

PANAMA



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, 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.

Panama has an area of 75,517 km², which is distributed into nine provinces, five indigenous territories called comarcas (three of which are at the provincial level), 75 districts or municipalities, and 621 mayoral jurisdictions or *corregimientos* (two of which are indigenous) (1).

GENERAL CONTEXT AND HEALTH DETERMINANTS

Social, Political, and Economic Determinants

Panama has been classified as an upper middle-income country (2). Its economy has experienced sustained growth (with the long-term growth rate close to 5% a year and 2% per capita over the last 15 years). Its nominal gross domestic product (GDP) in 2005 was US\$ 15.46 billion and its per capita GDP was US\$ 4,318 (3) (growth of 6.4% and 2.0% respectively compared to 2004). Productive activity is strongly concentrated in the services sector (76.3% of GDP), with little linkage to the rest of the economy, while manufacturing and construction together contribute 12.0% and the primary sector of agriculture and mining contributes 8.1% (4). Despite the relative economic boom, in 2005, the registered public debt, excluding the debt contracted with government sources such as the Social Security Fund (CSS) and with public financial institutions, was US\$ 10.23 billion, equivalent to 66.2% of GDP. Of this, 25.9% (US\$ 2.65 billion) was internal debt and 74.1% (US\$ 7.57 billion), external debt (3, 4).

The country's political and economic situation is influenced by its recent past, whose most salient aspects are the return to democratic life (1990) (5, 6), the pullout from the Canal zone, and the transfer of administration of the Canal to Panama in 1999 (7). A study on the opinions of Panamanians found that they considered the following problems to be important: the national issue (the Panama Canal), the political issue (democracy), and the economic situation (the impoverishment of the population) (8), which continue to be present in the country's political and economic life. The 2003 Standard of Living Survey (ENV 2003) confirmed the public's views that unemployment was the most pressing problem (9). Almost two-thirds (61.4%) of households identified the job shortage as the main reason for deterioration in the standard of living and poverty among the population. Also, with regard to community life, heads of households mentioned the lack of infrastructure (30%), the lack of access to basic services (26%), and the lack of security (12%) as problems that needed urgent attention (9). Consistent with this reading of the political and social context, the national dialogue among different sectors (10, 11) has included among policies and objectives poverty reduction, economic reforms, and sustainable growth.

A new president was elected for the period 2004–2009, also obtaining a majority in the legislature (52% of the seats) and in the municipal governments (69% of mayorships). The new government's program (12), expressed in its economic and social policies (13) and its objectives and goals (14), seeks sustainable economic development with social inclusion, by building up the competitiveness of national production, creating and maintaining a climate that favors investments, promoting social participation, strengthening the capacity of individuals and communities, and developing social investment programs that guarantee equitable access to basic services, particularly for the most vulnerable groups.

In 2005, the economically active population (EAP) numbered 1,407,458 people (with a participation rate of 63.5% of the population 15 years of age and older); 90.2% of the EAP was employed, 43% of them in informal activities. The open unemployment rate was 7.2% (15). ENV 2003 (9) found that the Panamanian labor market reflects a lack of gender equity with respect to job opportunities, with women having higher unemployment rates than men (15.1% and 8.0%, respectively). Almost one half (44%) of the unemployed are between the ages of 15 and 24. Unemployment is fundamentally a problem in urban areas, where the rate is 12.4% and 75% of the country's unemployed are found, while underemployment is typical of rural and indigenous areas. The unemployment rate among the poor is 11.7% (extreme and non-extreme poor together) and 10.3% in the non-poor population. The problem is more serious in urban areas (17.6% and 11.4%, respectively).

The average monthly wage for non-indigenous workers 15 years of age and over in 2005 nationally was US\$ 322.30 (US\$ 326.30 for men and US\$ 314.90 for women), and differed by sector: domestic services, US\$ 115.50; agriculture, US\$ 136.50; fisheries, US\$ 241.70; manufacturing, US\$ 311.90; construction, US\$ 350.60; public administration, US\$ 434.50; teaching, US\$ 506; and financial institutions, US\$ 551.70 (15). Average per capita annual income exhibited extreme contrasts among provinces, such as between the indigenous Comarca Ngöbe Buglé, with US\$ 370.50 (males US\$ 513 and females US\$ 228), and the Province of Panama, with US\$ 3,138 (males US\$ 3,977 and females US\$ 2,299) (15). An analysis of per capita income by deciles performed using ENV 2003 showed a national average of US\$ 2,482 a year, with US\$ 81 in the first decile

and US\$ 10,943 in the tenth. Accordingly, the poorest 20% of the population obtains just 1.9% of total income while the wealthiest 20% obtains 61.2%. In that year, the Gini coefficient for income distribution was 0.58 (9). General inflation measured by the consumer price index for Panama City and the district of San Miguelito was 3.3%, and inflation in the cost of the basic food basket was 4.8% in 2005 (3), both of which are relatively high for Panama, where the rate had been below 1.0% in the previous five years. The total monthly cost of the basic food basket (2,305 calories per person per day for a household with 3.84 members) in December 2005 was US\$ 207.32 (16).

In this context, ENV 2003 found that nearly four out of every 10 people lived in poverty (36.8% of the population, with total consumption of US\$ 953 per person per year) and 16.6% (508,700 people with total consumption of US\$ 534 per person per year) lived in extreme poverty (17). From 1997 to 2002 (18), poverty was reduced by just 0.5%. In urban zones it grew to affect one out of every five people (in 2003, general poverty, 20.0% and extreme poverty, 4.4%) and in indigenous rural zones it deepened, affecting 98.4% of the population, with nine out of 10 people living in extreme poverty.

Children under 6 years are the most affected by poverty. About one out of every three lived in extreme poverty (29.2% of children from 0 to 5 years), and more than half lived in abject poverty (54.1% of children from 0 to 5 years). Among the young population from 15 to 24 years of age, the incidence of poverty was 36.7% and of extreme poverty 16.2%. As for households, one out of every four (25.9%, 196,232 families) lived in general poverty, more than two-thirds of which (66.8%) are rural families. One family out of every ten (9.6%, 72,498 families) lived in extreme poverty (84% in the rural area, including indigenous areas) (9). As for the districts, 68% (51/75) presented high levels of poverty with low levels of inequality and are home to 20% of the population and 56% of the country's poor. Overall they have a low population density (17.4 people per km²) and a high percentage of rural population (74%). Of the districts, 27% (20/75) presented low levels of poverty with low levels of inequality and are home to 62% of the population and 38% of the country's poor. Overall they had the highest population density (141 people per km²) and a lower percentage of rural population (38%) (19).

