

# EL SALVADOR



**Sources:** Second Administrative Level Boundaries Dataset (SALB), a dataset that forms part of the United Nations Geographic Database, available at: [http://www.who.int/whosis/database/gis/salb/salb\\_home.htm](http://www.who.int/whosis/database/gis/salb/salb_home.htm), and the Digital Chart of the World (DCW) located at: <http://www.maproom.psu.edu/dcw>. The boundaries and names shown here are intended for illustration purposes only, and do not imply official endorsement or acceptance by the Pan American Health Organization.

**E**l Salvador is in Central America. It has an area of 21,040.79 km<sup>2</sup> structured into 14 departments and 262 municipios for administrative purposes. It is a republic, with a decentralized, representative, democratically elected government composed of executive, legislative, and judicial branches.

## GENERAL CONTEXT AND HEALTH DETERMINANTS

### Social, Political, and Economic Determinants

Gross domestic product (GDP) at current prices grew from US\$ 12.5 billion in 1999 to US\$ 16.9 billion by 2005, at an average rate of 2.8% (1, 2). Total central government spending averaged 14.4% of GDP for 2000–2003 (2), peaking at 15% in 2003. Per capita GDP at current prices for 2005 was US\$ 2,469, compared with US\$ 1,220.50 at constant prices (real GDP). Real GDP grew at an average annual rate of 2.6% between 1996 and 2005 (from US\$ 1.7 billion to US\$ 2.3 billion). The Ministry of Economy put the annual inflation rate for 2005 at 4.7% (2).

According to the Human Development Index, the country ranks 104th out of 177 countries, with an index of 0.732 (3). Based on data from the 2002 Multipurpose Household Survey, the human development indexes for the departments of San Salvador (0.783) and La Libertad (0.752) were higher than the nationwide index. An estimated 183,874 persons were unemployed in 2004 (4).

As revealed in the 2004 Multipurpose Household Survey, the country's poverty rate is decreasing; the urban-rural divide has widened, however. According to survey data for 2002 and 2004, the percentage of households living in poverty dropped from 42.9% in 2002 to 34.6% in 2004. Of the latter group of households, 12.6% were living in extreme poverty or, in other words, were unable to cover the cost of the basic food basket. Survey data for 2004 put the share of rural households living in poverty at 43.7%, down 12.1 percentage points from 2002. The share of poor urban households went from 29.5% to 29.2% between 2002 and 2004. Of these 263,000 households living in poverty, 46% were concentrated in the San Salvador Metropolitan Area. Most of the population living in extreme and relative poverty without a health care safety net lived in the country's rural areas (19.3% and 24.4%, respectively) (4).

According to the 2004 Multipurpose Household Survey, anyone older than 10 years old in El Salvador is considered to be of working age. The working population accounted for 61.1% of the total population (60.4% were male and 39.6%, female). The nationwide unemployment rate was 6.8% (6.5% in urban areas and

7.2% in rural areas). The urban underemployment rate was 34.6%: 4.3% of workers were classified as openly underemployed (working fewer than the legal working hours) and 30.3% were hidden underemployed (working more than the legal working hours but earning less than the legal wage).

In 2005, El Salvador's Legislative Assembly approved the United States-Dominican Republic-Central America Free Trade Agreement (CAFTA), which was viewed as a tool for promoting development and the country's incorporation into the global market. This presented a major challenge, in that it required the country to undertake policy adjustments in such areas as competitiveness, copyright laws, and tax structure (5). Approving the Agreement also sought to expand employment, improve the country's trade balance with the United States, and strengthen the GDP by boosting domestic and foreign investment.

The number of Salvadorians living abroad jumped from 250,000 in 1970 to 2,778,286 in 2002. Of them, approximately 90% were living in the United States. El Salvador's Central Reserve Bank calculated that the income from remittances in 2004 amounted to US\$ 2.5 billion, or 16% of GDP (US\$ 15.8 billion) (1–3).

Total, urban, and rural illiteracy rates for 2004 for the population older than 10 years old were 15.5%, 9.6%, and 24.6%, respectively (4). The illiteracy rate for the San Salvador Metropolitan Area was 6.4%, one of the lowest in the country. A gender breakdown shows a higher female illiteracy rate (17.7%) compared with that of males (13.0%). The average number of years of schooling (the number of grades completed by persons older than 6 years old) was 5.6 (6.9 in urban areas and 3.7 in rural areas).

According to data from the 2004 Multipurpose Household Survey, 70.8% of dwellings were made of concrete, 37.9% had asbestos laminate roofs and 30% had metal laminate roofs, 58.1% had brick or cement floors, and 21.2% had dirt floors (4). Moreover, an estimated 96.5% of households had electricity and 65.5% had running water through individual house connections to a water supply system (80.9% in urban areas), while 109,129 households nationwide had no sanitary facilities, of which nearly 84% were in rural areas.

The growing number of natural disasters the country has experienced in the past several decades has left a rising death toll and increasing physical damage in disaster-prone areas. El Sal-

vador is vulnerable to hydrometeorological events such as hurricanes that produce heavy flooding and landslides, severely damaging basic facilities and infrastructure, as well as loss of life, especially in low-lying river basins.

According to the Ministry of Public Health and Social Welfare's Disaster Unit, 5% of the nation's population lives in areas at a very high risk of yearly flooding, 80% lives in areas prone to seismic activity occurring at roughly 10-year intervals, and 1% lives in areas exposed to volcanic eruptions every 80 years (6).

Table 1 shows progress in the attainment of the Millennium Development Goals and remaining challenges.

### Demographics, Mortality, and Morbidity

The Ministry of the Economy's Statistics and Census Bureau estimated the country's population in 2005 at 6,874,926 persons, 49.2% male and 50.8% female, with an estimated growth rate

of 2.1% for 1991–2001 and a fertility rate of 3.0 children per woman. The population growth rate and the fertility rate have both come down, although they have yet to reach the replacement level (a fertility rate under 2.5 and/or a “zero” [1%] growth rate). At this rate of population growth, El Salvador's population will double in roughly 39 years (7).

Population density was 321 persons per km<sup>2</sup>, with large disparities between different parts of the country. Thus, 46% of the country's population is concentrated in the Greater San Salvador Metropolitan Area—which includes San Salvador, El Paisnal, Aguilares, Guazapa, Tonacatepeque, Apopa, Ayutuxtepeque, Cuscatancingo, Ciudad Delgado, Ilopango, Mejicanos, Nejapa, San Marcos, San Martín, Soyapango, Santiago Texacuangos, Santo Tomás, Panchimalco, and Rosario de Mora—where the population density was 4,250 persons per km<sup>2</sup>.

About 53% of the population was under 25 years old. Only 7.5% of the population was 60 years old and older (Figure 1), a

**TABLE 1. El Salvador's progress toward the Millennium Development Goals, status in 1991, current status, and 2015 targets.**

Indicator	1991 <sup>a</sup>	Current <sup>b</sup>	2015 target
Population living on less than US\$ 1			
Total	57.8	19.2 (2002) <sup>c</sup>	28.9
Urban	38.6	12.1 (2002) <sup>c</sup>	19.3
Rural	75.2	29.1 (2002) <sup>c</sup>	37.6
(Household) poverty gap			
Total	34	34.6 (2004) <sup>d</sup>	17
Urban	30	29.2 (2004) <sup>d</sup>	15
Rural	37	43.7 (2004) <sup>d</sup>	18
Population under the poverty line			
Total	10.3	49.2 (2002)	5.15
Urban	6.9	34.0 (2002)	3.45
Rural	13.2	55.8 (2002)	6.6
Malnutrition rate			
Total	11.2 (1993)	7.6 <sup>e</sup>	7
Urban	9.1 (1993)		
Rural	13.2 (1993)		
Mortality rate for children under age 5	52 (1993)	24.6 (2004)	17
Infant mortality rate	41 (1993)	41.3 (2004)	14
Percentage of children vaccinated against measles	98 (1990)	99 (2005)	100
Maternal mortality rate	158 (1993)	172 (2002/03) <sup>f</sup>	118
		71.5 (MSPAS)	
Percentage of deliveries attended by health personnel	51	69.4 (2002/03)	100
Incidence of HIV/AIDS	2.46 (1991)	10.2 (2004)	1.43
Number of cases of HIV	96 (1990)	1,946	
Incidence of tuberculosis	1.9 (1990)	22.4 (2005)	
Number of cases of tuberculosis	2,367 (1990)	1,788 (2005)	

<sup>a</sup>www.digestyc.gob.sv.

<sup>b</sup>Estimates/Adaptation PAHO/El Salvador.

<sup>c</sup>United Nations Development Program, El Salvador. Human Development Report: El Salvador 2005. A Look at the New 'Us': The Impact of Migration. UNDP-El Salvador; 2005.

<sup>d</sup>El Salvador, Ministerio de Economía. Resultados económicos 2005 y Perspectivas 2006: Informe de gestión. Ministerio de Economía; December 2005.

<sup>e</sup>Ministerio de Salud Pública. Diagnóstico del estado nutricional (una vez al año) 2005. Only the population served by the Ministry of Public Health.

<sup>f</sup>El Salvador. Ministerio de Economía, Dirección General de Estadística y Censos. Encuesta de Hogares de Propósitos Múltiples, 2003. Ministerio de Economía; 2004.

figure that is expected to climb to 8.8% by 2015. The share of the total population aged 0–4 years old decreased from 14.2% in 1995 to 11.1% in 2005. The fastest growing age group was 25–29-year-olds, which jumped from 6.1% to 9.6%. Life expectancy at birth in 2004 was 69.5 years (66 years for males and 72.7 years for females).

There were 30,075 reported deaths nationwide in 2004 (for a mortality rate of 445 per 100,000 population) (7), of which 58% were males (Table 2). Of all reported deaths, 13.4% were classified as “ill-defined,” up 2.7% from 2000, when this category accounted for 10.7% of deaths. The breakdown of mortality data was based on municipal death records which, in practice, are subject to underreporting that has not yet been measured. In any event, the crude general mortality rate has been declining for the past 10 years, falling 9%, or from 489.5 per 100,000 population to 445.1 between 1997 and 2004.

Of the leading causes of death, noncommunicable diseases accounted for 74.0% of deaths, and communicable diseases, for 25.8%. The five leading causes of death (Table 3) were cardiovascular diseases (81.61 per 100,000 population), whose most frequent complications were myocardial ischemia and heart failure; injuries from external causes (81.57 per 100,000), mainly homicides associated primarily with shootings, and pedestrian traffic accidents; malignant neoplasms (48.51 per 100,000), of which stomach cancer was the leading cause of death in both males and females; diseases of the respiratory tract (39.19 per 100,000), particularly pneumonia; and diseases of the genitourinary system (28.3 per 100,000) (7).

