (2). Homicides, ischemic heart disease, cerebrovascular diseases, and auto accidents were the top causes of death in both 2007–2009 and 1997–1999, for both sexes. Also in both those periods, breast cancer and uterine cancer were the leading causes of death for women, and HIV infection and stomach cancer the leading causes for men.

**Older Adults (65 years old and older)**

People 65 years old or older represented 6.7% of the total population in 2010 (2). Ischemic heart disease, cerebrovascular diseases, chronic diseases of the respiratory tract, hypertension, and diabetes were the five leading causes of death, representing half of total deaths among both sexes, both in 2007–2009 and in 1997–1999. In men, prostate cancer went from 8th place to 5th place as a cause of death between 1997–1999 and 2007–2009. Among

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women, for the same periods, uterine cancer went from 9th place to 12th place as a cause of death.

The Family

The proportion of households headed by women increased from 24% in 1995 to 34% in 2010; in Quindío and Casanare departments the proportion reached 40%. The average size of households went from 4.1 to 3.8 people, both in urban and rural areas. Fifty-six percent of children under 15 lived with both parents and 32% with the mother only. Sixty-five percent of women said that their partner provoked confrontations, especially because of jealousy. This was especially true for the young, those in the urban areas of the center of the country, and those with less education. A third had received threats from their partner and 37% had experienced physical assaults. Only 21% of women who were attacked went for treatment or counseling and 7% of those who did go did not receive care (12).

Ethnic or Racial Groups

There are five ethnic and social groups that are culturally differentiated from the majority of the population: Afro-Colombian communities (10.3%); indigenous populations (3.4%); the Raizal (Afro-Caribbean) communities of the department of San Andrés y Providencia (0.1%); the palenquera community (0.02%), descended from escaped slaves; and the Roma (gypsy) people (0.01%) (19).

The health of ethnic minority peoples is an explicit concern of the State and, within the scope of health policies, greater awareness and definition of differential treatment has been achieved (20). But their health status has not been adequately detailed since they are not included in studies because of high cost of access to these communities or because the variable “ethnic group” is not recorded in the administrative registries. However, it is known that they have much higher prevalence rates for tuberculosis than the national average (21), as well as for trachoma and other neglected diseases. Various factors negatively affect the health status of these population groups, including difficult geographical access for health professionals, inadequate insurance because of a lack of identity documents or faulty contracts with insurers, and difficulties in reconciling traditional and Western medicine.

Other Groups

Displaced Populations

In recent decades Colombia has experienced an internal armed conflict characterized by homicides, massacres, landmine explosions, forced disappearances, imprisonments, violations of medical ethics, and forced displacements, with substantial consequences for public health. The groups most affected by forced displacement are women, children, adolescents under 14, and ethnic groups. Even though insurance coverage for the displaced population ranges between 80% and 90%, actual access to health services by this group is very low, under 40%. Geographical dispersion, the presence of illegal armed groups, the weakness of health institutions, and other factors impede the timely provision of services.

The principal health problems that affect the displaced population are vector-borne diseases, foodborne diseases, waterborne diseases, and serious chronic malnutrition. Pregnant women among the displaced have greater risks of complications during pregnancy and even greater probability of perinatal deaths. The mental health of the displaced population is characterized by the presence of more depressive disorders, acute stress, traumatic stress, and adaptive disorders (22).

Mortality

In the 2007–2009 period, the highest risk of death in both sexes came from diseases of the circulatory system, followed by neoplasms, external causes, communicable diseases, and disorders originating in the perinatal period (Table 3). Standing out among the diseases of the circulatory system were ischemic heart disease (83.7 per 100,000 population) and cerebrovascular diseases (42.6 per 100.00). Among
neoplasms, malignant neoplasm of the stomach (13.5 per 100,000) and of the trachea, bronchus, and lungs (11.3 per 100,000) were the most prominent. Among external causes, the most frequent were homicides in men (75.1 per 100,000) and auto accidents (14.8 per 100,000). Among communicable diseases, it was acute respiratory infections (21.2 per 100,000), and among perinatal disorders, respiratory disorders (13.6 per 100,000).

The leading cause of death, both in 2007–2009 and in 1997–1999, was ischemic heart disease. Four chronic disorders (cerebrovascular disease, chronic lower respiratory disease, diabetes, and hypertension) were among the leading 10 causes of death, followed by homicides, auto accidents, disorders originating in the perinatal period, and diseases of the urinary system. Homicides went from 2nd to 3rd place (10.1% of deaths in 1997–1999 and 7.1% in 2007–2009). Intestinal infectious diseases, which occupied 12th place in 1997–1999, were not among the leading 20 causes of death in 2007–2009 (Table 4) (23).