Distribution of per capita consumption in 2003 was very unequal, with a Gini coefficient of 0.47. The scant consumption in the poorest population quintile (average annual consumption of US\$ 371 per person, 4.0% of total national consumption) implied that for each dollar consumed by a person in the wealthiest quintile (average annual consumption of US\$ 4,803 per person, 51.9% of total national consumption), a person from the lowest quintile consumed just 8 cents. In other words, people who are better off consumed 13 times more than the poor (17).

In terms of the human development index, Panama was classified as high (20), at 0.804 (it ranks 56th out of 177 countries)

and its human poverty index was 7.7% (ranking 9th out of 103 developing countries). The distribution of this development potential, measured by Panama's potential human development index (IDHP) in 2002, indicated that for all urban areas, human development was 0.753 while for the rural areas it was 0.46 (21). An analysis of the gaps between provinces for each component of the IDHP revealed that life expectancy was the indicator with the greatest progress and lowest disparity, where the province with the least progress (Comarca Emberá, 0.657) presented an average that is equivalent to 76.4% of the figure for the province with the highest life expectancy (Panama, 0.860). In education, there was a significant gap in progress between the province with the poorest results (Comarca Ngöbe Buglé, 0.396), with the equivalent of 51.8%, and the province with the highest level (Panama, 0.764). The decent level of living aspect (which includes indicators for income, employment, housing, and basic services) presents the most critical situation, since it made the least relative progress and exhibited the widest disparity. The province with the lowest figure (Comarca Emberá, 0.108) represents just 17.9% of the province with the highest figure (Panama, 0.605) (22).

On the economic, social, and cultural levels, the situation is disadvantageous for women. In spite of having better levels of education (total schooling: men 8.6 years, women 9 years), women earn lower wages for their work (urban employees with incomes above the minimum wage: men 68.4%, women 59.7%). In addition, their participation in politics is limited (political positions: men 89.6%, women 10.4%) (23). The standard of living index on the national level is 0.551 for men and 0.521 for women, but in the case of rural and indigenous women, inequality has reached alarming levels (Ngöbe Buglé: men 0.135, women 0.072; Kuna Yala: men 0.185, women 0.065).

As for public education, the country has made significant progress. In 2003, the literacy rate for the population 15 years of age and over was 93.1% (24). The illiteracy that exists is largely due to the high rates that are prevalent among people 40 years of age and older who live in poverty. National primary education coverage was 94.2%. Coverage continued to be low, however, for preschool (50.0%), secondary (70.2%), and higher education (23.9%). The gender parity index indicated that 94 girls in urban areas attend primary school for every 100 boys, while the disparity was greater in indigenous zones, with 86 girls for every 100 boys. This inequality in access to primary education among indigenous girls increased on the secondary level, where just 68 girls attend for every 100 boys. The gaps in access to higher education were even wider in regards to levels of socioeconomic status: the population in the four lowest consumption deciles had net coverage rates of under 10% for youths between the ages of 18 and 24, while in the highest decile coverage was 57.1%.

The national average years of schooling for the population 25 to 39 years of age was 8.6 grades, but there was a large difference

between the population in the first quintile, with 4.1 grades, and the fifth quintile with 12.1 grades. The indigenous population, which is mainly poor, had just 2.9 grades (9).

In 2004, public spending on education was US\$ 607 million, distributed among the preschool and primary, secondary, and postsecondary levels as follows: US\$ 393.98, US\$ 724.67, and US\$ 1,181.37 per student, respectively. Spending on preschool, primary, and secondary education has been progressive (concentration coefficients of -0.219 , -0.275 , and -0.029 respectively) in contrast to higher education (concentration coefficient of 0.3858). Educational assistance in the form of grants benefited 6% of the student population. Most of the government's grants in 2003 were for secondary (58%), primary (35%), and post-secondary (7%) education, but fewer than one third (30%) of the beneficiaries were poor. In the case of higher education, 100% of the grants were for the non-poor (9).

As for the diet of Panamanian families, apparent daily energy consumption was 6,832 kcal per family (non-poor 6,529 kcal and poor 7,475 kcal) and 1,608 kcal per person (non-poor 1,697 and poor 1,326 kcal), while among the rural indigenous population and persons living in extreme poverty the figures were significantly lower (1,200 kcal and 1,144 kcal, respectively). The energy consumed came from proteins (11.8%), carbohydrates (59.7%), fats (27.9%), and alcohol (0.5%). The energy contribution of proteins, fats, and carbohydrates varied from 9.5%, 15.3%, and 76.4%, respectively, in indigenous areas to 13.1%, 33.5%, and 52.5% in Panama City (25).

In the main urban centers, levels of pollution are not critical. The Specialized Analysis Institute of the University of Panama began a program to monitor air quality in Panama City in 1996. The city's topography, its proximity to the sea, and the prevailing winds prevent smog from building up. It is estimated that 90% of urban emissions come from the transportation sector and the rest from fixed sources. To date there is no program to control vehicle emissions (26). In the highlands where fruit, vegetables, and coffee are grown, air pollution comes from the intensive use of pesticides. In 2000, 320,953 kg of powdered pesticides were used in agricultural activities (2,769.5 km²) (26). It is estimated that on average the country uses four times more pesticides each year than the average world consumption estimated by the World Health Organization (0.6 kg/person) (27).

As for natural resources, protected areas cover 30% of the country (26). The loss of forest cover between 1992 and 2000 is calculated to have been 3,305.69 km² (28); 27% of the soil has been classified as degraded. Most rivers close to urban centers present a significant degree of pollution, owing to discharges of semi-treated or raw sewage. The situation is particularly critical in Panama City, where the population (900,000 people) and industries in the metropolitan area generate about 280,000 m³ of liquid waste a day, which is dumped untreated into the rivers that

cross the city and directly into Panama Bay, through a system of sanitary sewers that only covers 70% of the city.

In comparison with other Central American countries, historically Panama has suffered fewer emergencies and disasters; however, its environmental vulnerability is high due to the degradation of ecosystems as a consequence of human activity. Recurrent flooding affects the provinces of Bocas del Toro, Colón, Panama, and Darién.

Panama's risk of epidemics is unique due to factors that derive from its development, including the airport, which moves close to 2.5 million travelers a year, and the 14,000 ships that sail through the Panama Canal. The ecoenvironmental profile (wetlands) favors the presence of resting places for migratory birds and of insects and rodents that play a very important role in the transmission of diseases.