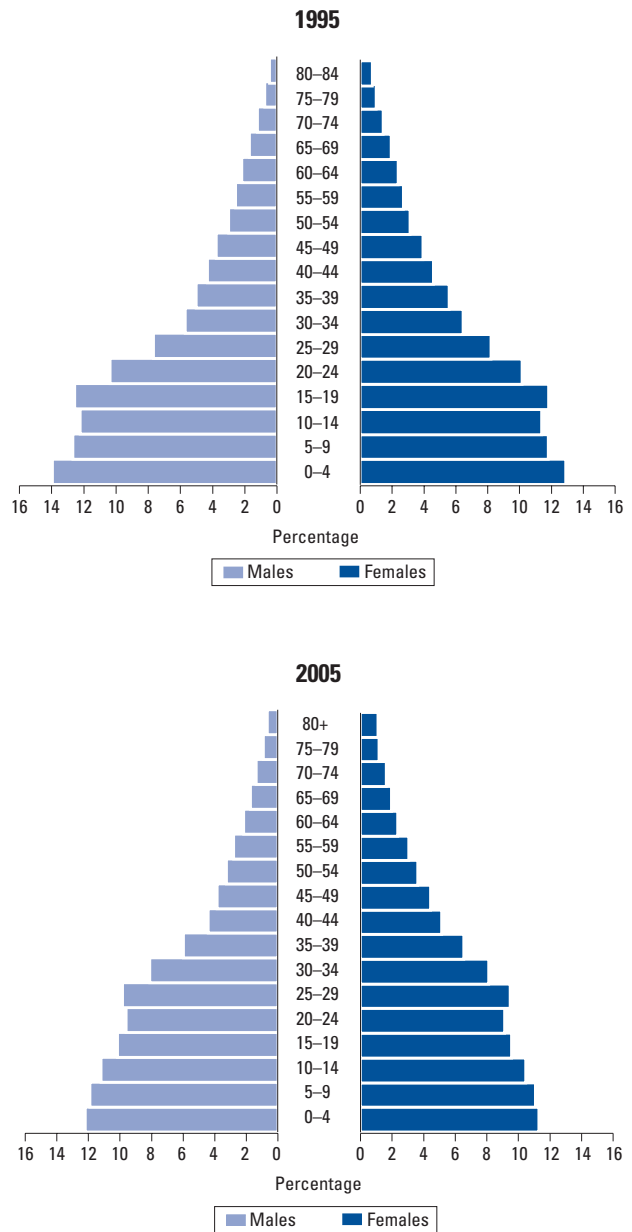
The leading causes of death from communicable diseases were pneumonia, septicemia, HIV infection, and acute respiratory infections. A gender breakdown of these deaths showed no major differences between the sexes. There were, however, higher numbers of male deaths from external causes, mental disorders and the use of psychoactive substances, diseases of the genitourinary system, and HIV infection.

The leading external cause of death was homicide, with 91% of homicides involving males and most involving adolescents and young adults, while most fatalities from traffic accidents involved older adults.

Males accounted for 74.2% of the 805,572 years of potential life lost (YPLL) to the 10 leading causes of death in 2004 (Table 4), with the remaining 25.8% involving females. The breakdown of YPLL by group of diseases, in descending order, was: external causes (33.0%), noncommunicable diseases (26.0%), infectious diseases (10.0%), mental diseases (3.0%), and other diseases (28.0%).

In contrast to data furnished by calculations of mortality rates for the leading causes of death, among which malignant neoplasms ranked fourth, computations of YPLL elevated malignant neoplasms to second place, due primarily to the fact that most deaths involved young and middle-aged adults. Females were hardest hit, accounting for 61.5% of all deaths.

**FIGURE 1. Population structure, by age and sex, El Salvador, 1995 and 2005.**



## HEALTH OF POPULATION GROUPS

### Children under 5 Years Old

According to the 2002–2003 National Family Health Survey, the infant mortality rate was 25 per 1,000 live births (Table 5) (8), down 10 deaths from the 1998 survey findings. This improvement was attributable to a decline in postneonatal mortality (from 18 per 1,000 to 12 per 1,000) and in neonatal mortality

**TABLE 2. Number of deaths and mortality rates<sup>a</sup> for the 15 leading causes of death, by gender, El Salvador, 2004.**

Groups of causes	Males		Females		Total	
	Deaths	Rate	Deaths	Rate	Deaths	Rate
1 Cardiovascular diseases	2,578	77.6	2,937	85.5	5,515	81.6
Ischemic heart disease	917	27.6	939	27.3	1,856	27.5
Congestive heart failure	434	13.1	591	17.2	1,025	15.2
Cerebrovascular diseases	442	13.3	509	14.8	951	14.1
Hypertensive diseases	157	4.7	222	6.5	379	5.6
2 Injuries from external causes	4,632	139.4	880	25.6	5,512	81.6
Homicide	2,376	71.5	239	6.9	2,615	38.7
Traffic accidents	1,406	42.3	354	10.3	1,760	26.0
Suicide	349	10.5	117	3.4	466	6.9
3 Ill-defined symptoms	2,057	61.9	1,970	57.3	4,027	59.6
4 All malignant tumors	1,364	41.1	1,914	55.7	3,278	48.5
Stomach	276	8.3	223	6.5	499	7.4
Lungs	98	2.9	110	3.2	208	3.1
Cervix	—	—	220	6.4	220	3.3
Liver	81	2.4	114	3.3	195	2.9
Prostate	175	5.3	—	—	175	2.6
Breast	5	0.2	128	3.7	133	1.9
5 Diseases of the respiratory tract	1,388	41.8	1,260	36.7	2,648	39.2
Influenza (flu) and pneumonia	798	24.0	687	20.0	1,485	21.9
Chronic diseases of the lower respiratory tract	238	7.2	284	8.3	522	7.7
Other acute infections of the lower respiratory tract	15	0.4	7	0.2	22	0.3
6 Diseases of the genitourinary system	1,340	40.3	575	16.7	1,915	28.3
Chronic renal failure, unspecified	774	23.3	333	9.7	1,107	16.4
Renal failure, unspecified	439	13.2	161	4.7	600	8.9
7 Diseases of the digestive system	890	26.8	584	17.0	1,474	21.8
8 Diabetes mellitus	402	12.1	572	16.6	974	14.4
9 Diseases of the liver	563	16.9	271	8.0	834	12.3
10 Mental disorders and use of psychoactive substances	802	24.1	28	0.8	830	12.3
11 Septicemia	397	11.9	325	9.5	722	10.7
12 Diseases of the nervous system	340	10.2	367	10.7	707	10.5
13 HIV	389	11.7	161	4.7	550	8.1
14 Disorders originating in the perinatal period	245	7.4	201	5.9	446	6.6
15 Congenital malformations/deformities/chromosomal abnormalities	187	5.6	157	4.6	344	5.1
Total	17,594	529.7	12,481	363.3	30,075	445.1

**Source:** Dirección General de Estadística y Censos, mortality statistics, 2004.

<sup>a</sup>Rate per 100,000 population.

(from 17 per 1,000 to 13 per 1,000). Of all infant deaths, 56% occurred in the neonatal period (the first 28 days of life). The mortality rate in mothers getting five or more prenatal checkups was 19 per 1,000 live births, compared with 35 per 1,000 among mothers getting fewer than five checkups or no prenatal care at all. A breakdown by birthweight put infant mortality at 20 per 1,000 live births among infants weighing 2,500 g or more and at 40 per 1,000 for infants weighing under 2,500 g at birth. The neonatal mortality rate for full-term infants was 8 per 1,000 live births, compared with 72 per 1,000 for premature infants.

According to Statistics and Census Bureau data, the leading causes of perinatal mortality in 2004 were bacterial sepsis of the

newborn (24.3%), respiratory distress syndrome (22.5%), and intrauterine hypoxia (11.0%) (7). There were 1,258 reported deaths among children under 1 year old in 2004, of which 35.4% were due to conditions originating in the perinatal period, 26.5% were due to noncommunicable diseases, and 25.0% to communicable diseases. The leading causes of death among noncommunicable diseases were unspecified congenital malformations (47.0%), congenital malformations of the heart (28.5%), and congenital hydrocephaly, unspecified (7.9%).

Ministry of Public Health data for 2005 established the five leading causes of morbidity in children under 1 year old as acute respiratory infections (67.8%), diarrhea (20.8%), pneumonia

**TABLE 3. Ten leading causes of death, El Salvador, 1997 and 2004.**

Groups of causes	1997	Ranking	2004	Ranking
Diseases of the circulatory system (I00–I99)	3,816	3	5,515	1
External causes of morbidity and mortality (V01–Y89)	4,932	2	5,513	2
Symptoms, signs, and abnormal clinical and laboratory findings not elsewhere classified (R00–R99)	5,478	1	4,027	3
Tumors (neoplasms) (C00–D48)	2,788	4	3,278	4
Diseases of the respiratory tract (J00–J98)	2,625	5	2,648	5
Diseases of the genitourinary system (N00–N98)	1,033	10	1,915	6
Certain infectious and parasitic diseases (A00–B99)	2,000	6	1,656	7
Diseases of the digestive system (K00–K92)	1,689	7	1,474	8
Endocrine, nutritional, and metabolic diseases (E00–E88)	1,126	8	1,343	9
Mental and behavioral disorders (F01–F99)	1,034	9	840	10
Other causes	2,401		1,867	
Total	28,922		30,076	

*Source:* Statistics and Census Bureau (DIGESTYC).

**TABLE 4. Years of potential life lost (YPPL) for selected causes of death, El Salvador, 2004.**

Cause of death	Gender		Total
	Males	Females	
All injuries from external causes	227,419	40,728	268,147
Assaults	127,810	12,622	140,432
Traffic accidents	60,612	15,439	76,051
Neoplasms	27,267	43,094	70,361
Pneumonia	34,195	25,668	59,863
Genitourinary diseases	31,395	13,376	44,771
Ischemic disease	14,520	26,237	40,757
Mental and psychoactive diseases	28,633	1,118	29,751
Liver disease	18,502	6,688	25,190
Septicemia	11,352	7,027	18,379
Diabetes	8,121	9,105	17,226
Cerebrovascular disease	7,528	7,116	14,644
Total YPPL	597,354	208,218	805,572

**TABLE 5. Infant and maternal mortality, El Salvador, 1993 to 2002.**

Survey and reference period	Maternal deaths per 100,000 live births	Infant mortality rate per 1,000 live births	Neonatal mortality rate	Postneonatal mortality rate
FESAL 2002/03 1993–2002	173	25	13	12
FESAL 98 1988–1998	120	35	17	18
FESAL 93 1983–1993	158	41	23	18

*Source:* FESAL 2002/03.



(5.7%), bacterial conjunctivitis (2.4), and mild malnutrition (1.0%). This age group accounted for 42,213 hospital discharges, and the main diagnoses at the time of discharge were pneumonia (18%), respiratory disorders specific to the perinatal period (12.6%), diarrhea of presumed infectious origin (11.0%), and fetuses and newborns affected by maternal factors and complications of pregnancy, labor, and delivery (9.2%). The most common causes of in-hospital mortality were certain conditions originating in the perinatal period (53.9%), congenital malformations, deformities and chromosomal abnormalities (20.0%), pneumonia (9.0%), and other intestinal infectious diseases (2.6%).

There were 405 reported deaths in 2004 among children 1–4 years old due to communicable diseases (31.0%), noncommunicable diseases (31%), external causes (18.5%), and ill-defined causes (16.3%) (7). Of deaths attributable to communicable diseases, 42.2% were due to pneumonia and bronchopneumonia, 35.5% to diarrhea and gastroenteritis of presumed infectious origin, 13.0% to unspecified septicemia, and 5.0% to bacterial meningitis, unspecified. Of deaths from external causes, 41.3% were due to traffic accidents, 29.3% to accidental drownings and submersions, 9.3% to accidents obstructing respiration, and 8.0% to assault and homicide.

According to Ministry of Public Health data, the leading causes of morbidity in this age group in 2005 were acute respiratory infections (71.7%), diarrhea (15.9%), pneumonia (2.8%), amebiasis or amebic dysentery (2.5%), and mild malnutrition (1.5%). There were 30,074 hospital discharges in 2005, with the most common diagnoses being pneumonia (21.8%), diarrhea (19.0%), asthma (4.8%), and other intestinal infectious diseases (4%). The leading causes of hospital deaths were pneumonia (19.8%), congenital malformations (10.8%), and malnutrition (5.1%).

