



## CHAPTER 8

# Peru

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The views expressed in this article are those of the authors and do not necessarily reflect the official policy or position of the Department of the Navy, Department of Defense, or the United States government.

### ► Country Description

**TABLE 8-1** Peru

Nationality	Peruvian
Ethnic groups	Amerindian (45%); mestizo* (37%); European (15%); Japanese, Chinese, and African (3%) (2016)
Religions	Roman Catholic (81.3%), Evangelical (12.5%), other (6.0%) (2016)
Language	Spanish (84.1%); native peoples also speak Quechua (13.0%), Aymara (1.7%), and others (2016)
Literacy	Definition: Age 15 and over can read and write. Total population: 94.5% Male: 97.3% Female: 91.7% (2015)
Government type	Constitutional republic
Date of independence	July 28, 1821 (from the Spanish)
Gross Domestic Product (GDP) per capita	\$12,200 (2015, PPP)

(continues)

**TABLE 8-1** Peru (*continued*)

Unemployment rate	8.8% for ages 15 to 24 years (2016 est.)
Natural hazards	Earthquakes, tsunamis, flooding, landslides, mild volcanic activity (2016)
Environment: current issues	Deforestation, overgrazing, desertification, air pollution in Lima, pollution of rivers and coastal waters due to municipal waste and mining (2016)
Population	30,741,062 (2016)
Age structure	0–14 years: 26.62% (male 4,164,681/female 4,019,436) 15–24 years: 18.63% (male 2,868,743/female 2,859,476) 25–54 years: 39.91% (male 5,892,065/female 6,377,681) 55–64 years: 7.62% (male 1,135,938/female 1,205,579) 65 years and over: 7.21% (male 1,049,409/female 1,168,054) (2016 est.)
Median age	27.7 years (2016)
Population growth rate	0.96% (2016)
Birth rate	18 births/1,000 population (2016)
Death rate	533 deaths/100,000 population (2016 est.)
Disease burden	Communicable disease deaths: 121/100,000 population Noncommunicable disease deaths: 453/100,000 population Injury deaths: 58/100,000 population (2016 est.)
Net migration rate	–2.4 migrants/1,000 population (2014)
Gender ratio	At birth: 1.05 male(s)/female 0–14 years: 1.04 male(s)/female 15–24 years: 1 male(s)/female 25–54 years: 0.92 male(s)/female 55–64 years: 0.94 male(s)/female 65 years and over: 0.9 male(s)/female Total population: 0.97 male(s)/female (2016 est.)
Infant mortality rate	19 deaths/1,000 live births 21.1/1000 males 16.7/1000 females (2016 est.)
Life expectancy at birth	73.7 years 71.7 male 75.9 female (2016 est.)
Total fertility rate	2.15 children born/woman (2016 est.)
HIV/AIDS adult prevalence rate	0.33% (2015 est.)
Number of people living with HIV/AIDS	62,200 (2015 est.)
HIV/AIDS deaths	1,600 (2015 est.)

\* Peruvian mestizos are individuals who are part Amerindian and part Caucasian.

Data from The World Factbook 2016. Washington, DC: Central Intelligence Agency, 2016. [cia.gov/library/publications/resources/the-world-factbook/geos/pe.html](http://cia.gov/library/publications/resources/the-world-factbook/geos/pe.html).

## History

The ancient Republic of Peru was inhabited by several prominent Andean civilizations, most notably that of the Inca Empire, which was invaded and conquered by the Spanish conquistadors in 1533.<sup>1</sup> The Republic of Peru declared its independence in 1821 and defeated the residual Spanish forces around 1824. From 1879 to 1883 the Pacific War between Chile and Peru took place. Then, after nearly a decade of military rule (1968–1975), the Republic of Peru established a system of democratic leadership in 1980. At that time the country experienced economic problems while a violent insurgency grew in the country. The period between 1985 and 1990 was chaotic and included the biggest economic slump in Peru's history. Simultaneously, the country experienced a huge increase in terrorist guerrilla activities. The political insecurity and economic crisis accelerated the emigration of professionals, which was a significant loss of human resources for the country. Moreover, Peru was excluded from international financial agencies as a result of the decision not to pay the external debt taken by the government at that time.

From 1990 to 2000, the Republic of Peru experienced a decade of dramatic turnaround in the economy and significant progress in curtailing terrorist guerrilla activity. Nevertheless, the president at the time, Alberto Fujimori, became increasingly reliant on authoritarian measures, and another economic slump in the late 1990s generated mounting dissatisfaction with his regime, which led to his ouster in 2000. In 2001, there was a transitional caretaker government that oversaw new elections in the spring of 2001, which ushered in the first democratically elected president of Amerindian ethnicity in modern times, Alejandro Toledo. The presidential election of 2006 saw the return of Alan Garcia who, after a disappointing presidential term from 1985 to 1990, returned to the presidency with promises to improve social conditions and maintain fiscal responsibility; he oversaw a robust macroeconomic performance. In June 2011, a former army officer, Ollanta Humala Tasso was elected president and continued the market-oriented economic policies of the three preceding administrations, resulting in a reduction of poverty and unemployment. As of July 2016, Peru's elected president and head of state is Pedro Pablo Kuczynski Godard. The president selects his own cabinet, the Council of Ministers.<sup>2</sup>

## Size and Geography

The Republic of Peru is located in the central western region of South America, bordering the South Pacific Ocean to the west, Ecuador to the northwest, Colombia

to the northeast, Brazil to the east, Bolivia to the southeast, and Chile to the south. Peru is 1,285,216 square kilometers in size with only 3% of this area being arable. There are 1,279,996 square kilometers of land, and 5,220 square kilometers of water (**FIGURE 8-1**).<sup>1,3</sup> Due to the presence of the Andean Mountains, the largest in the world at 8,900 kilometers, and the Humboldt Sea Current, Peru has a complex weather pattern with a wide variety of climates: from tropical in the east to dry desert in the west, and temperate to frigid in the Andes. The Andes divide the country into three geographical units or natural regions: the coast, the Andes, and the Amazon forest.

The Coast is a thin longitudinal area that extends 2,250 kilometers and runs from Chile to Ecuador and from the Andes to the Pacific Ocean, representing 11% of the country's area. Its relief is almost uniform, forming an extensive barren plain, with alternating small valleys and mountains of low elevation. The southern coast has a median annual temperature of 18°C (64°F), and despite high atmospheric humidity, it has a very low rainfall. In the northern coast, the annual median temperature is 24°C (75°F) with high atmospheric humidity and regular rains during the summer season. Throughout all the coastal valleys, human settlements remain totally dependent on the waters that flow from the Andes along canals and aqueducts. Here, uncontrolled and unplanned urban growth competes directly with scarce and vitally needed agricultural land, steadily removing it from productive use.

The Andes are the commanding feature of Peru's territory, located between the coast and the Amazon forest, with an area that represents approximately 35.0% of the country and that reaches heights up to 6,768 meters. Its relief is markedly irregular with inter-Andean valleys along the rivers, and different weather patterns correspond to the different altitudes. The world's highest navigable lake is Lake Titicaca, located at 3,812 meters and shared by the Andean Department of Puno (Peru) and Bolivia. Although rich in mineral resources—such as copper, lead, silver, iron, and zinc—which are mined at altitudes as high as 5,152 meters, the Andes are endowed with limited usable land. Only 4.5% of the land in the Andes (19,665 square kilometers) is arable and constitutes more than half the nation's productive land. About 93,120 square kilometers of the Andean region is natural pasture at altitudes higher than 4,000 meters, too high for agriculture. Therefore, the 4.5% of arable land has fairly dense populations, particularly in Puno, Cajamarca, Junín, and Ancash. The torrential rains of the winter months frequently cause severe landslides and avalanches throughout the Andean region, damaging irrigation canals, roads, and even destroying villages and cities.