**Morbidity**

**Communicable Diseases**

**Vector-borne Diseases**

In Colombia there are annual dengue epidemics caused by the four known serotypes of the dengue virus. In 2010, the most extended epidemic of the last 10 years occurred. There were 157,152 cases reported, with a median age of 14 years; 6% of the cases were serious, and the confirmed average case-fatality rate was 2.3%. However, in one department, the case-fatality rate reached 60% (24).

Malaria is transmitted with focal and variable endemo-epidemic patterns in several zones that are less than 1,000 meters above sea level. There are three important foci of the disease: (1) the Urabá-Bajo Cauca-Southern Córdoba area, (2) the Pacific Coast area, and (3) the Orinoquia-Amazonia area. Ninety-five percent of the burden of the disease is concentrated in the rural portions of about 100 municipalities. There are epidemic cycles every two to seven years, with from 100,000 to 120,000 cases recorded annually, of which 75% are caused by *Plasmodium vivax*. The case-fatality rate has trended downward, but there are still between 50 and 120 deaths a year from complicated malaria, mainly in municipalities of the Pacific Coast area.

There have been important advances in identifying the area that is endemic for Chagas’ disease, in controlling transmission via transfusion, and in vector control in municipalities with high triatomine infestation. However, there is still insufficient access to diagnosis and to treatment for the chronic phase. With respect to acute cases, there are areas with household infestation of triatomines, the risk of transmission by nonhousehold triatomines, and a growing occurrence of outbreaks of oral transmission. Infection by *Trypanosoma cruzi* has frequently been detected throughout the Magdalena river

<table>
<thead>
<tr>
<th>Cause</th>
<th>Men</th>
<th>Women</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communicable diseases</td>
<td>53.3</td>
<td>36.8</td>
<td>45.0</td>
</tr>
<tr>
<td>Malignant neoplasms</td>
<td>102.0</td>
<td>97.4</td>
<td>99.7</td>
</tr>
<tr>
<td>Diseases of the circulatory system</td>
<td>183.3</td>
<td>166.0</td>
<td>174.6</td>
</tr>
<tr>
<td>Disorders originating in the perinatal period</td>
<td>33.3</td>
<td>22.6</td>
<td>27.8</td>
</tr>
<tr>
<td>External causes</td>
<td>133.1</td>
<td>21.3</td>
<td>76.5</td>
</tr>
<tr>
<td>All other causes</td>
<td>153.8</td>
<td>144.5</td>
<td>149.1</td>
</tr>
</tbody>
</table>

*Source:* PAHO calculations from DANE mortality databases for 2007–2009, with corrections for underreporting and undefined symptoms and signs using the methodology proposed by WHO (19).