### Children 5–9 Years Old

There were 221 reported deaths among children in this age group in 2004: 45.7% were due to external causes, 9.5% were due to diseases of the respiratory system, 1.9% were due to diseases of the nervous system, 1.8% were due to malignant neoplasms, and 1.4% were due to congenital malformations. External causes of deaths included traffic accidents (63.4%), accidental drownings and submersions (22.8%), and assaults and homicides (5.0%).

According to Ministry of Public Health data, the leading causes of morbidity in 2005 were acute respiratory infections (79.2%), diarrhea (6.0%), amebiasis (4.5%), giardiasis (2.1%), and bacterial conjunctivitis (1.5%). There were 17,314 hospital discharges that year, in which the leading diagnoses were appendicitis (7.2%), fractures of the extremities (6.9%), pneumonia (5.6%), asthma (5.3%), and other traumas (5.3%). The leading causes of hospital deaths were head trauma (15.7%), pneumonia (10.1%), malignant meningiomas (6.7%), and other diseases of the blood and blood-forming organs (6.7%).

### Adolescents 10–14 and 15–19 Years Old

Of the 1,069 reported deaths among adolescents in 2004, 68.0% were attributable to external causes, 5.6% to diseases of the respiratory tract, and 4.3% to malignant neoplasms. The leading external causes of mortality (at 51.4 per 100,000) were assaults, traffic accidents, and self-inflicted injuries.

The leading causes of morbidity in adolescents in 2005 were acute respiratory infections (74.3%), amebiasis (5.8%), diarrhea (5.6%), bites from rabid animals (2.2%), and giardiasis (1.8%). Adolescents accounted for 15.4% (52,527) of all hospital discharges reported by the Ministry of Public Health, with females making up 74.0% of this figure. Of hospital discharges involving adolescents 15–19 years old, 69.0% were associated with sexual and reproductive health problems. Adolescents accounted for 31.7% (28,943) of prenatal visits reported by the Ministry in 2005. Of the 72,293 deliveries attended by health professionals in 2005, 21,730, or 30.1%, involved adolescents.

Nearly 40% of females and 65% of males 15–24 years old had engaged in premarital sex. For females, the median age of their first pregnancy was 20 years, and their age at their first sexual experience was 18 years; on average, males had their first sexual experience at 16 years old.

### Adults 20–59 Years Old

In 2004, the 10,490 reported deaths in this age group were due to external causes (36.2%, or a rate of 116.4 per 100,000), malignant neoplasms (10.1%, or a rate of 32.6 per 100,000), diseases of the circulatory system (8.6%, or a rate of 27.8 per 100,000), and communicable diseases (7.5%, or a rate of 24.1 per 100,000). Males accounted for 88.5% of deaths from external causes (3,802 cases). The leading external causes of death were assaults and homicides (54.0%), traffic accidents (29.2%), and self-inflicted injuries (9.2%). The most frequently reported sites for malignant neoplasms (1,065 total cases of malignant neoplasms) were the stomach (12.2%), the cervix (11.6%), and the breast (6.5%). Diseases of the circulatory system (907 cases) included ischemic heart disease (36.2%), cerebrovascular disease (19.7%), and hypertensive disease (8.4%). The most common communicable diseases were HIV infection (63.0%); septicemia, unspecified (26.0%); and diarrhea and tuberculosis (both with a 4.0% share). Males accounted for 70.1% of these deaths. The most common causes of morbidity in this age group in 2005 were acute respiratory infections (65.1%), diarrhea (9.4%), amebiasis (5.0%), anxiety disorders (3.6%), and vulvovaginal candidiasis (2.5%). The leading diagnoses associated with hospital discharges of adults 20–24 years old were sexual and reproductive health problems (71.0%), other traumas to specified areas (3.3%), and appendicitis (2.2%). The leading diagnoses associated with the 112,733 reported discharges of adults 25–59 years old were sexual and reproductive health problems (30.6%),

coledithiasis and colecystitis (3.4%), diabetes mellitus (3.3%), other and unspecified traumas (3.3%), and other genitourinary disorders (3.0%). The three leading causes of hospital deaths were AIDS (9.8%), intracranial trauma (9.2%), and liver disease (7.9%).

According to findings from the 2002–2003 National Family Health Survey, the maternal mortality rate in 1993–2002 ranged between 106 and 239 deaths per 100,000 live births, with a median value of 173. The Ministry of Public Health is working to develop a nationwide baseline for measuring maternal mortality.

According to an assessment of the availability and use of emergency obstetric care in El Salvador dating back to the year 2003 (9), the leading causes of maternal morbidity and mortality were hypertension, pre- and postpartum hemorrhaging, sepsis, and complications of abortion. The leading causes of death in 54% of reported deaths were misdiagnoses, mismanagement, procedures performed by unqualified personnel (anesthesia and surgery-related), shortages of supplies and equipment, and belated and improper patient referrals. Another 33% of maternal deaths were caused by the failure of the woman in question and her family to recognize complications, which delayed seeking medical care or the services of a midwife. An examination of the number of deaths reported by the Statistics and Census Bureau between 1997 and 2004 revealed a 43% underreporting in the Bureau's maternal mortality statistics, compared with the statistical data reported by health facilities, which jumped to more than 90% between 2003 and 2004 (9).

### Older Adults 60 Years Old and Older

There were 16,449 reported deaths in this age group in 2005, accounting for 54.7% of all deaths nationwide, of which 27.4% were caused by diseases of the circulatory system, 12.8% by malignant neoplasms, 10.8% by diseases of the respiratory tract, and 5.1% by genitourinary disorders. The leading causes of death among diseases of the circulatory system were ischemic diseases (33.4%), heart failure (24.4%), pulmonary circulatory disorders (17.7%), cerebrovascular disease (16.8%), and hypertensive disease (6.5%). The most common sites for malignant neoplasms were the stomach (17.4%); the prostate (7.9%); the trachea, bronchial tubes, and lungs (6.9%); the liver and intrahepatic bile ducts (6.8%); and the cervix (4.5%).

According to the Ministry of Public Health's epidemiological report for 2005, the five leading causes of mortality were acute respiratory infections (60.1%), arterial hypertension (9.3%), diarrhea (8.9%), amebiasis (4.2%), and diabetes mellitus (3.6%). There were 47,770 hospital discharges reported that year, and the leading diagnoses were diabetes (8.1%); bronchitis, emphysema, and other chronic obstructive pulmonary diseases (5.0%); pneumonia (4.7%); heart failure (3.9%); and renal failure (3.8%).

### The Family

An estimated 62.7% of households were headed by men and 37.3% by women (8). Female-headed households made up a larger share of urban households (43.2%) than of rural households (30.7%). The Ministry of the Economy's Statistics and Census Bureau found women caught in a vicious circle of poverty and lack of education. In fact, the most common reason given by women for dropping out of school was "economic problems" (cited by 31.3% of women), which, added to the statement that "they had to work" (10%), indicates that at least one of every 10 women had left school as the result of a low income. Other reasons cited for dropping out of school were pregnancy, a first marriage (12.9%), and other unspecified family problems (11.3%).

### Workers

To date, there has been no comprehensive assessment of the state of workers' health. It is a well-known fact that the level of coverage by the Salvadorian Social Security Institute is quite low (roughly 13% to 15% of the workforce). Moreover, there are reports of complaints of poor working conditions by workers in the country's more than 85,000 "maquilas," although many of these complaints are not well documented.

### Persons with Disabilities

According to the 1992 Population Census, there were 81,721 persons with disabilities (1.6% of the total population), of which 53.3% were male and 46.7% were female. The 2000–2001 nationwide sample survey of persons with disabilities conducted as part of a joint WHO/German Technical Cooperation Agency (GTZ)/Universidad Don Bosco (UDB) project put the general prevalence of different types of disabilities at 6.6%. As of January 2005, the National Registration Office for Individuals, which is charged with keeping records on all persons older than 18 years old, showed 153,583 registered persons with disabilities (4.1%). According to the WHO/GTZ/UDB survey, the five most common types of disabilities among respondents were impaired vision (41.9%), impaired mobility, including difficulty walking, climbing, jumping, or standing (31.2%), difficulty grasping, lifting, and carrying objects (15.5%), hearing loss (15.2%), and speech problems (11.9%) (10). The age group 21–50 years old accounted for the largest share of persons with disabilities (35%), followed by the age group under 20 years old (30%), the age group 51–70 years old (22%), and the age group 71 years old and older (13%). A gender breakdown put the share of disabled females at 49.9% and the share of males with disabilities at 50.1%, while a breakdown by geographic area showed 61% of persons with disabilities living in rural areas and 39%, in urban areas. According to the same survey, disease was the leading cause of disabilities, with a 48.4% share (with no breakdown by type of disease).



The second most common cause was congenital abnormalities (27.1%), with common accidents in third place (9.8%), and “other” causes ranking fourth, including but not limited to chronic degenerative diseases like arthritis, diabetes, hemophilia, and senile dementia of unknown origin.

### Ethnic Groups

The indigenous population is estimated to be 687,492 persons (10% of the total population). The largest ethnic group is the Nahuat, which accounts for 94.4% of the country's indigenous population, followed by the Lenca (4.1%) and the Cacaopera (1.5%). These ethnicities are found in seven of the country's 14 departments, namely in Ahuachapán (in 4 municipios), Sonsonate (14), La Libertad (5), San Salvador (4), La Paz (8), Morazán (3), and Santa Ana (1). Their main language is Nahuatl (11). They live from subsistence farming, growing corn, beans, and other crops on small, mostly leased, parcels of land. The working life of members of the indigenous population begins at age 8 and goes to age 59; 38.3% of indigenous households are living in abject poverty, and 61.1% are living below the poverty line (11). There is no current disaggregated data on the health of members of ethnic groups, the most recent data being from 1999. According to a 2003 World Bank report, entitled “El perfil de los pueblos indígenas en El Salvador” [Profile of Indigenous Peoples in El Salvador], only 3.2% of indigenous peoples had health insurance coverage by the Salvadorian Social Security Institute. Only 2% of female heads of household used any form of contraception, and the fertility rate was 3.5 children per woman. Indigenous women of childbearing age accounted for 20.8% of the total population, and only 0.5% of all indigenous women of childbearing age used birth control. The infant mortality rate was 42.5 per 1,000 live births, 73% of children had been vaccinated, and 27% had full vaccination coverage. In indigenous communities, 91.6% of the population drew water from rivers, springs, or wells; 30% of households dumped their garbage near their homes, 20.9% dumped their garbage far away from their homes, and 40.8% either buried or burned their garbage; 37.2% of households defecated outdoors, 59.7% had latrines, and 3.1% had sanitary facilities with running water.

## HEALTH CONDITIONS AND PROBLEMS

### COMMUNICABLE DISEASES

#### Vector-borne Diseases

**Malaria** has been on the decline. The number of reported cases of malaria in each year from 2000 to 2005 was 753, 362, 117, 85, 112, and 67, respectively; 2 were from imported *Plasmodium falciparum* and the rest from *P. vivax*, with an annual parasite index of 0.011. There have been no reported indigenous cases of *P. falciparum* malaria for more than 10 years. In the past few

years, there have been small outbreaks associated with imported cases from neighboring countries, such as Guatemala and Honduras, where the incidence of malaria has been on the rise.

There were 70,945 suspected cases of **dengue** between 2000 and 2005, with an average 20% of the cases reported each year involving hospitalization. There were more than 28,352 laboratory-confirmed cases, of which 95% were classified as classic dengue and 5% as hemorrhagic dengue. The number of deaths dropped from 26 in 2000 to a single death in 2004. The laboratory tested more than 72,000 samples of IgM for dengue, confirming the circulation of all four serotypes during the reference period.