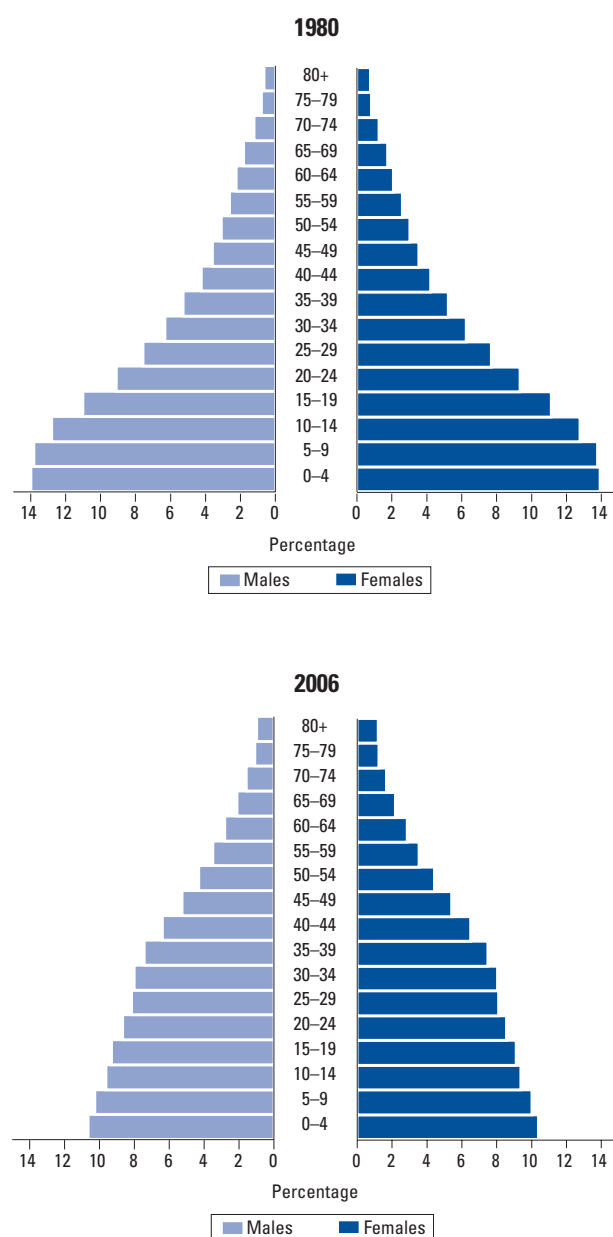
Demographics, Mortality, and Morbidity

The population in 2005 was estimated to be 3,228,186 (29), with slightly more males (51%). Population density was 42.3 people per km², with extremes ranging from 1.7 in the district of Sambú (Comarca Emberá) to 6,630.1 in the district of San Miguelito, province of Panama (1). The urban population accounted for 59.5% of the country's inhabitants (with an increase in absolute numbers of 623,697 people since 1990) (30), 73% of whom lived in the metropolitan area. At the other extreme, indigenous peoples accounted for about 10% of the total population and are composed of a number of clearly defined ethnic groups: Wargandi, Madungani, Kuna Yala, Emberá and Wounaan, Ngöbe Buglé, Teribe, and Bokota (31). The Ngöbe Buglé represented 64.5% of the country's indigenous population.

Panama is undergoing a rapid process of demographic transition, which is expressed in a downward trend in the population growth rate (from 2.08% in 1990 to 1.7% in 2006), the total fertility rate (from 2.87 children per woman in 1991–1995 to a projected 2.62 in 2006–2010), and the gross mortality rate (from 5.26 deaths per 1,000 population in 1991–1995 to a projected 5.11 in 2006–2010) (32).

As a result of these changes, life expectancy at birth has risen from 72.9 years (estimated for 1991–1995) to 75.6 years for the period 2006–2010. The average life span for the male population rose from 70.2 to 75.6 years in the same periods, while for females it increased from 75.7 to 78.2 years. Estimates for 2006 indicate that children under 15 years made up 30.1% of the population and people 65 years and over made up 6.0% (Figure 1). The average age was estimated to be 26.2 years (29).

Nonetheless, there are varying demographic scenarios, probably associated with the different levels of development in the provinces. Thus, life expectancy at birth presents unequal distribution among the population quartiles defined by the HDI. Los Santos and Herrera, the most highly developed provinces, had

FIGURE 1. Population structure, by age and sex, Panama, 1980 and 2006.

longer life expectancies with 72.4 years and 76.7 years, respectively, while in the indigenous territories life expectancy ranges from 64 to 66 years. Similarly, the average number of live births for females 15 to 49 years of age in the country during 2003 was 2.8, with the figure for the non-poor being 2.3 and for the extreme poor 4.3 (9).

In 2004 (33), 13,475 deaths were reported, for a gross rate of 4.2 deaths per 1,000 population. Underreporting that year was calcu-

lated at about 16% for general mortality. Three out of every five deaths took place in health care institutions, and nine out of every 10 were certified by a physician; deaths reported in the group of unclassified symptoms and signs amounted to just 2.9%.

The leading causes of death per 100,000 population were: diseases of the circulatory system (119), malignant tumors (72.7), external causes (43.6), diseases of the respiratory system (40.1), and certain infectious and parasitic diseases (31.7).

On the national level, the main causes of death include cerebrovascular diseases (which rank first with 44.7 per 100,000 population), diabetes mellitus (third place with 24.4), HIV/AIDS (sixth place with 14), pneumonia (seventh place with 13.6), land transportation accidents (ninth place with 12.8), homicides (11th place with 10.2), prostate cancer (14th place with 8.2), diarrhea and gastroenteritis of presumed infectious origin (20th place with 6.1), hypertension (22nd place with 5.7), respiratory tuberculosis (23rd place with 5.5), cervical cancer (24th place with 4.4), and breast cancer (25th place with 4.2) (33).

The main causes of mortality vary by province. In Comarca Ngöbe Buglé (the poorest with the lowest IDHP), diarrhea and gastroenteritis of presumed infectious origin rank first (with a rate of 48.1 deaths per 100,000 population), followed by accidents, self-inflicted wounds, acts of aggression, and other violence (38.0); tuberculosis (34.1); malnutrition (17.1); and pneumonia (13.2), while in the province of Panama (where the metropolitan area is located) the leading causes are malignant tumors (79.7 per 100,000 population), ischemic heart disease (51.6), cerebrovascular diseases (47.5), accidents, self-inflicted wounds, acts of aggression, and other violence (40.3), and diabetes mellitus (26.5) (33).

The causes of mortality have shifted significantly over the years (Tables 1 and 2). For example, changes in the leading causes of death show that malignant tumors, which were responsible for 51.6 deaths per 100,000 population in 1980 (males 53.7 and females 49.4), were responsible for 72.7 deaths per 100,000 in 2004 (males 75.5 and females 69.7). Cerebrovascular diseases, with 28.4 deaths per 100,000 population in 1980 (males 30.8 and females 25.8), caused 44.7 deaths per 100,000 population in 2004 (males 46.4 and females 42.9). Accidents, self-inflicted wounds, acts of aggression, and other violence, with 53.4 deaths per 100,000 population in 1980 (males 83.2 and females 22.7), caused 43.5 deaths per 100,000 population in 2004 (males 71.5 and females 15.0). Diabetes mellitus, with 8 deaths per 100,000 population in 1980 (males 6.9 and females 9.1), caused 24.4 deaths per 100,000 population in 2004 (males 19.9 and females 29.0).