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>deaths</td>
<td>deaths</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Ischemic heart diseases (I20–I25)</td>
<td>28,730</td>
<td>37,198</td>
</tr>
<tr>
<td>2</td>
<td>Assaults (homicides) (X85–Y09)</td>
<td>24,368</td>
<td>18,939</td>
</tr>
<tr>
<td>3</td>
<td>Cerebrovascular diseases (I60–I69)</td>
<td>18,089</td>
<td>17,546</td>
</tr>
<tr>
<td>4</td>
<td>Disorders originating in perinatal period (P00–P96)</td>
<td>17,833</td>
<td>14,212</td>
</tr>
<tr>
<td>5</td>
<td>Chronic lower respiratory diseases (J40–J47)</td>
<td>11,026</td>
<td>9,421</td>
</tr>
<tr>
<td>6</td>
<td>Influenza and pneumonia (J10–J18)</td>
<td>9,498</td>
<td>8,127</td>
</tr>
<tr>
<td>7</td>
<td>Diabetes mellitus (E10–E14)</td>
<td>8,127</td>
<td>6,857</td>
</tr>
<tr>
<td>8</td>
<td>Transport accidents (V00–V89)</td>
<td>7,253</td>
<td>6,577</td>
</tr>
<tr>
<td>9</td>
<td>Hypertensive diseases (I10–I15)</td>
<td>6,857</td>
<td>6,243</td>
</tr>
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<td>10</td>
<td>Unspecified systolic (congestive) heart failure (I50–I51)</td>
<td>6,737</td>
<td>5,822</td>
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<tr>
<td>11</td>
<td>Malignant neoplasm of the stomach (C16)</td>
<td>5,641</td>
<td>5,072</td>
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<tr>
<td>12</td>
<td>Intestinal infectious diseases (A00–A09)</td>
<td>5,503</td>
<td>4,855</td>
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<td>13</td>
<td>Congenital, hereditary, and neonatal diseases and abnormalities (Q00–Q99)</td>
<td>4,977</td>
<td>4,385</td>
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<td>14</td>
<td>Malignant neoplasm of the colon, rectum, and anus (C18–C20)</td>
<td>4,352</td>
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<td>Malignant neoplasm of the uterus (C53–C55)</td>
<td>3,752</td>
<td>3,427</td>
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<tr>
<td>16</td>
<td>Cirrhosis and other diseases of the liver (K70–K76)</td>
<td>3,818</td>
<td>3,227</td>
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<td>17</td>
<td>Malignant neoplasm of the trachea, bronchus, and lung (C33, C34)</td>
<td>3,283</td>
<td>3,083</td>
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<td>18</td>
<td>Malignant neoplasm of lymphoid, hematopoietic, and related tissue (C81–C96)</td>
<td>3,019</td>
<td>2,772</td>
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<td>19</td>
<td>Malnutrition and nutritional anemias (D30–D39)</td>
<td>3,019</td>
<td>2,772</td>
</tr>
<tr>
<td>20</td>
<td>Carcinoma and other diseases of the liver (K90–K96)</td>
<td>2,772</td>
<td>2,772</td>
</tr>
<tr>
<td></td>
<td>Other causes</td>
<td>63,569</td>
<td>73,153</td>
</tr>
</tbody>
</table>

valley, in the Catatumbo area, the Sierra Nevada de Santa Marta, the foothills of the Orinoco region, and the Macarena mountains. Of the 14,700 reported annual cases of leishmaniasis, almost 10,000 occur among military personnel stationed in the isolated forest areas of the Orinoquia and Amazon regions, and the areas of Catatumbo and Chocó. Ninety-five percent of cases are in the cutaneous form and 5% in the mucous and visceral forms. Specific treatment is difficult since diagnosis is limited to the Leishmania genus. The transmission of onchocerciasis has been interrupted in its only focus, in López de Micay, Cauca. Colombia has requested WHO certification of elimination of the disease. In 2010, scattered trachoma foci were identified clinically in the indigenous population of the department of Vaupés.

**Vaccine-preventable Diseases**

Colombia has eradicated poliomyelitis and eliminated measles, rubella and congenital rubella syndrome, diphtheria, and neonatal tetanus as public health problems. Between 2006 and 2010, reported cases of diseases that are in the Expanded Program on Immunization have included mumps, hepatitis B, whooping cough, and meningitis from Haemophilus influenzae type b (Hib). Vaccination coverage was 95% in 2009 for the triple viral vaccine and yellow fever. In 2010 coverage was lower: poliomyelitis 88%, BCG 83.5%, DPT 88%, hepatitis B 87.9%, Hib 88%, triple viral vaccine 88.5%, and yellow fever 78.6% (25).

Acute respiratory infections are major causes of death and morbidity in all age groups, particularly in children under 5 and in people 65 or older. The prevalence of acute respiratory infections with difficult breathing in children under 5 was 9% in 2005 and in 2010. Of these children, half went to health services (12). After the first influenza pandemic case was reported in Colombia in 2009, the number of confirmed cases climbed, reaching a little more than 300 cases in week 34, then declining markedly, to lower than 50 cases a week throughout 2010. In total, 3,729 cases were confirmed in 2009 and 1,072 in 2010, with 232 deaths reported in 2009 and 74 in 2010 (26).

**Zoonoses**

Cases of rabies have not been reported in humans in more than 50 years, despite the high number of dog bites that occur in cities, where there is one dog for every six persons. In the departments of Arauca, Casanare, and Guaviare, sylvatic rabies affects bats, which transmit it to cattle and horses. Reporting of brucellosis in human beings is limited due to the absence of a disease-specific test, but cases of Brucella abortus have been reported, and Brucella canis circulates in animals. There have been Venezuelan equine encephalitis outbreaks in animals in La Guajira and of equine encephalitis in the west of Arauca; the vectors are present throughout the country. There are deficiencies in the surveillance of leptospirosis for lack of availability of tests. The outbreaks that have been identified, which have been the product of specific research, have occurred among farmers.