Dengue is endemic in the country, with epidemic outbreaks in the last six years and with the number of cases of hemorrhagic dengue on the rise. There were two epidemics in the last six years. The first was in 2000, caused by serotype 2, producing 16,963 suspected cases of classic dengue, including 491 suspected cases of hemorrhagic dengue and 26 deaths; 2,824 cases of classic dengue and 409 cases of hemorrhagic dengue were laboratory-confirmed. The second epidemic broke out in 2002, with 18,267 suspected cases of dengue and 5,076 laboratory-confirmed cases, of which 4,671 (92%) were classic dengue and 405 (8%) hemorrhagic dengue, causing 11 deaths. There was an average of over 7,000 reported cases of dengue in both 2004 and 2005. There is ongoing active dengue transmission in 46% of the country's municipios, with only 8% of municipios reporting no cases of dengue during the reporting period. The risk of contracting the disease was 6 to 8 times greater during the rainy season.

There are an undetermined number of cases of **Chagas' disease** every year. The epidemiological surveillance system for Chagas' disease has a serious underreporting problem, making it impossible to establish the real incidence of the disease and, thus, to take timely, effective prevention and control measures. The Ministry of Public Health recorded 101 suspected cases of acute Chagas' disease in 2005, of which 75 (74.2%) were laboratory-confirmed; 87% of the cases were treated through outpatient visits. Half the cases involved children under 10 years old, and the disease affected both sexes equally. A geographic breakdown put 58% of the cases in rural areas and 42% in urban areas. The departments of Sonsonate, Santa Ana, and Ahuachapán (in the western reaches of the country, close to the Guatemalan border) reported the largest number of cases (46.5% of the country's total) and the highest infestation indexes. Sonsonate Department, for example, which has had a Japanese International Cooperation Agency (JICA) assistance program in place since 2003, had an infestation index of 33.3%. Serologic studies confirmed 1,311 and 1,292 cases in 2000 and 2005, respectively. Of 76,096 blood specimens in blood banks subject to screening (a 100% screening rate), 1,826 tested positive, for a seropositivity rate of 2.40%. The number of blood donors went down to 38,725 in 2005, with an equal number of blood specimens screened for Chagas' disease, of which only 956 tested positive, with a seropositivity rate of 2.46%.

### Vaccine-preventable Diseases

El Salvador has made great strides with respect to the eradication, elimination, and control of vaccine-preventable diseases. It has been free of **poliomyelitis** since 1987; the last confirmed indigenous case of **measles** was in 1996; and **diphtheria** (for more than 20 years) and **neonatal tetanus** (at less than 1 case per 1,000 live births) have been virtually eliminated. The endemic chain of **rubella** virus transmission was broken in 2004, thanks to a mass vaccination campaign targeting 2,694,763 individuals 15–39 years old (97.5% of the goal for this age group); only four isolated cases were reported in 2006, which may have been imported from other countries where the disease is still endemic. There have been no reported cases of congenital rubella syndrome since 2004, but active case-finding needs improvement.

According to the 2005 epidemiological report, incidence rates for chickenpox were 278 per 100,000 population, 28 for hepatitis A, 8 for mumps, 3.4 for acute flaccid paralysis in children under 15 years of age, 3.4 for hepatitis B, 0.4 for rubella, and 0.1 for tetanus. There were no confirmed cases of diphtheria, poliomyelitis, or measles, suggesting that the at-risk population is adequately protected. There were two confirmed imported cases of measles in 2001; they were not included in the national case load because their incubation period occurred in Europe, meaning that these persons were infected on that continent. Active case-finding for flaccid paralysis was up in 2005, with 130 reported cases compared with 105 the previous year. Laboratory testing isolated other enteroviruses in 27.0% of the specimens studied.

There was a **whooping cough** outbreak in 2004. The reference pediatric hospital reported 52 cases and 5 deaths, with a 9.6% case-fatality rate. Females accounted for 31 of the cases. The mean age was 5.2 months for females and 3.6 months for males. *Bordetella pertussis* was isolated in one of the specimens tested, which led to the strengthening of epidemiological and laboratory surveillance activities, the updating of treatment protocols, the training of health personnel, and an assessment of the vaccination program.

### Intestinal Infectious Diseases

Gastrointestinal diseases are one of the three leading causes of morbidity reported in El Salvador. There are two seasonal surges, one each in the dry and in the rainy seasons: the first is associated primarily with viral infections and the second with bacterial infections. A study conducted at Benjamín Bloom Children's Hospital between May 2001 and April 2002 found **rotavirus gastroenteritis** to be seasonal, with most cases occurring in the dry season, and associated with vomiting and dehydration. Children suffering from rotavirus gastroenteritis were younger (with median age of 9 months) than children infected by other agents (the median age was 13 months for bacteria and 16 months for parasites). The Ministry of Public Health began to conduct viral surveillance for rotavirus at various sentinel sites in the country in 2003, sampling children under 5 years old.

The last reported case of **cholera** dates back to October of 2000. *Vibrio cholerae* has not been detected anywhere in the country in the reporting period, despite the fact that there is ongoing surveillance in humans and in sources of drinking water for humans.

The mean annual number of recorded cases of **intestinal parasitic diseases** between 2000 and 2005 was 193,000. The incidence rate in 2005 was 2,670 per 100,000 population, down 15% from the 2000 figure. The highest incidence rates were associated with children under 10 years old. Protozoan infections (amebiasis and giardiasis) accounted for 93% of reported cases of intestinal parasitic diseases, with 7% attributable to helminthic infections (uncinariasis or ancylostomiasis and cestode infections).

### Chronic Communicable Diseases

Between 1997 and 2005 there were 63 diagnosed cases of **leprosy** nationwide. The disease's prevalence has been declining, from 0.03 per 10,000 population (20 cases) in 1997 to 0.001 per 10,000 in 2005 (1 case). As of this writing, there are 14 cases under treatment, 71% of which are in the northern and central parts of the country (Santa Ana, Chalatenango, San Salvador, and La Libertad).

The incidence of **tuberculosis** has been declining for the past several years, going from 70.0 per 100,000 population in 1994 to 25.6 per 100,000 in 2005. In fact, a comparison of data for 1990 and 2005 shows a reduction in the number of reported cases from 2,367 to 1,758. The mortality rate for tuberculosis dropped by 49%, from 2.35 per 100,000 population in 1997 down to 1.20 per 100,000 in 2004. According to the latest estimates (2005), the annual risk of tuberculosis infection was 0.6%, which is equivalent to a smear-positive case rate of 32 per 100,000 population.

The success rate in treating tuberculosis is high, nearly 88%, which exceeds the PAHO/WHO target rate of 85% for 2005. There was sizeable improvement in the dropout rate for patients undergoing treatment for tuberculosis between 1997 and 2004, which went from 11.3% down to 4.1%. These patients are believed to be facing problems such as alcoholism or poverty that make it difficult to administer and oversee their treatment. Coverage for the Directly Observed Treatment, Short-course (DOTS) strategy first introduced in 1997 in Ministry of Public Health facilities, the social security system, and correctional facilities is currently 100%. The average share of patients diagnosed as co-infected with HIV and tuberculosis rose from 3.6% to 8.5% between 2002 and 2005, with a 167% jump in the number of cases.

### Acute Respiratory Infections

Acute respiratory infections are one of the leading causes of illness and death in El Salvador. There were 1,895,819 reported cases in 2004 in all age groups, for an incidence of 34,509 per 100,000 population. Females accounted for 58.7% of all cases. A breakdown by age group showed 184,151 cases in children under 1 year old (139,544 per 100,000), 515,101 cases in children

1–4 years old (763,313 per 100,000), 404,739 cases in children 5–9 years old (63,499 per 100,000), and 92,303 cases in adults 60 years old and older (22,710 per 100,000). Children under 5 years of age accounted for 36.9% of all treated cases. The morbidity rate for this type of disease in adults over 60 years of age has been quite low, although the mortality rate in this age group was 200.6 per 100,000 population, compared with a rate of 116 per 100,000 live births for children under 1 year old.

A **pneumonia** epidemic in 2003 was responsible for the more than 50% jump in the number of cases of this disease as compared with previous years; the incidence was 130 per 10,000 population. Children under 5 years old accounted for 77% of outpatient visits. This age group had the highest incidence (832 per 10,000 population), followed by adults over 60 years of age (103 per 10,000) (12). The mortality rate for pneumonia and bronchopneumonia was 22.0 per 100,000 population in 2004, which marked the beginning of sentinel surveillance programs at two sites for identification of the respiratory virus associated with these diseases.

### HIV/AIDS and Other Sexually Transmitted Infections

Since the occurrence of the first AIDS case in 1984, 16,343 cases of HIV infection had been reported as of December 2005. Of these, 7,339 were AIDS cases, for an annual incidence of 2.5 per 100,000 population in 1991 to 10.2 in 2004, then dropping again to 6.2 in 2005. Most cases have occurred in urban areas (73% of cases were urban, 24% rural, and 3% unspecified); the epidemic is spreading into the center of the country. The annual incidence jumped from 2.5 per 100,000 population in 1991 to 20.0 in 2004, falling back to 17.3 in 2005. It should be noted that the Joint United Nations Program on HIV/AIDS (UNAIDS) annual report released in May 2006 estimated underregistration between 40% and 50%, which could put the number of people infected with HIV as high as 30,000 nationwide. According to the epidemiological classification scheme proposed by UNAIDS, El Salvador is a country with a low-prevalence epidemic concentrated in high-risk population groups such as homosexual males and sex workers (13). An estimated six people a day were infected with HIV in 2004, versus 4.4 in 2005 (14).

In 2004, HIV infection/AIDS ranked thirteenth among the causes of general mortality in El Salvador, and was the second leading cause of death in adults 20–30 years old and the fifth leading cause of death in adults 20–59 years old. HIV/AIDS mortality is on the rise. From 258 reported deaths in 1997 (a rate of 4.32 per 100,000 population), the number of deaths jumped to 549 by 2004 (8.14 per 100,000). There were 1,611 recorded hospital deaths from AIDS between 1998 and 2004, representing the leading cause of death in adults 20–59 years old. The highest concentration of cases was found among adults 20–34 years old, at 36% of the total figure for that age range. Males accounted for 63% of all cases. There were 1.3 infected males for each infected female in 2005. The main transmission mechanism was through

sexual contact, which accounted for 85% of all cases, compared with 7.0% for mother-to-child transmission. A breakdown by the reported sexual orientation of the carrier/patient put the share of HIV/AIDS cases associated with homosexual and bisexual relations at 5.0% and 3.0%, respectively. The latest available data (15) shows 21.6% of street children infected with the HIV virus in 1997. San Salvador had the largest share of cases, with 56%, compared with 8% for Sonsonate, 6% for La Libertad, and 6% for Santa Ana.

Other sexually transmitted infections (STIs) have one of the highest contagion indexes nationwide. There were more than 313,000 reported STI cases between 2000 and 2005, with an average of 52,000 cases a year. The incidence of certain STIs went up over this same period. Diseases such as trichomoniasis and genital candidiasis have higher prevalence rates than the five classic venereal diseases (syphilis, gonorrhea, chancroid [soft chancre], venereal lymphogranuloma, and inguinal granuloma), which appear to be on the decline. According to Ministry of Public Health data for 2005, the incidence of sexually transmitted infections, in descending order, was 909 per 100,000 population for vulvovaginal candidiasis, 126 for urogenital trichomoniasis, 22 for gonorrhea, 17 for genital herpes, and 16 for condyloma acuminatum (genital warts). There was a 55.0% decline in the nationwide incidence of acquired syphilis between 2000 and 2005, from 18.0 per 100,000 population to 8.1. The Ministry of Public Health reported a total of 433 cases of congenital syphilis between 2000 and 2005, or an average of 72 cases a year. The number of reported cases of syphilis dropped slightly beginning in 2002, with 45 reported cases, for an incidence of 0.38 per 1,000 live births in 2005.