FIGURE 8-1 Map of Peru

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The Amazon forest, located to the east of the Andes, occupies 57% of the country but contains only about 11% of the country's population, with two well-defined areas: the high forest where the relief is irregular, with mountains and deep gorges, and the Amazon forest, which is uniformly flat and contains abundant tropical vegetation, furrowed by the Amazon River and its tributaries. The climate of the forest is warm and humid with abundant precipitation throughout the year, but it is accentuated January through April. The zone with heavier rains is the low forest. The annual average temperature fluctuates between 16°C and 35°C, low in the high forest and high in the low-lying Amazon forest. The Amazon River is the longest in the world and runs 6,762 kilometers. This region is an important potential source of new discoveries in the medical field, fuel resources, and mineral fields. Petroleum and gas reserves have been known to exist in several areas but remain difficult to exploit.

### Population Centers: Urban Versus Rural

The Republic of Peru has a population of 30,741,062 (July 2016), with approximately one third of those living in the capital city of Lima.<sup>4,5</sup> In Peru 78.60% of all people live in urban areas, primarily along the western coastal region. The urbanization rate each year is 1.69% (TABLE 8-2).

The change in distribution from rural to urban living has been profound: the urban population rose from 35% in 1940 to 47.0% in 1961, to 70.0% in 1990,

to 76.0% in 2007, and 78.6% in 2016.<sup>4</sup> Peru's population has reached a point where its configurations are substantially different than they were a generation ago, largely because of the enormous growth of metropolitan Lima. The migrant's dynamism, powered by a will to progress and modernize, helped build Lima from a quaint seaside town of 4,200 residents in 1940, to 296,000 in 1990, and to nearly ten million (9,886,647) in 2015.<sup>6,7</sup>

Departments with the highest proportion of urban population are Lima (97.1%), Tacna (90.8%), Arequipa (87.2%), and Tumbes (88.9%), while departments with the lowest proportion of urban population are Cajamarca (27.1%), Huancavelica (28.5%), Huánuco (42.5%), and Apurímac (37.9%)<sup>4,5</sup>

### Government/Political System

The Peruvian government type is a constitutional republic with a unitary, representative, and decentralized government, organized according to the principle of separation of powers (executive, legislative, and judicial) with a multiparty political system. The country is divided into 24 departments, 188 provinces, and 1,793 districts. The executive branch is led by the president and the Council of Ministries. Members of the Council of Ministries are appointed by the president. The legislative branch is a unicameral congress with 120 seats. The judicial branch consists of the Supreme Court of Justice, and members are appointed by the National Council of the Judiciary. There are over 10 political parties, and most of

**TABLE 8-2** Total Population and Annual Average Growth Rate in Peru, 1940–2016

Year	Total population	Intercensus growth	Annual growth	Annual growth rate (%)	Urban annual growth rate (%)	Rural annual growth rate (%)
1940	7,023,111	3,397,246	161,774	1.9	3.7	—
1961	10,420,357	3,701,207	336,473	2.8	5.1	1.20
1972	14,121,564	3,640,667	404,519	2.6	3.6	0.50
1981	17,762,231	4,877,212	406,434	2.0	2.8	0.80
1993	22,639,443	5,581,321	398,666	1.6	2.1	0.90
2007	28,220,764	—	—	—	—	0.01
2016	30,741,062	—	—	0.96%	1.69%	—

National Institute of Statistic and Informatics (INEI), Peru; Central Intelligence Agency, 2016, Factbook: Peru. Demographic Profile. [cia.gov/library/publications/resources/the-world-factbook/geos/pe.html](http://cia.gov/library/publications/resources/the-world-factbook/geos/pe.html). Accessed October 3, 2016.



them have been founded recently. Presidential and congressional elections are held together at the same time by popular vote for a five-year term. The president cannot be reelected for a consecutive term, but congress members can be. Regional and municipal elections are held every four years.

Each municipality is autonomous and is composed of a municipal council, a provincial council, and a district council. Municipalities have jurisdiction over their internal organization, and they administer their assets and income, taxes, transportation, local public services, urban development, and education systems. Yet, the autonomy of municipalities may be reduced by their financial dependence on the central government. Resource constraints substantially limit the ability of municipal governments to implement independent activities. The central government transfers funds and assets, such as state sector enterprises to the regions, but the central government tends to be focused on Lima. Lima is composed of 33 municipalities, each with its own plaza, elected mayor and council, and municipal functions. The government of the province of Lima unites them and coordinates the metropolis as an urban entity.

In an effort to take power away from Lima and distribute it more among the many regions, in 1987, a decree to reorganize the regions was put forth as an effort to empower these areas and decentralize the overwhelming power of Lima. The plan was to regroup the 24 departments into 12 regions with legislative, administrative, and taxing powers, thereby consolidating power and increasing the power of each region. However, because of the political and economic instability at that time, both the congress and the government decided to postpone these changes.

## Macroeconomics

Peru's economy draws from its varied geography: from abundant mineral resources found in the mountainous areas to excellent fishing grounds in coastal waters. Agriculture and textiles are also main economic activities.

During the 1980s and 1990s, Peru suffered serious structural problems in its economy; the 1980s were characterized by hyperinflation and the progressive loss of the productive capacity of the country, while during the first half of the 1990s, orthodox economic measures were applied to control inflation and stimulate liberalization of the markets, which contained the economic inflation and brought transitory economic growth from 1993 to 1997. Up until 1997, economic growth was sustained in the setting of restructuring

of public expenditures, reintegration to the international economy, and incentives for private investment, stimulated by the significant reduction of violence in the country and by deregulation of the market. After 1998, the economic activity was reduced due to internal problems to which the eruption of external factors was added, such as abrupt withdrawal of capital associated with international financial crises, the phenomenon of "El Niño" which affected agriculture, and price variations of the main exports. From 1998 to 2001, Peru entered into a persistent recession period that only started to revert in 2002.