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

In 2010, 283 new cases of leprosy were reported, of which 206 were multibacillary and 77 were paucibacillary. In comparison with previous years, the incidence rate declined to 0.61 per 100,000 population, and the proportion of Grade 2 disability remained stable at 10% in recent years, which suggests difficulties in the early detection of the disease. In 2010, 9 new cases were reported in children under 15, an increase over 2009 and a warning of active transmission.

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

From 1983 through 2009, 71,653 cases of HIV/AIDS were reported, of which 6,924 were in 2009. In 2006 the prevalence of HIV infection in the population from 15 to 49 years old was estimated at 0.7%. The infections were concentrated in highly vulnerable groups, such as sex workers and men who have sex with men (a prevalence of 5%). There was a decline in the proportion of HIV-positive blood donors, from 0.44% in 2007 to 0.34% in 2009 (27).
Tuberculosis

In 2010, 11,433 new cases of tuberculosis were recorded, corresponding to an incidence of all forms of tuberculosis of 25.1 per 100,000 population. Significant changes since 2006 have not been seen, although the number of new cases with positive sputum-smear microscopy declined. In 2010, 287,786 cases of patients with respiratory symptoms were examined, without significant changes in comparison to the six previous years. The proportion of positive sputum-smear microscopy increased from 2.5% in 2005 and 2009 to 3.0% in 2010. In the patient cohort with positive smears that was followed between 2009 and 2010, the proportion cured was 78%. Disparities persist in the incidence of the disease and in the patterns of the different indicators for the tuberculosis program, with appreciable disadvantages in departments having a predominance of indigenous or African-descent persons.

Intestinal Diseases

Mortality from acute diarrheal disease in children under 5 declined in the last 10 years, but the incidence remained between 110 and 113 cases per 100,000 children in that age group. The prevalence was 12.6% at the national level, but higher in the Orinoquía and Amazon regions (12). Cases of cholera have not been confirmed in the country since the onset of the epidemic in Haiti. Every year foodborne disease outbreaks are reported, primarily in the population from 15 to 44 years old; the most probable contagion focus has been schools, followed by households and other establishments. In 50% of cases, strains of Staphylococcus that were positive with coagulase testing were found, along with different species of Salmonella (28).

Chronic, Noncommunicable Diseases

In addition to being among the leading causes of mortality, chronic diseases are a major source of morbidity and heavy demand for health services in Colombia. Of the population from 6 to 19 years old, 4.3% had suffered from bronchial asthma and 0.8% from emphysema. Among 18–69-year-olds, 8.8% had been diagnosed as hypertensives, although only a few of them said they were taking antihypertensive drugs and fewer than 5% of them had received advice on nutrition or recommendations on exercise. The prevalence of diabetes, also as mentioned by survey respondents 18 to 69, was 3.5%. However, fewer than 2% of all those 18 to 69 reported taking drugs or having received advice on nutrition or exercise. The prevalence of hypertension and diabetes in ethnic groups was similar to that in the general population (29).

Nutritional Diseases

In 2010, the National Survey of the Nutritional Situation of Colombia showed that 13.2% of children under 5 were suffering from wasting (low weight-for-height), in comparison with 16% in 2005. The greatest deficit was found among the poorest; in children of mothers with less education; in rural areas; in the Atlantic, Orinoquía, Amazon, and Pacific regions; and in the indigenous population under age 5. Of the group from 5 to 9 years old, 18.9% were overweight, in comparison with 14.3% in 2005. The proportion was the highest among the less poor, among children of mothers with higher educational levels, and in urban areas. In the group from 10 to 17 years old, overweight affected 16.7%, in comparison with 13.7% in 2005. Of the group from 18 to 64 years old, 51.2% were overweight, in comparison with 45.9% in 2005. In all age groups, overweight was greater among those with less poverty, in those with better educational levels of mothers, and in urban areas. That 2010 survey also found anemia in 47.4% of preschool children, 40.9% of women of childbearing age, and 44.7% of pregnant women. It also found serum retinol levels lower than 20 μg/dl in 5.9% of children under 5, and zinc deficiency in 26.9% of children from 1 to 4 years old (18). Iodine deficiency disorders have not been evaluated since 2002.