Out of all deaths reported in 2004, 6.9% corresponded to children under 1 year; 2.4% to children from 1 to 4 years; 0.8% to children from 5 to 9 years; 2.3% to adolescents (10 to 14 years, 0.8%, 15 to 19 years, 1.46%); 25.1% to adults from 20 to 59 years; and 62.1% to adults 60 years and over.

TABLE 1. Number of deaths and mortality rate by the five leading causes of death^a, by sex, Panama, 1980, 1985, 1990, 1995, and 2000–2004.

Year	Tumors (malignant neoplasms)		Cerebrovascular diseases		Ischemic heart disease ^b		Accidents, self-inflicted wounds, acts of aggression		Diabetes mellitus	
	Number	Rate ^c	Number	Rate ^c	Number	Rate ^c	Number	Rate ^c	Number	Rate ^c
Total										
1980	1,000	51.6	550	28.4	908	46.8	1,035	53.4	155	8.0
1985	1,105	50.7	822	37.7	960	44.0	1,072	49.2	215	9.9
1990	1,398	57.8	964	39.9	1,096	45.3	1,232	51.0	266	11.0
1995	1,601	60.9	1,124	42.7	1,157	44.0	1,571	59.7	403	15.3
2000	1,938	67.9	1,201	42.1	1,147	40.2	1,337	46.8	623	21.8
2001	1,929	64.2	1,367	45.5	1,215	40.4	1,348	44.9	698	23.2
2002	2,009	65.7	1,310	42.8	1,223	40.0	1,434	46.9	795	26.0
2003	2,239	71.8	1,391	44.6	1,319	42.3	1,492	47.9	784	25.2
2004	2,305	72.7	1,417	44.7	1,390	43.8	1,381	43.5	774	24.4
Males										
1980	528	53.7	303	30.8	539	54.8	818	83.2	68	6.9
1985	568	51.1	417	37.5	559	50.3	843	75.8	98	8.8
1990	773	62.8	511	41.5	618	50.2	1,009	82.0	106	8.6
1995	915	68.8	611	45.9	674	50.7	1,282	96.4	171	12.9
2000	1,087	75.4	603	41.9	663	46.0	1,114	77.3	260	18.0
2001	1,058	69.8	705	46.5	722	47.6	1,130	74.5	314	20.7
2002	1,136	73.5	684	44.3	701	45.4	1,175	76.1	324	21.0
2003	1,239	78.8	750	47.7	769	48.9	1,228	78.1	343	21.8
2004	1,209	75.5	743	46.4	817	51.0	1,145	71.5	319	19.9
Females										
1980	472	49.4	247	25.8	369	38.6	217	22.7	87	9.1
1985	537	50.2	405	37.9	401	37.5	229	21.4	117	10.9
1990	625	52.6	453	38.1	478	40.2	223	18.8	160	13.5
1995	686	52.7	513	39.4	483	37.1	289	22.2	232	17.8
2000	851	60.1	598	42.3	484	34.2	223	15.8	363	25.7
2001	871	58.6	662	44.5	493	33.1	218	14.7	384	25.8
2002	873	57.6	626	41.3	522	34.4	259	17.1	471	31.1
2003	1,000	64.8	641	41.5	550	35.6	264	17.1	441	28.6
2004	1,096	69.7	674	42.9	573	36.5	236	15.0	455	29.0

^aBased on the mortality list of 93 groups of causes in the International Classification of Diseases (9th Revision) and the list of 80 groups of causes in the International Statistical Classification of Diseases and Related Health Problems (10th Revision).

^bThe group of ischemic heart diseases includes acute myocardial infarction.

^cPer 100,000 population, based on the estimated total population, by sex, as of 1 July of the respective year.

HEALTH OF POPULATION GROUPS

Children under 5 Years Old

Children under 1 year old (69,662) were estimated to make up 2.2% of the Panamanian population in 2005. In 2004, 62,743 births were registered (34). Estimates for the level of registration of live births suggest that 5.2% were omitted in the period 1996–2000 (29). It was calculated that there would be 34.1% omissions in reporting infant deaths in 1996–2000, which would double the level of underreporting in the total population

(1996–2000, 18.6%), which rose to 78.5% in the indigenous territories (33). According to official calculations for 2004, the mortality rate was expected to be 19.15 per 1,000 live births, with a declining trend (from 28.6 per 1,000 in 1990); in fact, the rate reported in that year was 14.9 per 1,000 live births and the difference between the two rates is 4.25 per 1,000.

The leading cause of infant mortality reported in 2004 was certain conditions originating in the perinatal period (5.53 per 1,000 live births), representing 37.2% of all deaths among children under 1 year. Congenital malformations, deformations, and

TABLE 2. Number of deaths and mortality rate by selected causes of death^a, by sex, Panama, 1980, 1985, 1990, 1995, and 2000–2004.

Year	Other heart diseases		Chronic lower respiratory diseases ^b		HIV		Pneumonia		Certain conditions originating in the perinatal period	
	Number	Rate ^c	Number	Rate ^c	Number	Rate ^c	Number	Rate ^c	Number	Rate ^c
Total										
1980	234	12.1	171	8.8	...	...	313	16.1	490	25.3
1985	320	14.7	228	10.5	4	0.2	275	12.6	572	26.2
1990	374	15.5	148	6.1	63	2.6	299	12.4	550	22.7
1995	401	15.2	196	7.4	294	11.2	258	9.8	500	19.0
2000	441	15.4	494	17.3	484	16.9	293	10.3	463	16.2
2001	455	15.1	555	18.5	473	15.7	371	12.4	441	14.7
2002	454	14.8	537	17.5	473	15.5	361	11.8	359	11.7
2003	510	16.4	534	17.1	424	13.6	377	12.1	338	10.8
2004	632	19.9	568	17.9	444	14.0	431	13.6	347	10.9
Males										
1980	124	12.6	87	8.9	...	...	161	16.4	273	27.8
1985	192	17.3	113	10.2	3	0.3	158	14.2	312	28.1
1990	191	15.5	89	7.2	56	4.6	160	13.0	306	24.9
1995	207	15.6	111	8.3	239	18.0	154	11.6	292	22.0
2000	239	16.6	282	19.6	362	25.1	155	10.8	257	17.8
2001	246	16.2	315	20.8	360	23.7	223	14.7	247	16.3
2002	259	16.8	290	18.8	338	21.9	190	12.3	210	13.6
2003	289	18.4	306	19.5	315	20.0	205	13.0	196	12.5
2004	363	22.7	328	20.5	328	20.5	223	13.9	204	12.7
Females										
1980	110	11.5	84	8.8	...	...	152	15.9	217	22.7
1985	128	12.0	115	10.8	1	0.1	117	10.9	260	24.3
1990	183	15.4	59	5.0	7	0.6	139	11.7	244	20.5
1995	194	14.9	85	6.5	55	4.2	104	8.0	208	16.0
2000	202	14.3	212	15.0	122	8.6	138	9.8	206	14.6
2001	209	14.1	240	16.1	113	7.6	148	10.0	194	13.0
2002	195	12.9	247	16.3	135	8.9	171	11.3	149	9.8
2003	221	14.3	228	14.8	109	7.1	172	11.1	142	9.2
2004	269	17.1	240	15.3	116	7.4	208	13.2	143	9.1

^aBased on the mortality list of 93 groups of causes in the International Classification of Diseases (9th Revision) and the list of 80 groups of causes in the International Statistical Classification of Diseases and Related Health Problems (10th Revision).