The Peruvian economy grew by more than 4.0% per year between 2002 and 2006, with a stable exchange rate and low inflation. Growth jumped to 9.0% per year in 2007 and 2008, driven by higher world prices for minerals and metals and the government's aggressive trade liberalization strategies, but then it fell by 1.0% in 2009 in the face of the world recession and lower commodity export prices. Between 2009 and 2013, the Peruvian economy grew by an average of 5.6% with a stable exchange rate and low inflation. The growth was due partly to high international prices for Peru's metal and mineral exports, which account for almost 60.0% of the country's total exports. Peru's economy reflects its varied topography from the coastal region to the Andes to the dense forest of the Amazon, the tropical lands bordering Colombia and Brazil. A wide range of important mineral resources are found in the mountainous and coastal areas, and Peru's coastal waters provide excellent fishing grounds. Peru is the world's second largest producer of silver and the third largest producer of copper. However, too much dependence on mineral and metal exports subjects the economy to fluctuations in world prices, and poor infrastructure precludes the spread of growth to Peru's noncoastal areas. Growth slipped in 2014 and 2015 due to weaker world prices for these resources.<sup>8</sup>

Since 2006, Peru has been negotiating free trade agreements with Canada and the European Union. In November 2009 it ratified an agreement with China. The United States and Peru completed negotiations on the implementation of the United States-Peru Trade Promotion Agreement, which started February 1, 2009. Peru's free trade policy has continued under the HUMALA administration. Since 2006 Peru has signed trade deals with the United States, Canada, Singapore, China, Korea, Mexico, Japan, the European Union, the European Free Trade Association, Chile, Thailand, Costa Rica, Panama, and Venezuela; has concluded negotiations with Guatemala and the Trans-Pacific Partnership; and has begun trade talks with Honduras, El Salvador, India, Indonesia, and Turkey. Peru also

signed a trade pact with Chile, Colombia, and Mexico called the Pacific Alliance, which seeks integration of services, capital, investment, and movement of people. Since the United States–Peru Trade Promotion Agreement entered into force in February 2009, total trade between Peru and the United States has doubled.<sup>8</sup>

Peru's rapid expansion coupled with cash transfers and other programs have helped to reduce the national poverty rate by 28% since 2002, but inequality persists and continues to pose a challenge. The administration, through the spring of 2016, championed a policy of social inclusion and a more equitable distribution of income. However, poor infrastructure hinders the spread of growth to Peru's noncoastal areas. Several economic stimulus packages were initiated in 2014 to bolster growth, including reforms to environmental regulations to spur investment in Peru's lucrative mining sector, a move that was opposed by some environmental groups. In 2015, however, mining investment fell as global commodity prices remained low and social conflicts plagued the sector.

The Gross Domestic Product (GDP) per capita (PPP) in 1991 was US \$1,922. By 2008, it was \$3,104.<sup>5,9</sup> Remarkably, by 2015, GDP per capita (PPP) had risen to \$12,200. The structure of GDP in 2015 is primarily services (58.5%) followed by agriculture, fishing, and mining at 34.5% of GDP, of which agriculture represents 7.0% of GDP.

In terms of unemployment, the country rate estimated for 2015 was 6.1%, which reflects the Lima area. There is widespread unemployment in rural areas. In 2012, the poverty level was 26.0%, showing steady improvement over 2007, when the rate was 39.0% of the population living below the poverty level.<sup>8</sup>

## Infrastructure

In terms of availability of consistent electricity, as of 2013, 91% of the population is covered, 98% of urban residents, and 73% of rural residents. Communication has consistently improved over the past two decades, with nearly three million land lines and with more than 34 million subscribers to cell phone plans. There are 10 major networks, and 13 broadcast stations countrywide. It is estimated that in 2015, 41% of the population had access to the Internet.<sup>10</sup>

Peru has 59 airports with paved runways, and nearly 140 airports with unpaved runways in rural and remote locations. There are 140,000 kilometers of roads in Peru, but only 19,000 kilometers of those are paved, primarily in urban areas. There are 8,800 kilometers of navigable waterways in the tributaries of the Amazon River system in eastern Peru. There are three major sea

ports, Callao, Matarani, and Paita, with two of them having oil terminals. And Peru has three major river ports in the Amazon, Iquitos, Pucallpa, and Yurimiaguas.<sup>11</sup>

In terms of public health infrastructure, 82.5% of the urban population, and 53.2% of the rural population have access to improved sanitation. Approximately 91.0% of the urban population has access to improved drinking water sources, as opposed to 69.2% of rural populations.<sup>12</sup>

Peru spends 3.7% of its GDP on education and has a literacy rate of 94.5%. Slightly more males (97.3%) than females (91.7%) are literate. The average school expectancy is 13 years, but females get 14 years of education on average. There is disparity in achieved education levels between children in urban areas versus those raised in rural and remote areas of the country, with poorer levels of literacy and educational achievement in rural areas. Working against school attendance is the fact that child labor rates (ages 5 to 14 years) is 34.0%. Young adults (ages 15 to 24) experience an 8.8% unemployment rate.<sup>12</sup>

## Demographics

The annual average growth rate of the population has been declining for the last 48 years. From 1981 to 1993 the annual average growth rate was 2.00%, and from 1972 to 1981 it was 2.60%. The estimated growth rate for 2016 is 0.96%. This decreasing trend in population growth could be explained by increased urbanization (reaching 78.60% of the population in 2015), which has been changing at a rate of 1.69% annually between 2010 and 2015, as well as better educational level attainment for women. Around 75.00% of women use contraception, and the age of first birth for a woman is 22 year. The birth rate is 18 per 1,000 live births, and the death rate is 6 per 1,000. In addition, the net migration for Peru is -2.40 per 1,000 estimated for 2016.<sup>12</sup>

## Age and Sex Distribution of the Population

When analyzing the age distribution of the population, we can look at it as a population pyramid. How the pyramid has changed over time reflects the overall health and growth of the population. In 1993, the population pyramid had a wide base, representing high birth rates, with a thin apex, representing a small population progressing to old ages. Today we observe a reduced base with a progressive widening of the center and apex, which reflects three processes: fewer births, more population living to adulthood, and a

larger proportion of the elderly surviving. Over the past 40 years, the population of those over age 60 has tripled, while the annual growth for the population as a whole is now 0.96%.<sup>4</sup>

## Religion

The major religious groups are Roman Catholic (81.3%) and Evangelical (12.5%), with 3.3% of the population professing other religions and 2.9% who do not profess any religion. Comparing 2007 and 1993, there has been a 7.7% decrease in the number of Catholics, a 5.7% increase in the number of Evangelicals, and a 0.5% and 1.5% increase in the number of people professing other or no religion, respectively. Moreover, there are differences in religion by area of residency, with 82.3% and 77.9% of the urban and rural populations being Catholics, respectively, and 11.5% and 15.9% of the urban and rural population being Evangelicals, respectively. Finally, 50.6%, 53.9%, and 52.2% of women profess to be Catholic, Evangelical, and other religion, respectively. On the contrary, the population with no religion is predominantly male (61.5%).<sup>5</sup>

## ► Brief History of the Healthcare System

In 1935, the Ministries of Education, Public Health, and Social Forecast were created, and the last one included the Directorate of Salubrity, Work, Social Forecast, and Indigenous Matters, having as a base the General Directorate of Salubrity, created in 1903.<sup>13</sup> In 1940, with 8 million inhabitants, Peru was basically a rural country, with a mainly agricultural and miner population, and an epidemiological profile of a poor, rural country.

The Allied victory in World War II reinforced the relative democratic trend in Peru, as Prado's presidential term came to an end in 1945. José Luis Bustamante y Rivero (1945–1948), a liberal and prominent international jurist, was elected president and practiced more reform- and populist-oriented politics, moving Peru away from the strictly orthodox, free market policies that had characterized his predecessors' terms. Increasing the state's intervention in the economy in an effort to stimulate growth and redistribution, the new government embarked on a general fiscal expansion, increased wages, and established controls on prices and exchange rates. The policy was neither well conceived nor efficiently administered and came at a time when Peru's exports, after an initial upturn after the war, began to sag. This resulted in a surge of inflation and labor unrest that ultimately destabilized the

government. In 1948, Social Security for Employees was established with the creation of the Hospital of the Employee. The National Medical Union opposed this at the time out of concern that it would lead to privatization of medical services.<sup>13,14</sup> At that time, there was only one school of medicine dedicated to treating illness but little emphasis on prevention.