Accidents and Violence

Auto accidents were among the 10 leading causes of death in the periods of 1997–1999 and 2007–2009,
and they were also an important cause of injuries and disability. In the general population from 6 to 69 years old, 3.5% reported having had injuries due to an auto accident in the last three years. This figure increased to 6.2% for men from 18 to 29 years old, which is consistent with auto accidents being the second most frequent cause of death in this age group (29).

**Mental Disorders**

At least 40.1% of the population of Colombia has suffered at some time in life from a mental disorder, and the annual prevalence is 16.0%. Anxiety disorders and those related to mood are the most frequent for women; for men, the most common are disorders associated with consuming psychoactive substances (30).

**Other Health Problems**

**Occupational Diseases**

In the workplace, the predominant risk factors include ergonomic ones, noise, uncomfortable temperatures, dust, and fumes. The diagnosis of occupational diseases has become more common since 2001, and the most affected sectors have been found to be fishing; the civil service and defense; agriculture, livestock raising, hunting, and forestry; social services and health; manufacturing; and electricity, gas, and water utilities. The most prevalent diseases are those affecting bones and muscles. The country does not have an up-to-date inventory of human resources for occupational health, although this has been in process since 1983 (31).

**Oral Health**

One out of seven people from 6 to 69 years old reported having had problems with their teeth, mouth, or gums in the 30 days before being interviewed. Nearly all of the population (99.1%) used a toothbrush, and 42% used dental floss. Of those who used a toothbrush, 43% said they brushed three times a day. In the population from 6 to 19 years, 41% said they had received fluoride applications or rinses, and 34% said they had received treatment to fill cavities or repair cracks (29).

**Ocular Health**

Of the total number of persons registered with a disability, 44% had a vision problem (32). A 2007 survey on avoidable blindness in the department of Santander found a prevalence of blindness of 1.8% in people over 50 years old, with those most affected primarily belonging to poor and rural population groups. The leading causes of blindness were cataracts (67.6%); posterior segment disorders (14.1%); corneal opacity (8.5%); glaucoma (2.8%); and refractive errors, diabetic retinopathy, and surgical complications (4.2%). Of those needing surgery, 82.5% had not had that, because either of a lack of knowledge about disease treatment or of economic hardships (33).

**Disabilities**

The prevalence of disability was 8.3%. The proportion increased with age, from 6.6% for the population from 18 to 29 years old, to 13.2% for those from 60 to 69. Prevalence was higher in the Pacific, Orinoquía, and Amazon regions (29). Among all disabled persons, the 2005 census showed that 44% had a visual disability and 29% had a motor disability (19).

**Risk and Protection Factors**

Designed for cities with more than 600,000 residents, the Integrated Mass Transit Systems operate in Bogotá (2000), Pereira (2006), Cali (2008), Bucaramanga (2010), and Barranquilla (2010). These systems have improved efficiency in transportation and reduced environmental pollution (34). There are also exclusive lanes for bicycles in Bogotá (300 km), Cúcuta, Popayán, and Medellín. In addition, recreational bicycle paths, which provide opportunities for physical activity, have been constructed in Bogotá (121 km), Pereira, Soacha, Armenia, Cali, Pasto, Cúcuta, and Popayán (35, 36).

It is estimated that 15.7% of the population from 18 to 69 years old regularly carry out light exercise in their free time, and that 79.0% never exercise. Of the population from 12 to 17 years old,
the figures are 5.6% and 42.9%, respectively. The values are significantly lower in the Caribbean region than in the rest of the country (29).

Eating patterns have changed substantially: a third of the population from 5 to 64 years old do not consume fruits daily, 72% do not consume vegetables, and 14.8% do not eat meat or eggs (30).

Of the population from 18 to 69 years old, 7.6% are considered at risk of alcohol dependency, with higher values in the departments of Cauca (39.8%), Chocó (11.1%), Putumayo (11.0%), and Meta (10.8%). In 2007, the prevalence of current smokers was 2.5% for adolescents overall (4.0% for boys and 1.0% for girls); consumption was lower for those with more education. In adults from 18 to 69 years old, the prevalence was 12.8% overall (19.5% for men and 7.4% for women) (29).

In 2007, in people from 18 to 69 years old, the prevalence of marijuana consumption in the last month was 1.2%, and that of cocaine, 0.2% (29).