^bUntil 1995, chronic lower respiratory diseases corresponded to chronic and unspecified bronchitis and to emphysema and asthma.

^cPer 100,000 population, based on the estimated total population, by sex, as of 1 July of the respective year.

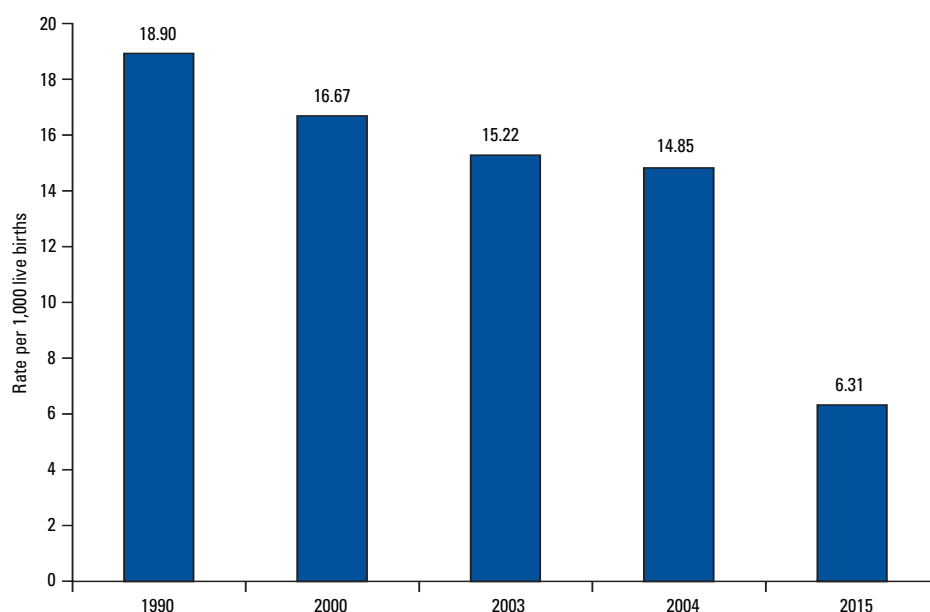
chromosome abnormalities (4.36 per 1,000 live births) represented 29.4%; pneumonia (1.03 per 1,000 live births), 6.9%; diarrhea and gastroenteritis of presumed infectious origin (0.73 per 1,000 live births), 4.9%; and accidents, acts of aggression, and other violence (0.46 per 1,000 live births), 3.1% (33).

An analysis of the trends in causes of death in the structure of infant mortality showed that in the 1960s and 1970s, infectious-contagious diseases prevailed (vaccine-preventable diseases, diarrhea, and respiratory diseases), with about 60% of deaths, while in the 1980s and 1990s as part of a transition process there was an in-

crease in endogenous causes, with 76.3% and 84.7% of deaths, respectively. In 2004, endogenous causes accounted for 67% of deaths; pneumonia, diarrhea, and gastroenteritis of presumed infectious origin persisted (12%), and external causes appeared among the five leading causes of death in this age group, with 6% (35). Figure 2 shows the trend in infant mortality rates from 1990 to 2015.

In a sample of 28,747 newborns in 2005 (36), 9.8% were premature and 3.6% presented some difficulty at birth (respiratory distress syndrome was the most frequent for 23.4%, followed by infections for 12.2%, and hyperbilirubinemia for 11.8%).

FIGURE 2. Infant mortality, Panama, 1990, 2000, 2003, 2004, and Millennium Development Goal for 2015.



Source: Panamá. Contraloría General de la República. Dirección de Estadística y Censo. Segundo Informe Objetivos de Desarrollo del Milenio, septiembre 2005.

Coverage of check-ups for children under 1 year old was 67.7% of the population of that age estimated for that year, with an average of 3.1 check-ups per child (the national standard calls for nine check-ups for children under 1). The highest coverage was in the regions of Kuna Yala (115.0%) and Darién (109.8%) and the lowest was in Panamá Este (44.6%).

The probability of surviving infancy is uneven and depends on the socioeconomic situation (concentration index of 0.21). The lowest income quintile was the focus of 32% of deaths among children under 1 and the highest income quintile, 12%. Panamanian children have, on average, three times the risk of dying before they reach their first birthday if they belong to the 20% of the poorest population than if they belong to the wealthiest quintile. A breakdown of infant mortality into its components shows that the neonatal mortality rate (under 28 days) was 8.4 per 1,000 live births, or 56% of reported deaths among neonates, while post-neonatal deaths (28 days to 11 months) amounted to 6.5 per 1,000 live births and accounted for the remaining 44%. Between 1980 and 2003, neonatal mortality tended to decline, with rates that ranged from 8.1 to 13.3 deaths per 1,000 live births. In that period there was a percentage drop of 32.5%, which means that the risk of death among neonates was 1.5 times greater in 1980 than in 2003. Post-neonatal mortality in the same period ranged from 9.7 to 5.3 deaths per 1,000 live births, with a downward trend (reduction of 25%). The risk of dying in the post-neonatal period was 1.3 times higher in 1980 than in 2003 (35).

As for the Millennium Development Goals (MDGs), current projections indicate that if the trend in infant mortality continues, the goal will be attained in about 2026.

In 2005, the group of children under 5 years accounted for 10.6% of the total population. Coverage of growth and development check-ups nationwide in this age group in 2004 was 56.2%, with the highest coverage in the Kuna Yala (127.1%) and Darién (109.8%) regions and the lowest in Bocas del Toro (36.6%). The average was 2.5 per child (the standard calls for three check-ups between 12 and 23 months, followed by two check-ups a year until age 5).

The rate for diarrhea in children under 5 years has risen steadily, from 16,046.5 per 100,000 population in 1987 to 22,938 per 100,000 in 2004, mainly due to increases in the 1-to-4 age group, where the figure has doubled, from 11,605.6 per 100,000 population, to 20,357 per 100,000 in 2004.

The mortality rate in children under 5 was 19.95 per 1,000 live births. The proportion of deaths in this age group, including children under 1 year of age, accounted for 9.28% of deaths in the country.