The 1960s was a period of growth for Peru in many realms, including industrialization, education, social insurance, increased home ownership, and sanitary infrastructure. The National Hospital Plan oversaw the modernization of the sanitary infrastructure and the expansion of these measures to more areas of the country. In 1969, the Sanitary Code was enacted and constituted the legal framework of the actions in the health sector, and simultaneously, the Organic Law of the Health Sector was put forth.<sup>13</sup> It was also at this time that the health system started to closely follow the international health policies of the Panamerican Health Organization, United Nations Fund for Children, and the United Nations Population Fund. Governments of Latin American countries were also advancing health care by setting up family planning programs and improving access to contraceptive methods, but all these activities stopped in the first phase of the military government (1968–1975).<sup>14</sup>

During the 1970s, continued progress in health care was made with the establishment of free maternity services. In addition, it became mandatory for graduates from the schools of medicine, nursing, and dentistry to do civil service to get their professional diplomas.<sup>15</sup> In 1974, rapid population growth became a problem, and population health policies were defined and approved as Lineaments of Population Policies in the second phase of the military government (1976–1980).<sup>13</sup> The expansion of the government-run social services ended with the beginning of the fiscal crisis that was triggered by the external debt and the general economic crisis of 1975. From this time on, the government neglected social responsibilities, mainly those of health and education. It is important to highlight that even with the expansion of the public services during 1963–1975, there was always a great proportion of the population with no access to health services and social insurance.<sup>13</sup>

The 1980s, now called “the lost decade,” were led by two democratic governments: the first was a weak government whose leadership resulted in daily monetary devaluation and disorganization of the health sector, and the second caused chaos characterized by huge increases in terrorism, continuous monetary devaluation, and hyperinflation. The health sector faced several problems related to the health establishments in bankruptcy due to limited economical resources and the lack of credibility in the sector.<sup>1</sup> The fiscal crisis in



the 1980s seriously affected the resources of the health sector, and as a consequence, the per capita expenditure of the Ministry of Health (MINSA) and of the Social Insurance Peruvian Institute (which was the Peruvian Institute of Social Security, IPSS, until 1996 and is currently EsSalud) decreased by 50%. Regarding coverage, only 25% of the population had some kind of health insurance, and the other 75% of the population did not have any provisional coverage.<sup>16(pp 23-29)</sup>

In the 1990s the Peruvian government was in an intense crisis because of the political violence, its waning authority, and its declining legitimacy in the eyes of society.<sup>16,17</sup> A new government (Alberto Fujimori's) took the responsibility of solving the hyperinflation. Since then, a neoliberal policy has been applied, noting an increase in the globalization of information and economies and the disappearance of socialist regimes, bringing about a redefinition of many theories and concepts in public health and health policies.<sup>18</sup> It is important to also mention the cholera epidemic in 1991 that left in total crisis the most excluded of society: the poor people.<sup>18</sup> It also generated one of the biggest loans from the World Bank to fight against cholera. After this, the Fujimori administration also enacted the Social Emergency Program, an objective created to reduce the social cost of the crisis.<sup>1</sup>

In this global context, health policies were formulated with the goal of reforming the health system through regionalization and decentralization as strategies to obtain change and reorient the model to obtain greater coverage of the population.<sup>14</sup> This reform process was guided by the principles of fairness, universality, solidarity, quality, effectiveness, and efficiency. It sought to build a new legal framework for the development of health actions, to expand government capacities, to establish a new system for individual health care and attending to collective health, and to create a new system for health care funding and health service administration.<sup>16</sup>

Since 1994, the government has budgeted US \$88 million per year for the program Basic Health Program for All. Later, projects began with international funding of \$202 million total: the Program of Fortification of Health Services was supported with \$98 million, the Health and Basic Nutrition Project of the World Bank with \$44 million, and Project 2000 with \$60 million. It was equivalent to a per capita expenditure of \$42.06 dollars per year.

With the movement from rural life to city life, impoverished medium-socioeconomic class layers have appeared, and the lifestyles of many people have changed from living in close contact with nature to the stressful world of the city. People went from the unhealthiness of rural deficiencies to the relative

unhealthiness of urban deficiencies as healthcare changed from the meager hospital services of years past to the current system of massive services. Consequently, Peru currently has a very heterogeneous epidemiological profile.

## ► Description of the Current Healthcare System

The current health system is composed of two sectors: public and private. The first consists principally of MINSA and EsSalud and the Armed Forces and Police health units. The private sector is composed of doctor's offices, private clinics, local companies, and non-governmental organizations (NGOs) providing health services. MINSA is in charge of issuing policy guidelines as well as the technical standards and procedures to regulate sectoral activity. In practice, the health sector is highly fragmented and inequitable.<sup>19</sup> Regional governments and municipalities play an important role in providing public health services, first through the regional health directorates (which are extensions of MINSA and are in the process of decentralization and therefore have some autonomy) and the second by partially subsidized public hospitals that provide health services to the general population (for example, in Lima these hospitals are known as Hospitals of Solidarity).

In order to evaluate health spending, one must consider two factors: the type of insurance coverage an individual has and the type of health facility where an individual receives medical attention. If a person has Comprehensive Health Insurance (SIS), theoretically the patient would receive 100% coverage with a few exceptions; this option was created to serve the poor and extremely poor who have no ability to pay and have no other health insurance. MINSA is currently trying to expand the availability of the option to the entire population with pilot projects in the poorest departments of Ayacucho, Apurímac, and Huancavelica, with the hope of reaching all departments by 2012.<sup>20,21</sup> The second option is a partially subsidized insurance called SISALUD, for which participants make monthly contributions ranging from US \$3.30 to \$10.00, depending on whether coverage is for the individual or for a family and on the eligibility of the patient for SIS coverage. The third option is for individuals with no public insurance coverage, who must pay for the services directly at rates set by each health establishment, the cost of which is much lower than in EsSalud or private offices or clinics because the financing of MINSA facilities is subsidized. In the case of some cities, such as Lima, people have an additional option, public hospitals run by

local municipalities that are equipped with specialized equipment and care offered at lower cost than in the private sector. There are also some civil associations, NGOs, that provide healthcare services through clinics and diagnostic laboratories at a cost significantly lower than private clinics but slightly higher than in MINSA facilities.

EsSalud serves salaried and contract employees from both the public and private sectors as part of their employee benefits; employers are required to pay 9% of a person's base salary each month for healthcare coverage for the employee and family. EsSalud also offers insurance coverage that can be purchased by independent workers for a monthly premium, and although this represents a minority of those affiliated with EsSalud, many continue to use this modality and receive the same benefits as those affiliated through their employers.

Members of the national police and military and their families receive health care from the Armed Forces and Police Force health services, each with a flagship hospital in Lima, the capital of Peru, as well as other health facilities in the country. These services are subsidized by the central government through the Ministry of Defense and provide 100% and partial coverage to members and their families, respectively.

A relatively small percentage of the population, usually with moderate to high income, has private insurance offered by a group of officially authorized Health Maintenance Organizations (EPS), such as RIMAC, PERSALUD, and PACIFICOSALUD, and MAPFRE PERU.<sup>20</sup> These EPSs have their own financial support and either their own health facilities or agreements with well-recognized private clinics, usually located in major cities.