### Zoonoses

El Salvador has been successful in controlling rabies. There were many cases of human rabies in the early 1990s—19 cases in 1992, for example. That year marked the beginning of a gradual decline in the disease, which bottomed out in 1999, a year in which there were no reported cases, followed by a single case in the year 2000. There were four reported cases of human rabies in 2001, increasing to six the following year, for a mortality rate of 0.10 per 100,000, 10 times greater than the rate for Latin America and the Caribbean. The numbers held in 2003. The incidence of human rabies began to come back down in 2004, with three cases reported that year and a single case reported in 2005. There were 39,329 reports of people attacked by animals between January 2005 and June 2006, 57.8% of which came out of the departments of San Salvador, La Libertad, and Santa Ana. Of these attacks, 16,506 victims were treated for rabies, 67.3% of whom were from the departments of San Salvador, La Unión, San Miguel, and Usulután.

There were 1,314 reported cases of animal rabies between 1999 and 2005, nearly 90% of which involved urban pet dogs and cats. There was a 3.7-fold spike in animal rabies cases between

## Coordination for Disaster Prevention and Mitigation

The natural disasters that have buffeted the country in the past several decades have left a rising toll in human life and material losses in El Salvador's disaster-prone areas. The country is vulnerable to hydrometeorological events, such as hurricanes, which produced heavy flooding and landslides, severely damaged basic services and infrastructure, and left behind many dead, particularly in low-lying river basins. In 2005, the Santa Ana Volcano, also known as Ilamatepec, erupted without warning. That same year, tropical storm Stan pounded the country for six straight days—the storm's rainfall led to flooding that claimed 69 lives and caused heavy physical damage. The Economic Commission for Latin America and the Caribbean (ECLAC) put the cost of these two 2005 events at US\$ 355.7 million. The National Civil Defense System, established under the 2005 Civil Defense and Disaster Prevention and Mitigation Act, is charged with ensuring the safety of at-risk communities and with coordinating disaster prevention or response efforts with other agencies and organizations (government agencies, NGOs, private enterprises, relief agencies, among others).

1999 (68 cases) and 2004 (253), dropping to 175 cases in 2005. During this same period, 52% (136) of the country's municipios had at least one confirmed case of animal rabies. A nationwide survey of the dog and cat population conducted in 2002 put the number of animals at roughly 1,176,000. Vaccination coverage rates for 2005 against canine and feline rabies were 60.4% and 47%, respectively.

### NONCOMMUNICABLE DISEASES

According to Ministry of Public Health records for 2005, the incidence of noncommunicable diseases, in descending order, was 639 per 100,000 population for arterial hypertension, 36 for chronic renal failure, 33 for cervical cancer, and 9 for breast cancer. Chronic diseases are the second leading cause of years of potential life lost (YPLL) nationwide.

### Metabolic and Nutritional Diseases

**Diabetes** ranked eighth among the leading causes of general mortality. However, according to the Ministry's Morbidity and Mortality System, it was the second leading cause of hospital deaths and the eighth most common diagnosis in hospital discharges.

The 2002–2003 National Family Health Survey (8) showed that the rate of **stunting** (as measured by the height-for-age indicator) in children 3–59 months old was 18.9% (down 4.4 percentage points from the 1998 figure), affecting males and females almost equally (18.3% and 19.7%, respectively). The rural rate (25.6%), however, was 2.3 times higher than the urban rate. There is a direct correlation between childhood stunting and the mother's level of education. In El Salvador, this indicator was 31.7% for boys and girls whose mothers had no formal schooling, five times higher than that for children whose mothers had 10 or more years of schooling.

A look at trends in wasting among children under 5 years old (low weight-for-height [ $\leq 2.00$  SD]) shows that El Salvador has

had a low prevalence of wasting (2.1%) since 1988 and up to the last reported figure for 2002–2003, which compares favorably with the 2.3% figure expected in industrialized countries. Low weight-for-age in children under 5 years old is still a major problem, with a prevalence rate of 10.3% in 2002–2003, down 1.5% from 1998 (8).

The 2002–2003 National Family Health Survey found that 19.8% of children 12–59 months old suffered from **anemia**, compared with a figure of 18.9% in 1998, indicating that the problem had worsened slightly. The prevalence of anemia in rural areas (23.1%) was greater than in urban areas (15.8%). The same survey found that, nationwide, 8.8% of mothers of children under 5 years old also suffered from anemia, with no major differences between urban (8.5%) and rural (9.1%) rates. Of the 195,013 children under 5 years old treated by the Ministry of Public Health in 2005, only 7.6% suffered from some degree of **malnutrition**. Nonetheless, the mortality due to malnutrition jumped from 3.07 per 100,000 population (200 deaths) in 2002 to 3.30 per 100,000 (223 deaths) in 2004 (8); of all such deaths, 92 involved children under 5 years old (59 males and 33 females).

In urban areas, 5.1% of children under 5 years old were **overweight**, a figure that is 2.2 times the norm (2.3%) and that points to the fact that this condition is beginning to pose a problem. The national prevalence rate in the same age group was 3.6%. This marks the beginning of what could become an overweight epidemic in the country's future generations. The prevalence of overweight in urban areas (5.1%) was 2.1 times greater than in rural areas (2.4%). Overweight does not appear to have any correlation with the mother's level of education; the highest prevalence rates of overweight were seen in households in the top socioeconomic brackets (40%) and households in which the mother had no fixed income and did not work outside the home (37.2%). The age group 15–19 years old had the lowest prevalence of overweight and **obesity** (27.2% and 9.1%, respectively). Adults 30–34 years old had the highest prevalence of overweight



(43.3%) and adults 40–44 years old had the highest prevalence of obesity (25.0%). Among women 15–49 years old, 35.8% were overweight and 18.4% were obese. The 2002–2003 National Family Health Survey found overweight or obesity in over 60% of persons older than 18 years old. This is not a public nutrition problem but, rather, could be the result of changes in eating habits related to the environment, access to foods high in calories, and insufficient physical exercise (8) in the absence of safe, convenient facilities for engaging in physical activity.

### Cardiovascular Diseases

According to 2004 data from the Statistics and Census Bureau, there were 5,515 recorded deaths associated with diseases of the circulatory system, for a mortality rate of 81.6 per 100,000 population; 53% were among women. The largest share of deaths were attributable to ischemic heart disease (33.6%), cardiovascular diseases (17.2%), and hypertensive diseases (6.9%). Adults 60 years old and older accounted for 82% of all such deaths, with a mortality rate of 903 per 100,000 population.

### Malignant Neoplasms

There were 3,278 recorded deaths from malignant neoplasms in 2004, for a mortality rate of 48.5 per 100,000 population (41.1 per 100,000 for males and 55.7 per 100,000 for females), 58% of which involved women. Malignant neoplasms were responsible for 12.5% of all deaths nationwide. Adults 60 years old and older were hardest hit, with a mortality rate of 118.83 per 100,000 population. There was a large gender gap in mortality from this cause in persons 80 years old and older, among whom the cancer mortality rate for men was 1.4 times greater than for women (284.07 per 100,000 for females and 403.52 per 100,000 for males). The main sites of malignant neoplasms were the stomach (15.2%); the digestive organs and peritoneum (14.3%); the cervix (6.7%); and the trachea, bronchial tubes, and lungs (6.3%).

## OTHER HEALTH PROBLEMS OR ISSUES

### Disasters

There were two devastating earthquakes in El Salvador in 2001. The death toll was 1,259, with another 8,864 persons injured and 1,616,782 left homeless, with injury and death rates of 140 and 20 per 100,000 population, respectively; the first earthquake was responsible for 75% of the fatalities, 63% of the injuries, and 84% of the property damage. The first earthquake affected 71% of the country, and the second, 28%. In both cases, men and women older than 70 years old were hit hardest. After the first earthquake, 33% of victims were hospitalized, compared with 38% following the second quake; in both cases, traumas were the main cause of hospitalization (accounting for 47% and 52% of hospital admittances, respectively) (6).

The Santa Ana Volcano, also known as Ilamatepec, erupted in 2005, causing two fatalities; more than 5,014 residents evacuated to shelters in the face of the imminent risk of a second eruption (6). Table 6 shows the country's number of fatalities and extent of damage and economic losses caused by natural disasters between 1998 and 2005.

Also in 2005, Tropical Storm Stan pounded the country for six straight days. The storm's intermittent rainfall caused serious flooding, claiming 69 lives and causing severe material losses. The departments of La Libertad, Sonsonate, San Salvador, La Paz, San Vicente, and Santa Ana were the hardest hit, accounting for 81.5% of the injured and 87% of the fatalities. More than 1,500 multidisciplinary health workers were assigned to the shelters. The Health Assistance Fund (FOSALUD) provided financial support to the Ministry of Public Health to help hire 200 health professionals to address the needs of residents of disaster areas. The Ministry of Education suspended classes, as some 269 school buildings were used as shelters and another 86 schools were damaged by the rains. According to the Ministry of Public Health, 80 health facilities were damaged (64 health units, three hospitals, six "*casas de salud*" or home-based microclinics, and seven administration buildings). Total damage was assessed at US\$ 15.6 million, including US\$ 9.7 million in damages to health units.

The Economic Commission for Latin America and the Caribbean (ECLAC) put the economic impact of the Santa Ana Volcano eruption and tropical storm Stan at US\$ 355.7 million, including US\$ 196.2 million in direct damages (capital losses) and US\$ 159.5 million in indirect damages (losses in flows).

### Violence and Other External Causes

According to 2004 general mortality statistics furnished by the Statistics and Census Bureau, all types of injuries from external causes were the second leading cause of general mortality nationwide, with a rate of 81.6 per 100,000 population (5,512 deaths), up from 71.9 per 100,000 (4,687 deaths) in 2002. Homicide was the leading external cause of death (at 38.7 per 100,000 population), followed by traffic accidents (26.0 per 100,000) and suicide (6.9 per 100,000). Males accounted for 90.8% of all homicides, 79.1% of traffic accidents, and 74.9% of suicides in 2004. In terms of years of potential life lost (YPLL), homicides ranked first, accounting for a total of 140,432 YPLL, or 52.4% of the total number of years of potential life lost to all deaths from external causes (see Table 4).

According to Ministry of Public Health data for 2005, the incidence of injuries from external causes was, in descending order, 331 per 100,000 population for workplace accidents, 74 for traffic accidents involving motor vehicles, 68 for injuries from cutting and thrusting weapons, 49 for injuries from firearms, 19 for physical abuse, and 2 for sexual assault.

The Statistics and Census Bureau reported a rise in the total number of fatalities caused by traffic accidents, from 1,415 in

**TABLE 6. Fatalities, damages to homes, and economic losses from natural disasters, El Salvador, 1998–2005.**

Event	Fatalities	Families left homeless	Economic losses (US\$)
Hurricane Mitch	240	10,000	398 million
2001 earthquakes	1,159	316,500	1.660 billion
Eruption of the Santa Ana Volcano and tropical storm Stan	69	14,525	355.7 million

1997 to 1,760 in 2004. Moreover, the Ministry of Public Health's hospital network reported these types of traumas as the third leading cause of hospitalization, accounting for 5,327 reasons for hospital discharges, with a fatality rate of 8.6%.