HEALTH POLICIES, THE HEALTH SYSTEM, AND SOCIAL PROTECTION

The Health System’s Performance

The core of Colombia’s health system is the System of Comprehensive Social Security in Health (SGSSS), with its two regimes, the contributory regime and the subsidized regime. The contributory regime applies to salaried workers and pensioners as well as to self-employed workers with income equal to or higher than the minimum wage. The subsidized regime applies to all people without the ability to pay. In 2010, the coverage for the two regimes was 39.7% and 51.4% of the total population, respectively. Special regimes apply for workers in the military forces, the national police, the Colombian Oil Company (ECOPETROL), the teaching profession, and the public universities. In 2010, only 4.3% of the population remained outside SGSSS. The contributory regime operates on the basis of a premium paid by members, equivalent to 12.5% of income. It is paid directly in full by self-employed workers or pensioners. In the case of a salaried worker, the employee pays 4% and the employer 8.5%. The subsidized regime operates on the basis of a cross-subsidy from the contributory regime, supplemented by funds from general taxes.

Membership in the SGSSS is compulsory. This is done through the 72 health promotion agencies (the EPS) (71 public ones and 1 private one). The EPS are responsible for offering, at a minimum, the compulsory contributory health plan or the compulsory subsidized health plan. In 2008, the country’s Constitutional Court ordered the unification of the plans for the two regimes (37).

The EPS agencies deliver the funds received from premiums to the Solidarity and Guarantee Fund (FOSYGA), which returns to each EPS an amount equivalent to the payment per person (unidad de pago por capacitación, or UPC) adjusted for risk, according to the number of members it has. The payment per person for the subsidized regime is 57% lower than the UPC. Health care is provided by institutional health service providers. These providers can be either public or private, and they may be part of an EPS agency or contracted by one. The exclusively private sector is used overwhelmingly by higher-income individuals who, although they contribute to an EPS, contract for private insurance or receive private care. Due to a lack of coverage or not having timely access to the SGSSS, a segment of the middle-income population is forced to use private care or make out-of-pocket payments (37).

Total health expenditure as a proportion of GDP was level over the 2006–2009 period, ranging between 6.2% and 6.4%. This was substantially below the values of close to 9% seen between 1996 and 1999, when public spending accounted for some 84%. In the 2006–2009 period, out-of-pocket expenditure as a proportion of private health expenditure remained at 50% (8).

The initial premises of contributory insurance (Law 100 of 1993) were the existence of low unemployment and a high proportion of formally employed workers. Nevertheless, these expectations were not met. Instead, more than 50% of the population is subsidized by the State, and the contributory system is sustained by the contribution of fewer than 10 million people. In March 2010,
the SGSSS had 41,991,483 members (92% of the population), of whom 18,062,855 were in the contributory regime and 23,928,628 in the subsidized regime. In the subsidized regime the emphasis was placed on coverage for the most vulnerable populations: 90.1% of levels I and II of the System for the Selection of Potential Beneficiaries of Social Programs (SISBEN) (38). Although the level of coverage is high, real access to services is very limited in some departments, particularly in the Pacific region. Some people are not aware of their coverage status or they may not receive the appropriate credentials, so they do not receive care when they need it.

The 72 EPS agencies manage 90% of the resources for health. Each one plans its provider network according to market conditions. This can mean that a user has to travel a long distance to obtain care, or that diagnostic examinations take place in sites very far from each other. The law makes it possible for the EPS agencies to have their own vertical systems of providers, which contributes to the fragmentation of the system.

**Human Resource Development Policies**

In 2006, the largest numbers of graduates in the health field were physicians (5.5 per 100,000 population) and nursing personnel (5.2 per 100,000), followed by bacteriologists (1.5 per 100,000), dentists (1.4 per 100,000), technicians (1.3 per 100,000), nutritionists (0.3 per 100,000), and optometrists (0.2 per 100,000).

More than 80% of health professionals in the public sector have a work relationship with their institution based on outsourcing; Law 1,438 of 2011 established limits for this method of contracting. Professionals, especially physicians, are concentrated in urban areas, to the detriment of persons in the most remote areas or most at risk of armed conflict.

**The Health Services**

In 2002 the National Board of Economic and Social Policy issued Document 3,204, which defined the policy for delivery of services for the SGSSS. Since then, there has been increased investment for reinforced facilities, to prepare for the risk of earthquakes, with improvements for hospitals located in high- and intermediate-risk areas. Resources have been allocated for architectural projects and for studies of installations, vulnerability, and investment.

A sizable number of public hospitals were upgraded and other, unsustainable ones were closed due to market competition. This led to the conversion of some institutional health service providers into state-owned social enterprises, a special status that allows them to adopt a private management regime to be able to compete in selling services to the EPS agencies. The financing of these state-owned social enterprises comes primarily from the sale of services to the EPS agencies through payment for services.