## Facilities

The infrastructure of the health sector ranges from primary care facilities, such as health posts headed by nurses and health centers headed by physicians, to larger hospitals and institutes, which are staffed with specialty physicians and, in some cases, provide tertiary care. These facilities are distributed among the different health institutions: MINSA, EsSalud, Armed Forces, National Police, and the private sector (private clinics), but the facilities in the public sector, specifically MINSA facilities, account for the vast majority of them. Excluding informal private practices, in 2005, public facilities accounted for 85% of the health infrastructure, and private sector facilities accounted for 7% (TABLE 8-3).<sup>22-24</sup>

In 2009, the National Institute of Statistics and Informatics reported 485 hospitals, 2,049 health centers, and 6,016 health posts managed by MINSA or EsSalud.<sup>3</sup> In 2015, the number of beds per 1,000 population was 1.5.<sup>12</sup> The distribution of these health facilities, however, was uneven. In 2002, MINSA and EsSalud reported 42 hospitals in the Department of Lima, compared to 2 in Huancavelica, one of the poorest departments in Peru.<sup>20,23</sup> The distribution of health centers throughout Peru remains unequal, with most located in Lima. In TABLE 8-4, 2005 data indicate that distribution has grown worse.

Overall, there has been very slow growth of MINSA infrastructure; observed growth, however, has generally been in response to local efforts by community leaders and local governments that are sharing in healthcare costs through the implementation of decentralization policies. The bulletin published by the MINSA Office of Statistics and Informatics shows a slight increase in health facilities in Peru between 1996 and 2005. In

**TABLE 8-3** Number of Health Facilities by Institution in Peru, 2006

Institution	Total	Hospital	Health center	Health post
<b>Total</b>	<b>8,055</b>	<b>453</b>	<b>1,932</b>	<b>5,670</b>
<b>Ministry of Health</b>	6,821	146	1,203	5,472
<b>EsSalud</b>	330	78	252	0
<b>National Police of Peru</b>	280	5	77	198
<b>Peruvian Army</b>	60	16	44	0
<b>Private clinics</b>	564	208	356	0

Statistics & Informatics Office, MINSA.

**TABLE 8-4** MINSA Health Establishments by Department in Peru, 2005

Department	Hospital	Health center	Health post	Total
Amazonas	2	31	260	293
Ancash	12	51	339	402
Apurimac	6	34	198	238
Arequipa	4	54	190	248
Ayacucho	8	49	292	349
Cajamarca	8	103	518	629
Callao	3	50	3	56
Cuzco	4	47	209	260
Huancavelica	1	45	241	287
Huanuco	4	21	210	235
Ica	6	34	98	138
Junin	7	51	395	453
La Libertad	8	44	158	210
Lambayeque	2	43	108	153
Lima	30	205	427	662
Loreto	3	51	276	330
Madre de Dios	2	12	97	111
Moquegua	1	25	33	59
Pasco	3	16	220	239
Piura	4	72	307	383
Puno	11	79	345	435
San martin	13	43	296	352
Tacna	1	17	54	72
Tumbes	1	12	29	42
Ucayali	2	14	169	185
TOTAL	146	1,203	5,472	6,821

Statistics &amp; Informatics Office, MINSA.

2009, EsSalud had an institutional initiative to improve both primary health and hospital care. Under this initiative, by February 2010, EsSalud had constructed 48 of 100 projected primary care facilities and 11 of 18 projected tertiary hospitals located throughout Peru. Large numbers of professional and nonprofessional staff had been contracted to work in these health facilities.<sup>25</sup> The impact of this rapid growth has yet to be evaluated, but EsSalud serves less than 30% of Peru's population, so it is unlikely to be of great impact. Only if the Peruvian government is able to establish a unified national health system will the situation improve.

### Workforce

In 2005, the health workforce included 139,231 workers distributed among MINSA, EsSalud, and health maintenance organizations, which together serve more than 80% of the population.<sup>26</sup> Similarly, in 2007, there were 1.48 physicians per 1,000 inhabitants, and in 2015, the ratio was 1.13 per 1,000, indicating a significant decline in a short period of time. The number of nurses and/or midwives per 1,000 population was 1.50 in 2012.<sup>27</sup>

To add to the problem, like with health facilities, the distribution of health workers is unequal. For example, in 2005, Lima had 1.86 physicians per 1,000 inhabitants, 3 times that observed in the department of Huancavelica.<sup>24</sup> The gap between Lima and poorer departments continued to increase. In reports from 1992, 2004, and 2006, the numbers of physicians per inhabitants continued to also show a consistent inverse correlation with poverty levels, and this situation continues into 2016.<sup>21</sup>

The primary barriers to the improvement of the health infrastructure fall into two major categories: human resources and an increased demand on the health sector. Issues surrounding human resources are complex and include a worrying decline in the quality of medical and nursing education for those entering the field and those seeking further educational opportunities. The impact of underemployment leads to many healthcare professionals migrating out of underserved communities or Peru altogether. Only 2 of the 29 medical schools have international accreditation, and scores in the national medical boards have been consistently low.<sup>28</sup> In spite of this, between 1992 and 2003, the number of medical schools increased from 13 to 28 and nursing schools from 34 to 44. In turn, this increased the number of graduates in medicine. Health professionals continue to migrate to better served areas or outside the country.

Precarious employment opportunities further complicate this situation, often leading to low and

unequal wages, lack of regular employment benefits, kickbacks to obtain employment, and labor disputes. All of these factors lead to worker dissatisfaction and subsequent reductions in the quality of care delivered. There has been a lack of consistent government policy or regulation on wages for health personnel, especially between different institutions. Perhaps more important has been the increased demand on the healthcare system overall, and more specifically on the public sector due to the SIS system, designed to provide free healthcare access to traditionally underserved populations, primarily those in poverty and extreme poverty. The supply of human resources, including salaries and health facilities, has failed to keep up with the demand, which far exceeds the capacity of existing facilities and personnel.

### Technology and Equipment

Although communication infrastructure continues to increase, in rural areas telephone service and electricity are often unavailable or unreliable. Radio communication is critical, especially because many of these facilities are extremely isolated and many days of travel from the nearest city. The service is efficient because operating costs are minimal and coordination with the administrative headquarters can be carried out to solve problems, and the service allows information transfer and sharing. Impact is highest in the case of emergencies and disasters. In 2002, the Hispano American Health Link Foundation (Enlace Hispano Americano de Salud), a nonprofit institution that promotes the appropriate use of new information and communication technologies applied to health services in remote rural areas in developing countries, started a pilot project for telemedicine in Yurimaguas city, and later it extended the project to Iquitos and Cuzco. According to the Census of Sanitary Infrastructure and Health Resources, the number of radios in use increased from 625 in 1996 to 2,621 in 2005 (most radios are high frequency). The role of telemedicine for remote areas of Peru continues to expand in 2016.