Ministry physicians reported 438 cases of domestic violence, of which 103 (23.5%) involved children 0–9 years old and 151 (34.5%) involved women 20–59 years old.

There were more than 15,000 reported cases of acute pesticide poisoning between 1996 and 2004, with an average of 1,700 incidents per year (and an incidence of 28 per 100,000 population), 67% of which involved males and 98% of which were treated in hospitals. The main symptoms were digestive (49%) and systemic (37%), and the case-fatality rate was 12%. The leading cause of poisoning was attempted suicide (46%), and the main pesticide used was phosphine. There were also cases of accidental (28%) and occupational (26%) poisoning.

### Mental Health

The Ministry of Public Health's National Mental Health Program data for 2005 shows incidence rates for mental health problems at 715.1 per 100,000 population for anxiety disorders, 132.6 for depression, 34.1 for alcoholism, 7.7 for attempted suicide, and 1.7 for drug addiction. The first two disorders affect mostly women. Alcohol-related mental and behavioral disorders were the reasons for 2,912 hospital discharges; 209 involved the use of psychoactive substances, and mood disorders accounted for another 406. There were 840 recorded deaths from mental and behavioral disorders in 2004, for a rate of 12.4 per 100,000 population. The leading cause of death was the use of psychoactive substances (mainly alcohol consumption). The departments of Cuscatlán (22.3), San Vicente (14.8), and La Paz (11.1) had the highest mortality rates.

### Addictions

The 2002–2003 National Family Health Survey found that 70% of males 15–59 years old had smoked, 85% had consumed alcoholic beverages, and 33% had had 1–4 drinks a week. Ac-

ording to the 2006 Preliminary Report on the First National Study of Drug Use in the General Population of El Salvador (16), of 4,819 subjects surveyed, 61.6% of males and 20.7% of females reported having used tobacco at some time. The survey also found that 66.5% of male respondents and 31.0% of female respondents had consumed alcohol, 5.0% of all respondents had taken tranquilizers, and 3.1% of male respondents and 0.1% of female respondents (virtually none) had used inhalants. The survey revealed that nearly 150,000 Salvadorians had used some type of illegal drug and that illegal drug use was more prevalent among males (15.2%) than among females (0.5%). The main drug used (by 14.3% of males and 0.2% of females) was marijuana, followed by cocaine (4.0% of males and 0.2% of females), and hallucinogenic drugs (used by 1.3% of males and 0.007% of females). There was very little usage of any other types of drugs. The survey found that most respondents reporting having used these drugs were in the 12–29-year-old age group. According to respondents (71% of males and 65% of females), it was relatively easy or very easy to get hold of any type of drug, and their main source of information on drugs was the television.

### Environmental Pollution

The Ministry of Public Health's hospital network reported 310 cases of pesticide poisoning, 71.6% of which involved males, with females accounting for the remaining 28.4%. It is noteworthy that 123 (39.7%) of these cases were classified as pesticide poisoning inside the home. There were 20 fatalities among poisoning victims admitted to hospitals, 13 of which involved males. Age groups 15–19 and 20–24 years old had the highest rates of pesticide poisoning (6.8 and 7.8 per 100,000 hospital admittances, respectively). Moreover, the fatality rate rises with the victim's age. A geographic breakdown of cases of pesticide poisoning showed different patterns depending on the type of substance involved. For example, organophosphate poisoning was more prevalent in the departments of Usulután, Ahuachapán, and Santa Ana, while poisoning with herbicides and fumigants was more common in the departments of La Unión, Usulután, La Libertad, and Morazán.

## RESPONSE OF THE HEALTH SECTOR

### Health Policies and Plans

El Salvador is stepping up implementation of a health reform program geared to the rights and obligations of the general public and the Government's role to provide free health care for the poor. Within this reform framework, the concept of health is viewed from a comprehensive, intersectoral perspective, and is grounded in the need to promote the general welfare from the bottom up, ensuring quality of life, a social safety net, and good family health within the framework of a sustainable environment (17). Thus, it is important to bolster health sector integration and



establish integrated health service networks that make the best possible use of ever-scarce resources, ensuring equitable and timely access to health care for the Salvadorian people and implementing strategies for expanding the health care safety net (17). Numerous efforts have been made to modernize health sector institutions by promoting decentralization in search of efficiency and better coverage.

Health system reforms aim to redefine the roles of different institutions, separating oversight, regulatory, financial, and health delivery functions as a way to optimize the health sector's efficiency (17). The National Comprehensive Health Care Reform Monitoring Council, consisting of the Minister of Health, the director of the Salvadorian Institute of Social Security, and representatives of NGOs, health trade associations, health professionals, consumers, and health manpower training institutions, seeks to build consensus and establish lines of action within the health sector to serve as national health policy guidelines. It has issued a health care reform proposal that the Executive Branch has submitted to the Legislative Assembly for deliberation and approval. The national policy envisions an integrated health care system with effective intrasectoral coordination; a health care model that minimizes overlap and that coordinates and synchronizes the three levels of care; and a management model based on decentralization and social participation and that optimizes the use of available resources, and that amends the legal framework according to national realities (17). The Monitoring Council has four subcommittees: Human Resources, Financing, Reform Modeling, and Social Participation.

The comprehensive health care reform proposal establishes nine guidelines (17): (1) strengthen the national health care system; (2) bolster a health care model based on health promotion, disease prevention, and primary health care; (3) consolidate a mixed health delivery model; (4) develop a management model based on the Ministry of Public Health's steering role; (5) institutionalize social participation as a cornerstone of the health care system; (6) promote decentralization as a cornerstone of the health care system; (7) invest in human resources for health as the pivotal force for change in the health system and for its management; (8) strengthen cross-sector coordination as a synchronized social response to health challenges; and (9) assure universal basic health services.

### Health Strategies and Programs

The Health Assistance Fund (FOSALUD) was created as one of the central government's main strategies for the country's health sector; it is a building block of the Presidential Plan known as *Plan Oportunidades*. FOSALUD is helping to expand basic health service coverage in rural and urban areas, as well as emergency care and emergency medical services, by mounting special programs to strengthen public health care. FOSALUD services, which have been operational since August 2005, are free, and they

benefit 3.8 million persons nationwide. To date, the Fund operates 66 health units that provide round-the-clock service, including weekends and holidays. FOSALUD uses Ministry of Public Health facilities to maximize its resources. A gradual, phased reform of the national health care system designed to reduce disparities in access to health care by expanding comprehensive health care coverage, reducing inequities in health care for different social groups, and modifying health delivery and health management models based on new approaches with the emphasis on comprehensive, decentralized, managed health care implies many, multifaceted changes. These include changes in the organization and operation of health institutions; in the roles of health officials and workers; in goal-setting, targeting, and planning processes and in corresponding management procedures; in conflict resolution procedures; in decision-making procedures based on relevant information; in moral, professional, and financial incentive systems; and in procedures for monitoring, evaluating, and expanding the reform process.

The Ministry of Public Health conducted two exercises to measure the performance of essential public health functions to help steer needed health sector reforms in El Salvador; both were based on national and local experiences. The first evaluation (May 2001) was conducted with multisectoral, multidisciplinary participation, and it provided an overview of the current situation in terms of optimal standards to be attained. The second evaluation workshop (April 2005) was the product of an inter-organization effort by the Ministry of Public Health and PAHO/WHO, and it raised the need for framing a national plan for improving performance. The Ministry of Public Health carries the greatest weight nationwide for the performance of essential public health functions. It cannot fully function as a National Health Authority, however, because it depends on the functions and attributes of other institutions within and outside the health sector.

Functions more strictly related to "health intelligence" or, at any rate, to institutional capacity-building designed to improve efficiency and effectiveness scored better. The best scores went to health monitoring and analysis functions; public health surveillance, research, and risk and damage control functions; policy-making and planning functions in support of public health programs and national health authority oversight functions; institutional capacity-building functions for health regulation and control; and functions dealing with disaster and emergency mitigation, all of which scored in the above-average and best performance quartiles.

The functions of health promotion; social participation and citizen empowerment in health; evaluation and promotion of equitable access to health services; human resource development and training in public health; quality assurance in public health services and services targeted to individuals; and innovative problem-solving scored in the lowest performance quartile (0.0%–0.25%).

There have been major improvements in some indicators of essential public health functions, while progress in others has

been piecemeal due to the fragmentation of the health care system. Overall, improving essential public health functions depends on budget appropriations, inter-agency and intersectoral efforts, and the attitudes and practices of civil society.

The Ministry of Public Health plans to mount programs within the framework of the Solidarity Alliance (*Alianza Solidaria*) and Alliance for Security (*Alianza por la Seguridad*) to help raise the standard of living and the level of health of Salvadorians. To this end it promotes efficiency, effectiveness, equity, quality, and compassion in the delivery of health care services, pursues a comprehensive approach to health care, and bolsters the active involvement of all social stakeholders. Another strategy is the establishment of integrated basic health systems (SIBASIs), whereby health facilities are organized into mutually supporting networks to improve their ability to meet the public's needs (18). Each SIBASI serves a clearly delineated geographic area and population, which ensures the equitable allocation and efficient use of available resources to effectively meet, on an ongoing basis, the health needs of its target population (18). The country is divided into 28 SIBASIs, whose operations are coordinated by five technical area teams.

Together, SIBASIs constitute the basic structure for the local-level organization and operation of national health system facilities, subject to the Ministry of Public Health's oversight. This structure provides an integrated health care model that operates through a well-organized network of complementary health care providers, which prevents overlapping and duplication of efforts by efficiently and effectively using available resources and by facilitating the monitoring and evaluation of all corresponding activities in terms of their impact on the health of the population served by the SIBASI (18). According to the Integrated Basic Health Systems Act enacted in late 2005 that entered into effect in April 2006, the responsibility for the technical/administrative management of all resources allocated to the SIBASIs is vested in regional headquarters, with the SIBASI, in turn, charged with providing full primary health care coverage, particularly to the poor. The SIBASI system coordinates the services of different health care providers to solve problems identified at the local level. To this end, it relies on an integrated health care model and the delivery of individual, family, community, and environmentally based health promotion, disease prevention, and treatment and rehabilitation services to attain a standard of health that fosters social development. To serve its target population, the SIBASI system synchronizes its primary health care services with those of secondary and tertiary health facilities. A referral and counter-referral system ensures that the health care that is delivered is comprehensive and ongoing. In order for the SIBASIs to operate optimally will require that the coordination and sharing of responsibility by all social and economic stakeholders be ongoing. This, in turn, requires social participation and intersectorality, or a cross-sector approach, to help solve problems and ensure transparent management (18).

### Organization of the Health System

The health sector is made up of four subsectors: the public subsector, the social security system, independently operated health care services, and the private subsector. The main players in the public health care system are the Ministry of Public Health and Social Welfare, the High-Level Public Health Council, the Salvadorian Social Security Institute, the Military Health System, the Teachers' Health and Welfare System, and the Salvadorian Rehabilitation Institute for the Disabled.

The 1987 Health Code, whose revision is to be submitted to Congress, gives the Ministry of Public Health policy-making, regulatory, program management, financial, technical/administrative assistance, and direct health service delivery functions (theoretically, serving 80% to 85% of the population).

The High-Level Public Health Council has numerous functions, particularly in the policy-making, regulatory, and operational arenas.

The Salvadorian Social Security Institute, an independent agency within the Executive Branch attached to the Ministry of Labor and Social Insurance, has policy-making, health program management, financial, technical/administrative assistance, and service delivery functions, serving insured workers and retirees and their dependents (16% of the population).

The Military Health System provides preventive health services and treatment care to members of the Armed Forces, retired military personnel, and their families. For the past few years it has been providing health care services to the general public on a fee-for-service basis to optimize infrastructure use (serving 3% of the population).