Children 5–9 Years Old

Schoolchildren make up 10.3% of the population (325,887), and 48.9% of them are girls. The mortality rate was 3.25 per 100,000 population, and the volume of deaths in this age group accounted for 0.8% of deaths in the country.

Adolescents 10–14 and 15–19 Years Old

In 2005, the population in these age groups numbered 608,299 (18.8% of the total population). The coverage of health check-ups for adolescents between the ages of 10 to 14 and 15 to 19 years was 20.9% and 7.8%, respectively, for the country as a whole. The main causes of death in this group were external causes (accidents, suicides, homicides, and other violence) and malignant tumors, which ranked second. Deaths in this age group represented 2.3% of all deaths in Panama (33).

In the area of sexual and reproductive health, about one out of every three students (36.4%) said that they had had sexual relations. The average declared age for the first sexual relationship was 14 years (males 13 years and females 15 years); 45.7% of students who were sexually active did not use any contraceptive method in their most recent sexual relationship. One out of every four used condoms, and 11.9% reported using birth control pills. Some 4% of girls reported that they had been pregnant at least once, and 69.4% of those girls said they had interrupted the pregnancy. The average age at which the girls became pregnant was 15 (35). According to ENV 2003 (9), 17% of girls between the ages of 15 and 19 reported that they were pregnant at the time of the survey, a situation that appears to be more prevalent among the non-poor (25% were pregnant compared to 12% for the poor). The value of this indicator does not vary significantly by geographic zone. The specific fertility rate among adolescents (girls 15 to 19 years of age) in 2004 was 0.0849 per 1,000 population, which accounts for 7.9% of total births in this age group. In 2004, the mortality rate in the 10-to-19-year group was 9.44 per 100,000 population.

Adults 20–59 Years Old

In 2005, this group contained an estimated 1,667,330 people (51.7% of the total population), with 851,266 being women of fertile age (15 to 49 years of age). In a sample of 31,823 reported pregnancies (36), 83.5% of the women received prenatal check-ups; 61.0% began in the 20th week of pregnancy and 7.7% after 30 weeks, with an average of five check-ups during pregnancy. Pregnancies ended in spontaneous delivery in 75.2% of women and delivery by cesarean section in 21.5%; 8.4% of women in the puerperium were discharged with a contraceptive method. During pregnancy, delivery, and the puerperium, 18.5% of women presented some kind of problem, with the most frequent being premature rupture of membranes (8.7% of all pregnancies), followed by hemorrhaging (4.0%) and gestational hypertension (3.8%).

The mortality rate among the population between 20 and 59 years was 40.76 per 100,000 population in 2004; the deaths reported in this age group accounted for 25.1% of all deaths in the country. The main causes of death were external causes, malignant tumors, HIV, and ischemic heart disease. In the 25-to-34-year and the 35-to-44-year groups, HIV was the second cause of

death and accounted for 51.8% of deaths from external causes and caused 1.4 times more deaths than tumors (33).

The estimated maternal mortality rate in 2003 was 70 per 100,000 live births, with differences in rural and urban rates (Figure 3). Maternal deaths accounted for 0.8% of deaths in women and 5.2% of deaths in women of fertile age. In 2003, the main specific causes of maternal mortality were hemorrhage (26.8%), indirect obstetrical causes (24.4%), gestational hypertension (17.1%), abortion (12.2%), sepsis (9.7%), and other direct obstetrical causes (9.7%). Death occurred during adolescence in 17% of cases, while the age distribution of women who died was similar to the distribution of deaths among the five-year groups between the ages of 15 and 39 years. The analysis of maternal deaths reported in 2001–2005 showed that 29% took place in third-level care establishments, 28% at home, 21% in second-level establishments, and 7% in first-level establishments. The percentage of women who die without receiving timely medical care could be 40%, if the deaths reported by forensic medicine institutions are considered (15%).

Older Adults 60 Years Old and Older

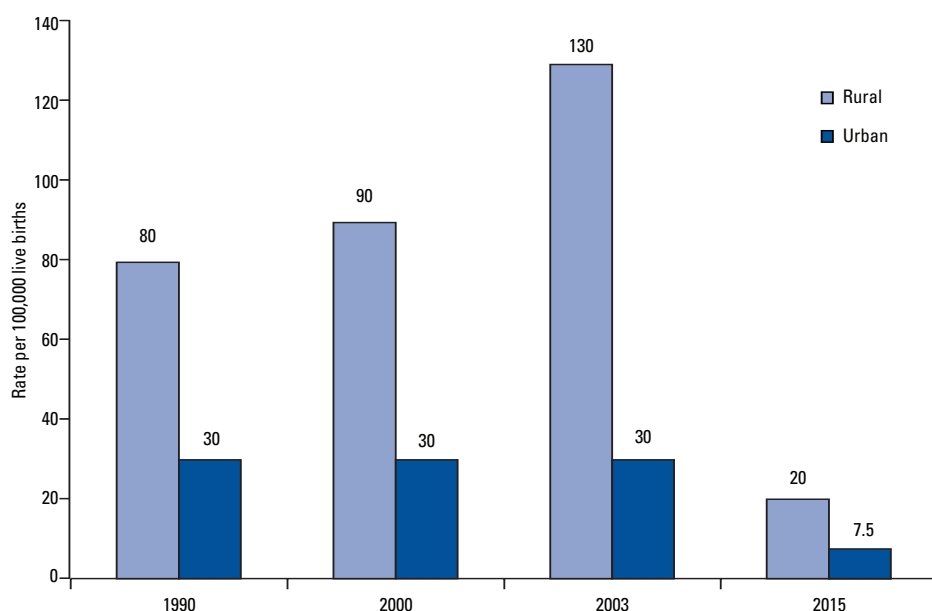
This age group is estimated to represent 8.6% of the total population at present. ENV 2003 found that 53% were women. Sixty-one percent of the adult population lives in urban zones, while 35% lives in rural areas and 4% in indigenous areas. One fourth of older adults are poor. Health insurance coverage extends to 71% of older adults (non-poor 80%, non-extreme poor 39%, and extreme poor 23%). Two thirds of them receive health benefits from the Social Security Fund, and 5% are served by private health insurance systems in addition to the services offered by the Fund (9). Based on population projections for 2050, the group of older adults will grow to 22.3%, which will mean increased demand related to chronic noncommunicable diseases and psychosocial problems (37).

In 2003, the general mortality rate among the population 60 years and older was 259.24 per 10,000 population; the risk of death is higher among males. Malignant tumors, cerebrovascular diseases, ischemic heart disease, diabetes mellitus, and chronic lower respiratory diseases were the main causes of death among the elderly (33).