In 2012, MINSA reported 24,055 available hospital beds, distributed in 2,512 health facilities; 31.1% are in health centers or posts, which usually treat births and uncomplicated illnesses with short hospital stays. Larger hospitals and institutes treat 68.9% of patients with medium and severe medical problems. In 2012, Peru had 1.5 beds per 1,000 population countrywide. Hospital beds in MINSA facilities are distributed predominantly in the departments of Lima, Cusco, Arequipa, Puno, and Junin. At the institutional level, 57.3% of hospital beds are with MINSA, 15.8% with EsSalud,



9.0% with Armed Forces and National Police health units, and 17.9% with private institutions.<sup>22</sup>

## Evaluation of the Healthcare System

### Cost

The GDP per capita in 1991 was US \$1,992; in 1995 it was \$2,505; and in 2000 there was a significant drop to \$2,180.<sup>29</sup> In 2005 GDP rose to over \$2,500 per capita; in 2007 it reached \$3,766; and in 2008 it increased to \$4,422 per person per year.<sup>30,31</sup> Total expenditures on health, out of the total Peruvian budget, in 2013 was 14.7%. In 2015 GDP per person had risen to \$12,200 (PPP). In 2014 and 2015, the real growth rate was 2.4% and 3.3%, respectively. As of 2016, health expenditures are 5.3% of GDP.<sup>8,27</sup>

The per capita health expenditure from 1995 to 1996 was US \$102, then it increased to in 1997 and 1998 to \$107, and then it decreased in 1999 to \$100 and in 2000 to \$99.<sup>32</sup> In 2002 it was \$104, in 2004 \$113, and 2005 \$130.<sup>32</sup> In 2013, the WHO reported per capita health spending in Peru as \$354, representing a PPP of \$626.<sup>27</sup>

According to expenditure by lenders, throughout the period of 1995–2005, the highest spending was from EsSalud, which increased during that period, while MINSA expenditures, Police and Military Departments of Health, and the private sector expenditures remained constant. Drugstore expenditures reduced yearly. The three main centers of expenditure in 2005 were the one managed by MINSA nationwide (27.2%), EsSalud (26.7%), and the private lucrative sector including the EPS (23.8%).<sup>31</sup>

Mechanisms of healthcare financing include taxes, premium contributions, and out-of-pocket payments. The government financed 25.2% in 1995, 24.1% in 2000, and 30.7% in 2005, and in 2013 the government's proportion of total healthcare financing rose to 58.7%, while the private proportion of the total healthcare financing expenditure in Peru was 41.3%. Out-of-pocket financing by individuals and families represented 84.6% of the private proportion, continuing to be the main source of financing: 45.6% in 1995, 37.9% in 2000, and 34.2% in 2005. This proportion has stayed fairly constant over the last decade, with out-of-pocket spending representing 34.7% of the total healthcare expenditure in 2013. The remaining funding (6.6%) comes from external funders, internal donations, and others (3.4% in 1995, 3.7% in 2000, 4.6% in 2005, and 6.6% in 2013).<sup>27</sup>

Between 1995 and 2015, Peru consistently increased its proportion of funding. Especially since 2005, Peru has observed a very important increase

in financing on the part of the government, with increased reliance on resources from the national treasury, from 25.2% to 60.4% through 2014. At the same time there was a decreased reliance on out-of-pocket financing from 45.8% to 34.7%. The most probable explanation of this trend is that this effect was due to the presence of SIS.<sup>31</sup> Personal resources are used mostly to buy pharmaceuticals (most of the time without support from the Peruvian public health service), as well as to pay the bill for private or public care.<sup>19</sup>

Studies about the breakdown of health expenses according to levels of care suggest that approximately 40% of the MINSA public allowance in health (defined as the payment of health expenses minus the payment of the fees paid per user minus the expenses of the central administration of MINSA) is sent to the hospital level, while the remaining 60% goes to primary care facilities (health centers and health posts).<sup>33</sup> The distribution of the MINSA public allowance for health by income quintiles has shown a clear decreasing pattern in hospital expenses, especially in rural areas, while there is a meaningful increasing pattern in the expenses of urban health centers and urban health posts.<sup>3</sup>

### Quality

#### Mortality and Life Expectancy

The infant mortality rate for 1972–1976 was 96 per 1,000 live births. This rate went down to 83 for 1977–1981, to 77 for 1982–1986, to 57 for 1987–1992, to 38 for 1993–1997, to 30 for 1998–2002, and to 19 for 2003–2008.<sup>34,35</sup> In 2015, the CIA reports that the infant mortality rate had remained steady at 19 per 1,000 live births.<sup>12</sup>

The child mortality rate (deaths of children under the age of 5 per 1,000 live births) was 227 per 1,000 in 1960, 53 for 1993–1997, 39 for 1998–2002, 27 for 2003–2007 and by 2015 had reached a new low of 17 per 1,000.<sup>35,36</sup> The reduction in neonatal mortality has also consistently improved since 1990 when the neonatal mortality rate was 28 per 1,000 live births. The rates were 19 for the period 1993–1997, 17 for 1998–2002, 10 for 2003–2008, and in 2015 the rate was 8 per 1,000 live births.<sup>35,36</sup> The area of residency makes a significant difference in both neonatal mortality rates and mortality rates for children under 5 years of age. For 2003–2008, infant mortality was 12 per 1,000 live births in urban areas, but in rural areas the rate was 30 per 1,000 live births.<sup>35</sup> Child mortality also showed a major difference by area of residency, with 17 per 1,000 deaths in urban area and 43 child deaths per 1,000 live births in rural areas. Neonatal mortality



was noticeable but less significant at 8 per 1,000 deaths in urban areas and 14 per 1,000 in rural areas. In Lima, the infant mortality rate was as low as 2 per 1,000 live births, indicating the advantage to population living in the capital city.<sup>35,36</sup>

The mothers' level of education (as a feature related to infant mortality) for 2003–2008 showed one of the most important inequities, reaching rates of 30 and 29 deaths per 1,000 per live births in mothers with no education or who went to primary school only, respectively. On the other hand, for mothers with high levels of education or with secondary school education only, infant mortality rates were as low as 6–15 per 1,000 live births. These differences are also observed for both child mortality and neonatal mortality.

Infant and child mortality rates are highly correlated with wealth. During the period 2003–2008, the distribution of wealth by quintiles also revealed significant differences in child mortality with only 2 deaths per 1,000 live births in the highest quintile of income, and 50 per 1,000 in the lowest quintile. This difference is also observed for child mortality with a rate of 9 per 1,000 live births in the highest quintile and 59 per 1,000 in the lowest quintile. For neonatal mortality, 1 per 1,000 live births was recorded in the upper quintile of income and 20 per 1,000 in the lowest quintile.<sup>35</sup>

The general mortality rate in Peru has shown a decreasing trend since 1950, and most notably in the last 40 years. In 1990, the gross mortality rate was 7.2 per 1,000 inhabitants.<sup>37</sup> For 2000–2005 it was estimated at 6.0 deaths per 1,000 inhabitants, where it has remained steady into 2016.<sup>38</sup> By 2015, life expectancy had risen to 73.1 years for males, and to 78.0 years for females. Life expectancy, like other measures, varies by region of the country, with higher life expectancy in urban areas versus rural areas.<sup>12</sup> The top 10 major causes of death in Peru per 100,000 population are presented in **TABLE 8-5**. In Peru there is also a high risk for infectious diseases, especially in rural areas. These include bacterial diarrhea, hepatitis A, and typhoid fever, as well as vector-borne diseases such as dengue fever, malaria, and the Zika virus. In terms of lifestyle factors, 20.4% of adults are considered obese. Peru reports a moderate level of alcohol and tobacco use.