The Salvadorian Rehabilitation Institute for the Disabled is an independent agency that provides rehabilitation services at various facilities specialized in caring for the disabled and the elderly.

The Teachers' Health and Welfare System provides health care to teachers and their families by contracting out services that are funded by member contributions and a government subsidy.

Although for many years it has claimed that it covers 80% of the population, the Ministry of Public Health actually provides health care coverage for about 50% of the population (4). The last Health Service Demand Survey (dating back to 1988) found that the Ministry met roughly 40%–45% of demand for outpatient care and as much as 75% of nationwide demand for in-hospital care. According to Ministry data for 2004, it treated 527,902 children under 1 year of age; performed 709,923 check-ups of children 1–4 years old; performed 341,974 prenatal examinations; attended 73,447 deliveries; provided family planning services to 222,142 clients, including sterilization procedures, with an estimated 206,310 active acceptors between 15 and 49 years old; processed 331,825 hospital discharges; and performed 93,099 major surgeries, with an 85.2% hospital occupancy rate (12). As stipulated in El Salvador's Constitution, the Ministry of Public Health's target population is the poor, and the general public in the event of disasters or epidemics. In practice, however, the Ministry

provides health care to anyone in need, regardless of their socio-economic status or insurance coverage (19), which prevents it from concentrating its resources and efforts on the poor, who have the greatest need for its services.

The Salvadorian Social Security Institute serves roughly 1,099,988 insured workers and retirees and their dependents, or 16% of the country's total population. However, only 11% of the sick or injured were treated at the Institute's facilities (4). In general, workers with social security coverage are employed in the economy's formal sector.

The Military Health System serves members of the Armed Forces and their families; there are no reliable figures on its coverage. The Teachers' Health and Welfare System provides services exclusively to members of the teachers' union and their families. Existing data puts its coverage rate at somewhere around 1.6% of the total population. El Salvador does not have a well-established private insurance system. In fact, at most, only 1% of the population has group insurance coverage. The private not-for-profit subsector serves 0.1% of the population and the private for-profit subsector serves just over 1% of the population. A sizeable percentage of the population (18%) turns to traditional healers, pharmacists, and other practitioners to solve their health problems (4). Roughly 12% of the population has no public or private health insurance coverage.

### Public Health Services

Other important milestones include the introduction of new vaccines such as the triple diphtheria/whooping cough/tetanus vaccine introduced in 1997; the hepatitis B vaccine introduced in 1999; the yellow fever vaccine for travelers introduced in 2000; the pentavalent vaccine against diphtheria, pertussis, tetanus, hepatitis B, and *Haemophilus influenzae* type b introduced in 2002; the flu vaccine for children aged 6–23 months old and adults older than 60 first introduced in 2004, followed up by three nationwide vaccination campaigns to date; and the measles/rubella vaccine for adults 15–39 years old. The country laid the groundwork for introducing a vaccine against rotavirus in October of 2006 through a fiscal strategy that established a new sales tax on alcohol and tobacco and set up the Health Assistance Fund, known as FOSALUD, to hold the corresponding revenues.

Surveillance indicators for acute flaccid paralysis have consistently exceeded international minimum standards, with rates higher than 1 case per 100,000 in persons older than 15 years old. Measles/rubella surveillance indicators have all exceeded 80%, except for the adequate case-finding indicator, which has been consistently below this figure for the last six years. As far as rotavirus surveillance is concerned, the country has seven sentinel hospitals detecting circulating serotypes of rotavirus since 2003 (G1P8), 2004 (G1P8 and G9P8), 2005 (G9P4), and 2006 (G2P4 and G9P8), which should help assess the impact of the introduction of the rotavirus vaccine.

On average, 41% of the country's municipios have vaccination coverage rates of 95% or better, while 59% of municipios (156 of 262) are still trying to reach coverage of 95% or above by using all available biologicals, which means scaling up inoculation programs and epidemiological surveillance activities. The immunization program information system is scheduled to be modified shortly so it can supply coverage data broken down by gender and by rural/urban area; this will help correct inequities between municipios by targeting stepped up vaccination efforts.

According to Ministry of Public Health data, antiretroviral therapy was first administered to HIV/AIDS patients in 2001 (73 cases). By December of 2005, 2,235 patients were receiving this therapy, with an impressive jump in the number of patients with free access to these drugs. Antiretroviral therapy was also administered to 94 pregnant women in 2006 (between January and June) as a prophylactic measure against mother-to-child transmission, and to 104 newborns as a post-perinatal exposure prophylaxis. Ministry statistics show that the use of antiretroviral therapy has been stepped up every year since it was first administered back in 2001 (to 73 patients), particularly in 2004 and 2005 (with 731 new courses of therapy started in 2004 and another 980 in 2005). According to data from the National Strategic Plan for the Prevention, Treatment and Control of HIV/AIDS and Sexually Transmitted Infections, 44% of patients are receiving antiretroviral therapy, a far better rate than WHO's recommended 25% and a reflection of the country's progress in this area.

Of all HIV tests administered in 2005, 48.5% were given to pregnant women, 0.14% of whom tested positive for HIV. That same year, antiretroviral drugs were reportedly administered to 242 women as post-exposure prophylaxis and to 242 newborns as post-perinatal exposure prophylaxis. According to the statistics, there was a sizeable drop in the number of cases of HIV infection/AIDS in children under 1 year old between 2001 (with 142 reported cases) and 2004 and 2005 (with 20 cases each year), which is another major achievement for the country. This improvement was attributable to the stepping up of nationwide efforts to prevent mother-to-child HIV/AIDS transmission in 2003 by offering free testing in laboratory-equipped health units around the country, providing training to Ministry line personnel, and conducting an intensive educational media campaign. The number of screening tests went from 98,393 in 2001 to 217,748 in 2005 (a jump of over 100%) with the decentralization of diagnostic services and the use of rapid testing methods. Only 20.3% of males and 5.6% of females reported having used a condom in their last sexual contact (8).

The water supply and sanitation sector consists of the National Water Supply and Sewerage Authority, which serves 151 municipios; another 110 municipios are served by city governments and other service operators. Cuisnahuat, in the Department of Sonsonate, is the only urban area without a water supply system. Rural communities operate their own water services. The country has no national water resources policy, and there is no clear or

logical separation of regulatory, policy-making, and service delivery functions.

According to existing data on water service coverage, 65.5% of Salvadorian households have individual house connections to a water supply system, 11.2% draw water from wells, and 10.4% get their water from public standpipes or fountains. In urban areas, 80.9% of households have individual house connections and 10.1% get their water from public standpipes or fountains. In contrast, only 39.5% of rural households have piped water anywhere on their property, 24.9% draw water from wells, and 19.7% get their water from a spring. Most households in the San Salvador Metropolitan Area have individual house connections (80.2%). Public standpipes or fountains are the second leading source of supply (7.6%), including shared taps (7).

Reforms to the water supply sector are still ongoing. Existing proposals include new water legislation that focuses on watershed management and the sustainable development of the water supply and sanitation subsector, a national rural water supply and sanitation policy, and a proposed policy package promoting land use planning and the establishment of a national water resources council. The Ministry of Public Health is still conducting its disinfection program for drinking water, to which end it produces and promotes the use of a 0.5% sodium hypochlorite solution known as PURIAGUA. It also undertakes to keep its 250 generators in running order, fosters community participation, develops educational strategies to promote the use of PURIAGUA, and endeavors to strengthen health stakeholder commitment.

In October 2004, the Ministry of Public Health issued official technical sanitary standards for the installation, use, and upkeep of no-flush pit latrines, regulating the different types of latrines used for sanitary excreta disposal in the country's periurban and rural areas.

Ministry of Environment data for 2005 put daily refuse production at 2,715.3 tons (2,258.4 tons in urban areas and 456.9 tons in rural areas), for an annual production figure of 991,084.5 tons, half of which was produced in the San Salvador Metropolitan Area, which has a proper refuse collection and disposal system and a sanitary landfill that meets minimum sanitary engineering requirements for handling 1,500 tons of refuse per day. Waste disposal has improved nationwide, as reflected by the addition of 10 new manual and mechanized sanitary landfills. Regular municipal solid waste collection service coverage went from 73.7% in 2003 to 81.0% in 2005, with 211 municipios nationwide operating some type of trash collection service. In addition, 88% of municipios subsidize trash collection with locally generated revenues, which means either that user charges are extremely low or that, nationwide, people are paying nothing towards the cost of average per capita daily refuse production (0.62 kg), and this has implications for the sustainability of municipal trash collection services. Moreover, as of yet there is no national integrated waste management program, although some progress has been made in establishing a regulatory framework for integrated solid waste

management that sets waste collection and transportation standards and environmental standards for waste transfer, treatment, and final disposal sites.

According to the Salvadorian Foundation for Economic and Social Development, there were 1.25 million tons of pollutant emissions released nationwide in 2003, consisting mostly of carbon monoxide (CO), 36%, and volatile organic compounds (VOCs), 28%. San Salvador (with 300,000 tons) is the department with most air pollution emissions, followed by La Libertad (152,000 tons) and Sonsonate (140,000 tons). The main sources of pollutant emissions are motor vehicles and the burning of firewood for cooking. Motor vehicles account for 51% of pollutant emissions in the Department of San Salvador. The most polluted areas are San Salvador (the downtown area), Soyapango, Apopa, and Santa Tecla. The main source of pollution in the departments of Santa Ana and Sonsonate is burning of firewood for cooking, which accounts for 49% and 47% of total emissions in these departments, respectively. One of the contributing factors in air pollution is the age of the vehicle fleet. Data for 2003 showed 35% of motor vehicles were already more than 20 years old and responsible for 50% of all pollutant emissions. Vehicles manufactured between 1998 and 2003, which made up 20.6% of the vehicle fleet, were responsible for only 5.25% of total pollutant emissions.

The share of air pollutant emissions released by solid waste disposal sites using open burning and composting methods is 13.4%, compared with 81% for sanitary landfills.

To improve hospital solid waste management, all 30 national hospitals adhere to the separation of regular and hazardous wastes at the source point, which has lowered the risk of workplace and environmental contamination. With assistance from the German Cooperation Agency (GTZ), two national hospitals (Nueva Guadalupe in San Miguel and Santiago de María in Usulután) and 21 health units in the Cojutepeque, La Paz, and Santiago de María SIBASIs have been equipped with devices for crushing and destroying sharp objects (needles contaminated with body fluids) as a source reduction and waste disposal control measure. A total of 196 Ministry of Public Health employees have benefited from technical training and capacity-building activities, including the members of hospital infection control committees in all 30 national hospitals and environmental engineers, epidemiologists, and nursing personnel attached to the 28 SIBASIs. The Ministry's efforts to regulate the management of infectious biological waste have been noteworthy: it has issued a mandatory standard (NSO: 13.25.01:05, published in Volume 370 of the Official Gazette, on February 2, 2006) and also has developed a management model for the sanitary handling of infectious biological waste. Of the 7.58 tons of waste generated daily, 3.85 meet the sanitary requirements set by this standard.

El Salvador does not manufacture pesticides, but it does have maquilas that process pesticides formulation for marketing firms; these formulations account for 5% of the pesticides sold in



the country. The rest are imported, generally in 200 l containers or 25 kg packages.

According to Ministry of Agriculture data on pesticide use, vegetable crops account for the highest pesticide spending (anywhere from 13.9% to 30.8%). The share of spending on pesticides for different agroindustrial crops is similar, 3.6% for coffee, 4.7% for sugar cane, and 8.6% for staple grain crops. The most popular pesticides for vector control are deltamethrin, permethrin, bendiocarb, kaothrin, and temephos. There is legislation banning the use of products from the so-called “dirty dozen” list (which includes DDT; aldrin; dieldrin; chlordane; heptachlor; 2,4-D; and parathion).