The Family

The National Population and Housing Census 2000 estimated that the country had a total of 681,928 households, 12.6% of which were single person, 50.7% were nuclear families (parents and children), 30.2% were extended families (including a relative), and 6.4% were compound (one or more nuclear families with other relatives and non-relatives). ENV 2003 determined that the average size of households was four people (5.8 people in poor households and 3.4 people in non-poor ones); the indigenous population has the largest families among the poor (almost

FIGURE 3. Maternal mortality, by rural and urban areas, Panama, 1990, 2000, 2003, and Millennium Development Goal target for 2015.



Source: Panamá. Contraloría General de la República. Dirección de Estadística y Censo. Segundo Informe Objetivos de Desarrollo del Milenio, septiembre 2005.

8 per household). Women headed 27.0% of households; 7.6% of heads of households were young, with a larger percentage of men (11.7%) than women (3.5%) (22).

In 2005, 26.4% of people over the age of 15 were married, 29.5% lived in stable unions, 31.4% were single, and 12.6% were separated, divorced, or widowed. The divorce-to-marriage ratio has remained stable over the last five years (23.8 in 2001, 22.6 in 2005). Average age at marriage was 31 for men and 28 for women. Based on the IDHP 2004 report, young people described their families and family relations as average to highly positive (25.0%), while 20.6% described them as negative, attributed to poor quality family relations (22).

Workers

According to the Social Security Fund (CSS) (1), 45,136 people received benefits in 2004, 67.7% for illness and maternity, and 25.7% for occupational risks. A total of 20,113 (44.6%) benefits were for temporary disability, 9,757 for labor accidents, 1,119 for accidents traveling to and from work, and 312 for occupational diseases. In 2003, of the total number of people receiving benefits under the occupational risks program (12,003), 25.0% were agroindustrial workers, 21.5% worked in the services sector, 20.2% worked in manufacturing, and 11.2% worked in construction. The main causes of accidents are related to the mishandling of materials (46% of cases) and improper use of manual tools (24%) (38).

Persons with Disabilities

The last census (2000) reported 52,197 people with disabilities (1.8% of the country's population), which affected 29,236 males and 22,961 females; 31,258 lived in urban areas and 20,939 in rural ones. Significant underreporting is believed to exist. The Ministry of Education, in coordination with the Ministry of Health, launched a national education inclusiveness program (2005) involving a pilot project in 65 schools around the country intended to create positive attitudes in the community, particularly the school community, for the inclusion of children with disabilities (39).

There are no precise figures on social security coverage for persons with disabilities, but the scant information available indicates that it is low, particularly for rehabilitation services. According to information provided by the National Secretariat for Social Integration of Persons with Disabilities, all rehabilitation services are concentrated in the capital, which greatly limits access to those services for people living in the provinces.

Ethnic Groups

There are seven different indigenous peoples (40) who belong to the following linguist groups: Ngöbé, Buglé, Kuna, Emberá, Wounaan, Naso (Teribe), and Bri-bri, with a population that represented 10% of the national total in 2005 (41); 51% of them live in the different territories covering more than 20% of the country (21).

In 2000, the largest ethnic group, the Ngöbé, made up 59.3% of the country's indigenous people (40), followed by the Kunas (21.6%). The smaller groups include the Teribes, the Bri-Bri, and the Bokotas (which accounted for 1.1%, 0.9%, and 0.4% of the total, respectively) (42). The indigenous and non-indigenous populations have contrasting economic subsistence and market models. The quest for development opportunities has led to a change in how indigenous people take part in the labor field, since from a family economy—in primary agriculture—they have been pushed, in some cases, to sell their labor, generally under the worst possible labor conditions (43). Of every 100 indigenous persons, 98 are poor and 86 of them live in extreme poverty.

In demographic terms, indigenous groups have high population growth rates. In the period between 1990 and 2000, annual growth was 3.8%, higher than the rate for the Panamanian population in 1960–1970 (31). Among indigenous peoples, the average fertility rate was 6.6 children per woman, in contrast with 2.9 for non-indigenous women. Life expectancy shows a difference of almost nine years between non-indigenous and indigenous males (72 years compared to 63.2 years, according to the 2000 census) and of almost 12 years between women (non-indigenous 77.3 years, indigenous 65.4 years). The percentage of young population is high (45.8% are under 14 years of age) (31).

Displaced Persons

The border zone with Colombia, which covers the province of Darién and Comarca Kuna Yala, has been receiving displaced people fleeing the military conflict in Colombia for a number of years. At the end of 2002, the United Nations High Commission for Refugees reported 989 Colombians displaced inside Panama, 91% of whom lived in the province of Darién. The conditions under which basic services, health care, education, housing, water and sanitation, and employment are available in the border region are difficult for people who were born there and are even more so for displaced persons and refugees (44).

HEALTH CONDITIONS AND PROBLEMS

COMMUNICABLE DISEASES

Vector-borne Diseases

Autochthonous transmission of **dengue** has been reported in Panama since 1993. Since then, according to the records of the epidemiological surveillance system, the annual variations in cases can be grouped into three categories: years of endemic transmission (1994, 1996, and 2002), with about 800 cases a year; epidemic years (1995, 1997, 1998, 1999, 2001, and 2005), with an average of 2,500 cases a year; and low-transmission years (1993,

2000, 2003, and 2004), with an average of 350 cases a year. The total number of cases notified since reporting began is 21,830, 6,980 (31.9%) of which were notified in the last four years (2002–2005). The dengue-1 and dengue-2 serotypes have predominated, although in earlier years, the four serotypes circulated. Morbidity from dengue has been from classical dengue in all years, with just 31 cases (0.2%) of hemorrhagic dengue; however, 17 (68%) of the cases of hemorrhagic dengue were notified in the last five years, which indicates that the risk of hemorrhagic dengue is on the rise. There were very few deaths from hemorrhagic dengue and dengue shock syndrome—just five in the entire period—with a cumulative death rate of 16%. The largest dengue epidemic reported since the start of transmission in Panama in 1993 occurred in 2005, when a total of 5,489 cases was reported for a rate of 170 cases per 100,000 population; 99.8% of those cases were classical dengue.

Infestation by the mosquito *Aedes aegypti* now affects all parts of the country. The hardest hit areas in the last two years have been San Miguelito with a Breteau index in 2005 of 7.0, Kuna Yala with 4.7, Panamá Oeste with 4.4, and Panamá Metro with 3.7. The indexes are even more serious given that these regions comprise zones with the greatest hygienic-sanitary complexity.