### Fertility Rate

The overall fertility rate in Peru has changed from 3.50 children born per woman in 1996 to 3.00 in 2000, 2.40 in 2007, and 2.15 in 2016. In the last few years important differences have been observed according to area of residence, with the highest birth rates in rural areas,

**TABLE 8-5** Top 10 Causes of Death per 100,000 Population in Peru in 2014

Cause of death (2014)	Number per 100,000 population
Influenza and pneumonia	73.15
Coronary heart disease	56.73
Stroke	37.12
Prostate cancer	19.89
Liver disease	18.89
Road traffic accidents	16.86
Kidney disease	16.13
Stomach cancer	15.34
Other injuries	13.59
Cervical cancer	13.06

Data from World Health Rankings. Health Profile: Peru. [www.worldlifeexpectancy.com/country-health-profile/peru](http://www.worldlifeexpectancy.com/country-health-profile/peru). 2014. Accessed October 19, 2016.

the Amazon forest region, the Andes, and in the lower quintiles of wealth. Contraception is reported to be at 75.5% (2012) for all women of child bearing age. Maternal mortality rate is at 68.00 deaths per 100,000 live births (2015). Consistent with other health statistics, the fertility rate is going down while mortality statistics are going down over time.<sup>12</sup>

### Malnutrition

In 2014, 3.1% of children in Peru under the age of 5, were underweight. Chronic malnutrition, according to *Encuesta Demográfica y de Salud Familiar*, 2007–2008, was 27.8% for children under five years, which showed a slight decrease in relation to 2000 and 2005, with rates of 31.0% and 29.5%, respectively. Malnutrition affected mainly children living in rural areas (44.7%) compared to urban areas (16.0%). Huancavelica (located in the Andes) was the department with the highest proportion of malnourished children (56.6%), and Tacna (located in the coast) had the lowest proportion with 9.1%. Mothers with no education had malnourished children at a proportion of 61.4%, while mothers with more advanced education had the

lowest proportion levels at 8.9%. Acute malnutrition at the country level was 0.8%, while for children under age five it was 4.2%.<sup>35</sup>

## Vaccination

The proportion of children aged 18 to 29 months who were fully vaccinated was 66.0% in 2000 and 56.9% in the period 2004–2006.<sup>35</sup> Improvement was made in the vaccination rates over the following decade. **TABLE 8-6** shows the level of vaccination for children one year or less in age for the major vaccines. It should be noted that studies have consistently found that the level of vaccination rates vary by location and the education of the mother. Vaccination rates are higher in urban areas as compared to rural areas of the country, and the rates are higher among better education women.<sup>35</sup>

## Access

### Equity/Universality

Peru shows a skewed distribution of income: while 20% of the population with the highest income concentrates 47.5% of the national income, 20% of the population with the lowest income concentrates only 6% of the national income.<sup>39</sup> The Gini coefficient for distribution of income by population deciles was 0.51 in 2003,<sup>40</sup> 0.510 in 2005, 0.507 in 2007, 0.479 in 2008,

0.453 in 2012, and 0.441 in 2014.<sup>41</sup> This decline in the Gini coefficient, although slow, is consistently going in the direction of better equity in terms of income.<sup>8,42</sup>

The number of doctors in Peru was 1.1 per 1,000 population in 2012. Like other resources in Peru, the number of physicians is poorly distributed, with a higher concentration in urban areas than in rural areas such as the Andes and the Amazon.<sup>3</sup> Better living conditions, access to services, and better pay draw healthcare professionals away from the most needy and vulnerable populations. For nurses/midwives, there are only 1.5 per 1,000 population nationally. Access to health care also depends on transportation, availability of clinics, and cost. Theoretically, everyone has access to healthcare services in government-run facilities and/or is covered by SIS, but actually only 73% of the population has some form of health insurance. In addition, the numbers of services and quality of services available varies considerably across Peru geographically and by income.<sup>12</sup>

### Uninsured Population

There are four ways in which to receive health insurance: Comprehensive Health Insurance (SIS), Social Health Insurance (EsSalud), Public Health of Military and Police Institutions insurance, and private insurance companies. SIS has evolved as a public insurance, funded publicly, with a focus on poor and vulnerable populations.<sup>31</sup> EsSalud provides health, social, and economic services, which complements its insurance role. Workers of the formal sector of the economy and their direct relatives are mainly affiliated with EsSalud, which is financed mainly by contributions from the payroll of the employee's institution.<sup>31</sup> Employers calculate the equivalent of 9% of the monthly wage of their workers, and the number of contributors depends on the evolution of the formal economic sector. In addition to dependent workers, social security has looked for ways to expand this service to workers who are not salaried, but this has resulted in scarce results.<sup>43</sup>

The public insurance of military and police institutions exclusively covers its workers and direct relatives, and it is financed by public treasury funds. Private health insurances are usually taken by families, less often directly by employers. The main differences between the services given by the SIS and the EsSalud insurances are the gratuity of the care and the medication required by the insured ones. EsSalud insurance keeps the services for all its members unified regardless of the level of income/contribution and type of affiliation (there are regular affiliated members and special affiliated members) until early 2000. Since

**TABLE 8-6** Vaccination Rates for Children ≤ 1 Year of Age in Peru, 2014

Vaccine	Completion rate (%)
BCG (bacillus Calmette-Guérin for tuberculosis)	94
DPT (diphtheria, pertussis, tetanus)	88
Hepatitis B	88
Hib ( <i>Haemophilus influenzae</i> type b, 3 in series)	95
MEV (measles)	89
PAB (tetanus, at birth)	85
Polio (3 in series)	93

Data from WHO. Global Health Observatory Data: Peru. <http://www.who.int/gho/en/>. 2014. Accessed June 20, 2016.

then, EsSalud has developed health plans with different levels of coverage for the special affiliated members, the independently insured members (also known as facultative members) and their families.<sup>43</sup> In 2005, the proportion of the population receiving any type of health insurance was 35.9%, but by 2012, 73.0% of the population was enrolled in one of these four types of health insurance. The proportion of the population receiving SIS has increased continuously, and Peru is inspired to continue expanding this insurance so that there is universal coverage, which is a national priority. Peru's strategic initiative is to increase the level of funding as a percentage of GDP, improve access to high-quality care, improve disease monitoring activities for chronic and infectious diseases, and develop inclusive approaches focused on human rights, gender, intercultural aspects, primary health care, families and communities, life course, and determinants of health status.<sup>44</sup>