The Ministry of Public Health is committed to keeping the surveillance system in place and to crafting a plan to strengthen the Central Laboratory so it can begin monitoring pesticide levels in water. It also will provide ongoing training at all Ministry levels and in local communities on how to care for poisoning patients so as to reduce the morbidity and mortality from pesticide poisoning.

The Ministry of Public Health is bolstering several food security and nutritional initiatives. For example, the Comprehensive Health and Nutrition program is a community-based effort to promote good health and nutrition by monitoring weight gain in pregnant women and in children under 2 years old, using volunteers (parents) and local health workers, mainly health promoters. Other initiatives include the Feeding with Love program, which, in conjunction with the National Secretariat for Family Affairs, local governments, NGOs, and local community members, has provided nutritional counseling, food, and protein supplements to children under 5 years old, pregnant women, and nursing mothers since 2000. Finally, the Nutritional Assistance Plan targets mothers and children in municipios hardest hit by the crisis in the coffee industry.

The nationwide Processed Food Fortification Program directed at all segments of the population is designed to ensure that the public gets an adequate supply of vitamins and minerals. The program provides four fortified foods, namely iodized salt; sugar fortified with vitamin A; wheat flour fortified with iron, folic acid, and B-complex vitamins; and cornmeal enriched with iron, folic acid, and B-complex vitamins.

El Salvador has a National Civil Defense System (established under the Civil Defense and Disaster Prevention and Mitigation Act of August 30, 2005) charged with protecting at-risk communities and coordinating with other agencies and organizations (government agencies, NGOs, private enterprise, relief organizations, etc.) in preventing or responding to disasters.

### Individual Care Services

There is a network of 623 public health facilities (30 hospitals, 367 health units, 170 small clinics (*casas de salud*), 51 rural nutrition centers, 3 clinics, and 2 emergency care centers). There are

four tertiary referral hospitals (maternity, pediatric, pulmonary, and specialty hospitals) (12). The Salvadorian Institute of Social Security has 273 health care facilities nationwide—11 hospitals, 65 health units (33 community clinics and 32 medical units), and 197 clinics in private companies (12).

As part of efforts to modernize the health care system, the National Blood Program and the Council for El Salvador’s National Blood Bank Network (including the Ministry of Public Health, the Social Security Institute, the Military Health System, the Red Cross, and private hospitals) are involved in various activities designed to ensure the efficient and timely supply of safe blood and blood products.

Overall, the National Blood Program follows PAHO/WHO resolutions and strategic guidelines regarding blood safety, and has advanced in the training of personnel involved in all phases of this process. Pertinent legislation has been amended, and new regulations governing transfusion medicine and blood banks await the President’s signature. New policy manuals for donor selection and transfusion medicine also have been issued. The Ministry of Public Health’s Max Bloch Central Laboratory and other such facilities are still taking part in outside performance evaluation programs sponsored by PAHO/WHO. Implementation of a strategic zoning plan as part of the continuous quality improvement program for the health sector is being expedited, in line with a proposal for the regionalization of blood banks.

According to a report by the Max Bloch Central Laboratory covering January through December of 2005 (20), 32 blood collection centers collected 80,142 units of blood, of which only 9.5% was donated by volunteers, with the remaining 90.49% provided by patients’ friends and relatives. Of the total units of blood, 0.09% tested positive for HIV, 0.28% for hepatitis B, 0.019% for hepatitis C, 1.02% for syphilis, and 2.4% for Chagas’ disease; 95.3% of the units of blood were separated into blood components.

As part of reform and modernization efforts in mental health, mental health units were put in place at San Juan de Dios Hospital in Santa Ana; at Dr. José Antonio Zaldaña Pulmonary and Family Medicine Hospital and San Juan de Dios Hospital in San Miguel; and San Rafael Hospital in La Libertad. By systematically bringing mental health services to these hospitals, the overload at the National Psychiatric Hospital has been alleviated and a specialized care area has been created in these facilities. Guidelines have been issued for establishing mental health units in general hospitals, as a way to harmonize standards for the operation of mental health services. Regulatory instruments establishing mental health care guidelines also have been disseminated, including: (1) standards for comprehensive mental health care; (2) clinical guides for the treatment of common mental health problems; (3) clinical guides for the treatment of individuals whose behavior is consistent with addiction to psychoactive substances; and (4) a crisis intervention model for disasters and emergencies that encompasses all necessary elements for the

delivery of timely psychological assistance and the referral of cases requiring specialized care in the event of a disaster or emergency.

There is a proposal for decentralizing health care services for epileptics that is scheduled to go into effect in 2007; it will lead to an official comprehensive health care guide for epileptics.

### Health Promotion

Government agencies and nongovernmental organizations are following guidelines established under the Government's 2004–2009 "Safe Country" Program, whose lines of action pertaining to health (quality and universal coverage), strengthening of society and the family (social cohesion), and public security (better quality of life) are designed to improve living conditions for the population (18). To this end, the strengthening of institutional modernization and decentralization processes, health promotion, disease and environmental threat and damage prevention, and rehabilitation are all part of the Health Ministry's institutional policy for improving the standard of human and environmental health through a primary care approach (18). There are ongoing efforts to develop an integrated health care model designed to serve as a package of health promotion policies, standards, interventions, and instruments through the operation of various programs, including "Feeding with Love," safe motherhood, health promoting schools, rural nutrition centers, mental health, the Integrated Management of Childhood Illnesses (IMCI) strategy, STIs/HIV/AIDS, and the National Tuberculosis Prevention and Control Program.

The Salvadorian Social Security Institute is a link between promotion and prevention, implementing these strategies through community-based clinics that bolster the health care delivery model defined as "networking alternatives for public and private health care providers, ensuring access to health system benefits with quality, equity and continuity of care" (17).

A National Declaration on Health Promotion, signed in 2001, puts forward a plan to implement public policies that foster social participation, investment in health, mutual responsibility, research in health, and strengthening of municipal governments. So far, there is a proposal for a national health promotion policy formulated with the active involvement of representatives of agencies and organizations conducting health promotion activities (18). Focus areas under health communication and/or education strategies include healthy lifestyles, environmental health, and vaccination-related issues.

There are ongoing efforts to promote participation and partnerships between civil society and various sectors, primarily as a basis for the development, implementation, and evaluation of health promotion policies or programs. Examples include the formation of community-based social consultation committees; the implementation of projects in conjunction with local governments, universities, intersectoral committees, mayors' offices, the

National Civil Police, the Ministry of Public Health, and nongovernmental organizations, among others; and the development of consensus- and consultation-based policy-making, rule-making, and planning, which served as a basis for the designing of a health promotion policy.

The main problems hampering implementation of the health promotion policy are a lack of a specific budget, a lack of standard procedures for the replication of successful experiences, a lack of sharing of information about each sector's promotional activities, lax enforcement of existing legislation and regulations, and a shortage of trained professionals. According to the Ministry of Public Health, the main challenges in expanding and strengthening health promotion over the next five years are to monitor implementation of the provisions of the National Declaration on Health Promotion; to approve and institutionalize the health promotion policy framed in December of 2005; to craft health promotion programs, plans, and projects; to improve health communication, information, and education strategies; to provide proper financial management ensuring human resource development and sustainability; to devise health-promoting public policies and refine current legislation; to systematize and share successful experiences in health promotion; to lay the groundwork for community participation in health promotion activities; to steer international cooperation toward health promotion projects; to establish a National Council for Health Promotion and strengthen health promotion networks; and to promote public and private intersectoral participation.

### Human Resources

As of 2005, El Salvador had 10,694 registered physicians. The physician-patient ratio went from 14.1 to 15.5 per 10,000 population between 2002 and 2005. There has been a similar pattern of growth in other health professions, though the numbers are somewhat smaller. The ratio of registered nurses to physicians went from 0.5 to 4.9 between 1999 and 2003, only to slightly slip down to 4.7 in 2005. The largest increase in specialists was in the field of public health, with the three specialized programs of study offered in this area for the past several years turning out about 100 public health experts in each graduating class (19). The largest increase in manpower has been in nursing personnel of all types, whose numbers went from 13,784 in 2003 to 15,191 in 2005.

### Health Sector Expenditures and Financing

According to El Salvador's National Health Accounts, the share of current GDP spent on health between 1999 and 2004 was 7.8%, with a low of 7.7% of GDP in 2003; per capita health expenditures rose from US\$ 161 in 1999 to US\$ 184 in 2004. By these figures, the country has an average-to-low level of health care spending in the context of Latin America (1).



Moreover, a look at the composition of health care expenditures (which is as important if not more important than total spending) shows three main drivers: households, employers, and the Government. According to national health account data, a large share (over 50%) of national expenditures for health care is in the form of direct out-of-pocket household spending, although the Government's share of total health spending has gradually increased over the past few years. The large share of direct household spending on health care is an important indicator of the skewed composition of national health expenditures, dictating a need for the development of health financing schemes in which the priority is on providing financial protection for Salvadorian families.

As the collection agency and administrator of national Government revenues, the Ministry of Finance performs a financial macrofunction (the mobilization, allocation, and administration of public or private funding for the delivery of health services). The Ministry of Public Health's budget went from US\$ 231.99 million in 2002 to US\$ 313.07 million in 2006, which, in relative terms, is a 35% increase (US\$ 81 million) from the budget appropriation for 2002. Despite the growth in the absolute and current value of the Ministry's budget over the past few years, it has never once topped 1.8% of GDP.

Likewise, the Teachers' Health and Welfare System finances procurements of health services for members of the teachers' union and their families; the Military Health System provides health care services for members of the Armed Forces.

### Technical Cooperation and External Financing

International cooperation has been instrumental in assisting the Ministry of Public Health, bolstering the implementation of high-priority national plans, programs, and projects, and helping the institution deal with emergencies created by epidemics, earthquakes, and floods between 1999 and 2004. In 2005, international cooperation funding helped provide comprehensive health care coverage in at-risk areas. Strategic interventions included the promotion of programs to strengthen quality; efforts to decrease in maternal and child mortality rates; the delivery of comprehensive health care under programs for the prevention, treatment, and control of HIV/AIDS and STIs; health care programs for adolescents and older adults; nutrition programs; and disaster management and basic sanitation programs. External financing also has supported the design of renovation and equipment projects for the country's network of health facilities to improve their operating capacity, and has furnished technical assistance and training services for health personnel. Data supplied by the External Cooperation Office (attached to the Ministry of Public Health's Planning Department) put the value of external funding for 2005 at US\$ 15.4 million. The World Bank provided a US\$ 142.6 million loan for the rebuilding of physical hospital infrastructure in the wake of the 2001 earthquake. Direct donor assistance in 2003–

2004 totaled US\$ 16,672,114. Projects undertaken with this type of funding included the National Epidemiological Information and Surveillance System (with US\$ 1,325,766 in USAID funding); the rebuilding of health infrastructure (with US\$ 2,343,541 in USAID funding and US\$ 271,285 in Government funding); the strengthening of primary health care, water quality, and environmental sanitation (with US\$ 3,255,590 in European Union funding); the HIV/AIDS and tuberculosis program (with US\$ 6,593,932 from the Global Fund); and a health program in the eastern portion of the country (with US\$ 2,882,000 in funding from the Grand Duchy of Luxembourg). PAHO/WHO technical cooperation for 2004–2005 amounted to US\$ 4,644,003, allocated to epidemiology, environmental health, human security, and quality of service.

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