Between 2004 and 2009, the total number of institutional health service providers increased from 13,840 to 26,824, and the number of beds went from 52,475 (1.2 per 1,000 population) to 73,063 (1.6 per 1,000). Beds for intensive care increased from 4,985 (0.1 per 1,000 population) in 2004 to 9,294 (0.2 per 1,000) in 2009. The number of state-owned social enterprises went from 4,466 in 2004 to 4,602 in 2009, and the number of public beds remained stable between 2002 and 2009. In this period, the number of outpatient clinics increased from 6,134 to 8,560, physician’s offices for emergencies from 1,497 to 1,850, and dental offices from 2,817 to 3,831.

As a result of the policy of quality assurance for health care, a Unified Qualification System was established, by which professionals and institutional health service providers are obliged to meet verifiable minimum quality conditions. In addition, a Unified Accreditation System encouraged 20 institutional health service providers to voluntarily meet higher quality standards, and more than 100 state-owned social enterprises are in the process of accreditation. There is also an information system to evaluate quality and another one for rating institutional health service providers and health-promotion entities.
Between 2002 and 2010, 243 public hospitals were modernized and their management capacities enhanced, resulting in greater satisfaction among hospital users (39).

The private sector provides more than 50% of health services. However, in some areas of the country the private supply of services is limited, forcing the public sector to take on most of the responsibility. This situation also applies to some specific services, such as emergency care, which is provided primarily by the public sector.

Between 2002 and 2009, the number of outpatient consultations went from 20,188,000 to 35,740,000. In addition, emergency consultations increased from 6,054,000 to 11,841,000, hospital discharges rose from 1,607,000 to 1,794,000, and the total number of surgeries climbed from 642,000 to 996,000.

Since the year 2000, care has been monitored using the Individual Registry Service Delivery. Although improvement has been reported in the quality of this registry, the information included is limited, since it is basically used for the process of benefits collection. According to this registry, the leading reasons for outpatient consultations reported by the services are hypertensive disease, diseases of the mouth, and upper respiratory diseases. For women, the leading causes of hospitalization are related to childbirth, while for men they are unspecified causes, pneumonia, and diseases of the digestive system.

The Ministry of Social Protection has standards to guide rational use, access, quality, safety, and appropriate timing for drugs and medical devices. It has also published the national pharmaceutical policy and issued standards on good practices for manufacturing, control, and health surveillance for medical devices and in vitro diagnostic reagents. This has made it possible for there to be a health registry for drugs and devices, so that importers are certified and manufacturers follow minimum production requirements. Access to essential drugs is included in the compulsory contributory and subsidized health plans and in programs that deal with incidents of broad public health concern (40). However, differences in the content of the compulsory health plans lead to inequalities in access to drugs, devices, and other inputs. Those disparities generate appeals for redress and presentation of claims to FOSYGA, calculated at a little more than 4% of total health expenditure (40, 41, 42, 43, 44).

According to the formulary list for 2010, the system provides coverage for 673 drugs. In 2006–2010, antiretrovirals for the treatment of HIV/AIDS, hormone-based contraceptives, and male condoms were all included, both for the contributory and subsidized regimes. More than 80% of patients under both regimes received prescribed drugs as part of their health care (45).

The country lacks consolidated information on the pharmaceutical services that operate within the SGSSS. In 2009, users described drug delivery and the system of limited contributions and copayments as unacceptable. The improvement in health coverage led to an increase in the provision of drugs by the system and a reduction in spending on health conditions requiring hospitalization. There is no information on access to drugs for the displaced, indigenous, and Afro-Colombian populations, nor for people who are not members of the subsidized regime.

In July 2010, the National Institute for Drug and Food Monitoring was classified as a Level IV national regulatory authority, making it a reference institution for drugs for the Region of the Americas.

The country has the technology to deliver highly complex health services in private facilities in Bogotá, Medellín, Cali, Bucaramanga, and Barranquilla.