## References

1. *The World Factbook*. Washington, DC: Central Intelligence Agency. <http://www.cia.gov/library/publications/the-world-factbook/geos/pe.html>. 2008. Accessed February 2, 2010.
2. *The World Factbook*. Peru. Washington, DC: Central Intelligence Agency. [cia.gov/library/publications/resources/the-world-factbook/geos/pe.html](http://cia.gov/library/publications/resources/the-world-factbook/geos/pe.html). September 25, 2016. Accessed October 1, 2016.
3. Instituto Nacional de Estadística e Informática. *Perú: Compendio Estadístico 2009*. Peru 2009.
4. Instituto Nacional de Estadística e Informática. *Perfil Sociodemográfico del Perú*. 2008.
5. Instituto Cuánto. *Anuario estadístico: Perú en números*, 2009.
6. *Peru: Estimaciones y Proyecciones de Población Total por Sexo de las Principales Ciudades 2013–2015*.
7. World Population Review. Peru population 2016. [www.worldpopulationreview.com/countries/peru-population/](http://www.worldpopulationreview.com/countries/peru-population/). Published August 6, 2016. Accessed October 2, 2016.
8. *The World Factbook*. Peru. Economy. Washington, DC: Central Intelligence Agency. [cia.gov/library/publications/resources/the-world-factbook/geos/pe.html](http://cia.gov/library/publications/resources/the-world-factbook/geos/pe.html). September 25, 2016. Accessed October 18, 2016.
9. Instituto Nacional de Estadística e Informática. *Compendio de Estadísticas Sociodemográficas 1998–2009*.
10. *The World Factbook*. Peru. Communication. Washington, DC: Central Intelligence Agency. [CIA.gov/library/publication/resources/the-world-factbook/geos/pe.html](http://CIA.gov/library/publication/resources/the-world-factbook/geos/pe.html). September 25, 2016. Accessed October 14, 2016.
11. *The World Factbook*. Peru. Transportation. Washington, DC: Central Intelligence Agency. [CIA.gov/library/publication/resources/the-world-factbook/geos/pe.html](http://CIA.gov/library/publication/resources/the-world-factbook/geos/pe.html). September 25, 2016. Accessed October 14, 2016.
12. *The World Factbook*. Peru. People and Society. Washington, DC: Central Intelligence Agency. [CIA.gov/library/publication/resources/the-world-factbook/geos/pe.html](http://CIA.gov/library/publication/resources/the-world-factbook/geos/pe.html). September 25, 2016. Accessed October 13, 2016.
13. Lip C. Los Cambios en la profesión médica y sus implicancias. El caso del Perú. *Educ Med Salud*. 1994;28(1):96–101.
14. Estrada MV, Godoy RM. Género y políticas de salud de la mujer en América Latina: caso Perú. Parte 2. *Rev Esc Enfermagem*. USP, São Paulo. 1996;30(1):204–208.
15. Yong EM. Seminario internacional reforma del sector salud. Lima, 1996. Discurso del Ministro de Salud de Perú.
16. Aguinaga AR. *Situación de la salud en Perú y sus tendencias: la reforma sectorial*. Lima: Ministerio de Salud del Perú. Lima. 1996.
17. Ministerio de Salud del Perú. Oficina General de Epidemiología. *Situación de salud del Perú*. Lima; 1998.
18. Gonzales RIC, Rojas VC, Villa TCS. Vision panorámica de la situación de salud en el Perú. *Rev Latino-Am Enfermagem*. Ribeirão Preto. 2000;8(6):7–12.
19. Organización Panamericana de la Salud. Programa de Organización y Gestión de Sistemas y Servicios de Salud División de Desarrollo de Sistemas y Servicios de Salud. *Perfil del Sistema de Servicios de Salud de Perú*. 2001.
20. Barboza-Tello M. El aseguramiento universal en el Perú: La Reforma del financiamiento de la salud en perspectiva de derechos. *Rev Perú Med Exp Salud Pública*. 2009;26(2):243–247.
21. Organización Panamericana de la Salud. Organización Mundial de la Salud. Cuarto curso internacional de desarrollo de Sistemas de Salud en Latinoamérica. Nicaragua: 29 abril–15 de mayo 2009.
22. Ministerio de Salud del Perú. *Boletín Estadístico No. 5: Infraestructura Sanitaria en el Perú*. Oficina Estadística e Informática. Vol. 5, 2005.
23. Ministerio de Salud del Perú. Oficina General de Epidemiología. *Informe Análisis de la Respuesta Social*. 2002.
24. Organización Mundial de la Salud. *La Salud en las Américas 2007, Vol. 2: países*.
25. Establecimientos de Salud (EsSalud). Oficina Central de Planificación y Desarrollo. Gerencia de Planeamiento Corporativo.
26. Del Carmen Sara J. *El rol de las políticas y los planes: Objetivos de salud y Políticas de Recursos Humanos*. Toronto, Canadá: Reunión Regional de los Observatorios de RHUS; Octubre 2005.
27. World Health Organization. World Global Health Observatory data. Peru. <http://www.who.int/gho/en/>. 2015. Accessed June 22, 2016.
28. *Boletín Electrónico de Asociación Peruana de Facultades de Medicina*. Vol. 123. 2008 Disponible en: [http://www.aspefam.org.pe/boletin\\_elec/Boletin%20123/Boletin%20123.htm](http://www.aspefam.org.pe/boletin_elec/Boletin%20123/Boletin%20123.htm).
29. Instituto Nacional de Estadística e Informática. Elaborado sobre la base de: a) Cuanto S.A. Anuario estadístico. Peru en números 2000. Cuadros 18.5; 17.2; 30.18; 30.37, b) MINSA—OPS. Cuentas Nacionales de Peru. Lima 2001.
30. Luis Carranza Ugarte. *Presentación Situación y Perspectivas de la Economía Peruana*. Banco Central de Reserva, Ministerio de Economía y Finanzas—Perú. Ministro de Economía y Finanzas, Setiembre 2009.
31. Ministerio de Salud del Perú. Cuentas nacionales de salud. Perú, 1995–2005. Oficina General de Planeamiento y Presupuesto/Consortio de Investigación Económica y Social. *Observatorio de la Salud*. Lima: Ministerio de Salud del Perú; 2008.
32. Mejoras metodológicas de la información de cuentas nacionales de salud, 1999–2000.
33. MINSA-SEPS-OPS. *Equidad en la Atención de Salud 1997*. Lima: septiembre 1999.
34. Instituto Nacional de Estadística e Informática. *Encuesta Demográfica y de Salud Familiar IV*.
35. Instituto Nacional de Estadística e Informática. *Encuesta Demográfica y de Salud Familiar (ENDES) 2007–2008*.

36. UN Inter-agency Group for Child Mortality Estimation. Mortality rate, children < 5. <http://data.worldbank.org/indicator/SH.DYN.MORT>. 2016. Accessed November 24, 2016.
37. Instituto Nacional de Estadística e Informática. *Perú: Estimaciones y Proyecciones de la Población por Años Calendario y Edades Simple 1970–2025*. Lima: INEI; 1995.
38. Ministerio de Salud. *Análisis de la Situación de Salud de Perú 2005: Dirección General de Epidemiología*. Lima, Perú. Julio 2006.
39. Instituto Cuánto. Anuario estadístico: Perú en números, 2005.
40. Instituto Nacional de Estadística e Informática. *La Pobreza en el Perú 2003–2004*. 2005.
41. Organización Panamericana de la Salud. *Perú: Perfil de País. Salud en las Américas*. 2007.
42. World Bank. 2014. World Bank indicators: Peru. The poverty level in 2012 was 25.8% of the population. [www.data.worldbank.org/indicator/SI.POV.GINI](http://www.data.worldbank.org/indicator/SI.POV.GINI). Accessed October 20, 2016.
43. Instituto Nacional de Estadística e Informática. Encuesta Nacional de Hogares (ENAHOG) Continua 2006, 2007, 2008).
44. World Health Organization. *WHO Country Cooperation Strategy: Peru at a Glance*. [www.who.int/iris/bitstream/10665/246214/1/ccbrief\\_per\\_en.pdf](http://www.who.int/iris/bitstream/10665/246214/1/ccbrief_per_en.pdf). Geneva: WHO; 2016. Accessed October 20, 2016.