Through the national blood policy, the country’s 92 blood banks were registered in the external quality control program of the National Institute of Health. In addition, a proposed national goal of having more than 50% of the blood units come from volunteer donors was exceeded. Organ donation and transplantation were regulated, and the national network for organ donations and transplantation was created. This resulted in an increase in the donation rate from 6 donors per million inhabitants in 2006 to 12.3 donors per million in 2009.
KNOWLEDGE, TECHNOLOGY, INFORMATION, AND HUMAN RESOURCE MANAGEMENT

The Health Information System

Law 1,122 of 2007 mandated the establishment of the Integrated Social Protection Information System, in order to capture and organize information from the Epidemiological Surveillance System (SIVIGILA) and to make it available to the National Institute of Health, the Ministry of Social Protection, the Commission for Health Regulation, and the National Health Safety Council, as well as to territorial entities. In addition, this system collects and systematizes administrative information, in order to monitor the health outcomes for territorial entities, insurers, and providers, and to support the leadership and administration system. Another part of the health information system, the Individual Registry of Service Delivery, is the principal administrative registry for monitoring the benefits provided to social security system members and to nonmembers. This is compiled from the registries of both public and private institutional health service providers.

The health information system lacks a central coordination entity. Thus the various sources and administrative registries have generated parallel subsystems and databases that are not necessarily compatible, with barely standardized and incomplete indicators to characterize all the dimensions of health. There is significant underreporting in vital statistics (in 2005, 12.0% for births and 8.5% for deaths). There is also inadequate quality in the recording, processing, analysis, and use of the data. Other nonadministrative sources such as censuses, surveys, and special studies are not used efficiently in planning health activities.

HEALTH AND INTERNATIONAL COOPERATION

During the 2006–2010 period, Colombia signed 13 international agreements for health cooperation with other countries of Latin America, as well as Asia and Europe. The accords dealt with such concerns as public health policies, emergency care and disasters, strengthening and delivery of health services, alternative medicine, support for reform of the SGSSS, social security, research and training of human resources in management and planning, and health projects and social protection targeted to displaced persons.

Within the policy of “Open Frontiers in Health,” work plans were developed for the border areas with Brazil, Ecuador, Panama, Peru, and Venezuela, with respect to health monitoring and analysis of the health situation, reinforcement of the Expanded Program on Immunization, strengthening of the local health services network, improvement of infrastructure and training, the communications network, vector-borne disease prevention and control, nutrition and food security, and actions to improve sexual and reproductive health.

The Ministry of Social Protection actively participates in various international organizations in which health activities are carried out jointly by the member countries. These bodies include the Meeting of Ministers of Health of the Andean Area, the Union of South American Nations (UNASUR), the World Health Organization, and the Pan American Health Organization.

Colombia has received technical cooperation through internships, courses, and working meetings with the different bodies of the United Nations system as well as the European Union, the United States Agency for International Development (USAID), the Andean Health Organization (ORAS), and countries that include Brazil, China, Japan, Korea, Spain, and Mexico.

SYNTHESIS AND PROSPECTS

Despite the high rate of participation in the System of Comprehensive Social Security in Health, certain population sectors such as scattered rural populations, persons with lower levels of education, indigenous peoples, and forcibly displaced groups continue to experience barriers to the full exercise of the right to health. Law 1438 of 2011 offers the opportunity to make the health system more equitable and reemphasizes primary care as a national strategy.
With respect to women’s health, maternal mortality remains significant, with inequity among the country’s departments. There also have been increases in adolescent pregnancies and in the number of homes headed by women. Moreover, women’s working conditions and violence against women have not significantly improved. Given these realities, the country has strengthened its surveillance systems and adopted plans to accelerate reductions in maternal mortality and severe maternal morbidity, as well as to eliminate the mother-to-child transmission of HIV and congenital syphilis. Furthermore, it has strengthened the regulatory framework for reducing the incidence of violence against women.

Unhealthy conditions persist in scattered poor rural living areas, which are conducive to outbreaks of neglected infectious diseases, especially vector-borne diseases, acute respiratory diseases, and foodborne diseases. These conditions require special efforts to improve service delivery and infrastructure. There have been increases in the burden of disease and mortality from noncommunicable diseases for both sexes, especially cancers, cardiovascular diseases, respiratory diseases, and diabetes. In response, health authorities have strengthened programming structures and set forth actions to promote healthy lifestyles and improve the quality of care for people affected by these diseases.

With regard to nutritional disorders, which coexist with overweight and obesity in adults, there is malnutrition and anemia among children, related to poor diet, inadequate breastfeeding, and the prevalence of acute infections and geohelminth infections. Finally, a reduction in the proportion of deaths by homicides has been reported, especially among young adult males. On the other hand, mortality and disability from traffic accidents in older adults is on the rise. In response, traffic-education efforts have been stepped up and stronger sanctions have been imposed on violators.

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