There are 221,000 people living in zones classified as having moderate risk of **malaria** and 107,000 people live in zones at high risk. Morbidity caused by malaria increased steadily between 2000 and 2005, with 3,668 cases per 100,000 population in 2005. In the same period, transmission intensity increased from an annual parasite index per 1,000 of 0.33 in 2001 to 1.2 in 2005. Also the index for *Plasmodium falciparum* rose from 0.01 in 2001 to 0.25 in 2005. The annual index for blood tests per 1,000 was 4.9 in 2001, 5.3 in 2004, and 5.7 in 2005, with positive blood slide indexes of 0.6%, 3.0%, and 1.8%, respectively. Of the 3,668 cases reported in 2005, Comarca Ngöbe Buglé presented 21.0%, followed by Veraguas with 20.1%, Bocas del Toro with 16.0%, and Darién with 12.0%. Darién and Panamá Este notified 83.0% of the 764 cases caused by *P. falciparum* in the country. The mortality rate from malaria continues to be low, at 0.16 deaths per 100,000 population in 2003. *In vitro* studies performed in 2003 by the Gorgas Memorial Institute for Health Studies (ICGES) showed that strains of *P. falciparum* presented mutations associated with resistance to chloroquine, sulfadoxine, and pyrimethamine. The presence of *P. malariae* has not been detected since 1972.

Ever since it was diagnosed in Panama for the first time in 1931, **Chagas' disease** has maintained its presence in the country, although there have been no reports of major outbreaks of the disease in recent years. Between 1974 and 2006 (epidemiological week no. 20) 522 cases were reported, 67.6% of which were notified between 1974 and 1984. The most important endemic zone for the disease is La Chorrera district, province of Panama. In a serological survey performed in 2003 of a sample of

DOTS Strategy: Progress in Controlling Tuberculosis

In 2005, 1,565 cases of tuberculosis were reported (48.5 per 100,000 population). Males were more frequently affected, with a male-to-female ratio of 1.2:1. The search for cases among individuals with respiratory symptoms has been stepped up, leading to an increase in tuberculosis reporting in recent years, from 8,011 in 2000 to 15,195 in 2005. The Directly Observed Treatment Short-course (DOTS) is the internationally recommended strategy being applied gradually to improve the detection and examination of individuals with respiratory symptoms. The population covered by DOTS grew from 51% in 2000 to 90% in 2004.

school-aged children, seroprevalence of 2.9% was obtained. Screening during 2003 at the blood bank of the regional hospital in that area (Nicolás Solano Hospital) showed a seroprevalence of 0.9% among volunteer donors.

The main vectors were *Rhodnius pallescens*, which continue to be wild, frequently visiting houses but not living there. The main endemic zones lie in the provinces of Panama, Colón, and Darién. *Triatoma dimidiata*, *T. dispar*, and *Panstrongylus geniculatus* are other important vectors in transmission. Indexes for the infestation of housing by *T. dimidiata* range from 16.4% in Gualaca (province of Chiriquí) to 3.2% in La Chorrera (province of Panama).

Studies of natural infection in insects caught in the vicinity of homes in La Chorrera identified the presence of *Trypanosoma cruzi* and *T. rangeli* in 30% to 60% of the specimens. Tests with the pyrethroids deltamethrin and lambda-cyhalothrin demonstrated that the strains of *R. pallescens* in the La Chorrera and Chilibre areas in the province of Panama were susceptible to these insecticides.

In 2003, 1,602 cases of **leishmaniasis** were reported, with an incidence of 51.3 cases per 100,000 population. The most affected provinces were Bocas del Toro (534.5 per 100,000 population), Coclé (143.5), and Darién (91.2), which together had 58% of all cases. In the period 1993–2003, the behavior of this disease fluctuated, with a total of 22,634 cases, for an annual average of 2,058 cases and a monthly average of 172 cases. During 2005, 1,590 cases were reported, 36.6% in children under 5 and 35.5% in people between the ages of 15 and 64 years; 51.2% of the cases were in males.

Vaccine-preventable Diseases

The country has not reported **poliomyelitis** since 1972. In 1974, it reported the last case of jungle **yellow fever**. There have been no cases of **diphtheria** since 1981, and none of **measles** since December 1994. The last case of congenital **rubella** was reported in 1999, and no cases of **meningitis** caused by *Haemophilus influenzae* type b were reported in 2005. Epidemiological surveillance for vaccine-preventable diseases is performed

through negative weekly notification throughout the country's entire network of health services.

In 2005, national vaccination coverage in children under 1 year was: BCG 100%, hepatitis B for newborns 78.5%, polio 94%, DPT and Hib 94.2%, and MMR 99%. National coverage with the pentavalent vaccine (DPT+HB+Hib) averaged 86.5%. Vaccinations against yellow fever have been carried out annually since 1991 in the health regions of Panamá Este, Darién, and Comarca Kuna Yala, with a total population of 160,997 people. In the 1991–2004 period, a total of 226,329 doses were given. In 2006, the government included new vaccines in the immunization program, including those against rotavirus for children under 6 months and against influenza for children 7 to 18 months, adults over 65 years of age, and health care workers.

Intestinal Infectious Diseases

In 2003, 1,073 cases of **food poisoning**, 189,914 of **diarrhea**, 35 of **salmonellosis**, 345 of **infectious hepatitis**, and 5,639 of **amebiasis** were reported. There have been no cases of **cholera** since 1994. In that year, 14 outbreaks of waterborne diseases were investigated, with 630 cases and one death. The etiological agent was identified in 25% of the outbreaks. The Panama City metropolitan region had the highest rate in the country, which was double the national average, followed by Chiriquí, Los Santos, and Panamá Este, with 51, 49.6, and 46.6 cases per 100,000 population, respectively. Since 1995, when the PAHO-proposed guide for surveillance of foodborne diseases was adopted, 147 outbreaks of foodborne diseases have been reported (3,253 cases and eight deaths). In the period 2001–2003, the food poisoning rate ranged from 59.8 to 34.4 cases per 100,000 population (35).

The cases of diarrhea reported in 2003 represented a national incidence of 6,075 cases per 100,000 population. The province with the highest incidence of diarrhea was Bocas del Toro (11,449.4 cases per 100,000 population), followed by Chiriquí (7,916.2 per 100,000 population) and the areas of San Miguelito (7,594 cases per 100,000 population), the metropolitan area (7,438.3 per 100,000 population), and Panamá Este (6,066.8 per 100,000 population).

Chronic Communicable Diseases

Tuberculosis has been on the rise. In 2005, 1,565 cases were reported (48.5 per 100,000 population). The areas at greatest risk are the provinces of Kuna Yala (210 per 100,000 population), Ngöbe Buglé (152.6), Bocas del Toro (107), and Colón (97.7). Males are more frequently affected, with a male-to-female ratio of 1.2:1 (49.9 per 100,000 population for men and 40.8 per 100,000 for women). The disease's pattern differs among the Kuna Yala, Ngöbe Buglé, Bocas del Toro, and San Miguelito regions, where rates are higher among women (in this last region, the risk for women was three times higher).

The Directly Observed Treatment Short-course (DOTS) strategy is being applied gradually to improve the detection and examination of respiratory symptoms, which rose from 8,011 in 2000 to 15,195 in 2005, with a higher rate of detection of new tuberculosis cases, which increased from 1,123 in 2000 (rate of 39.2 per 100,000 population) to 1,565 in 2005 (rate of 48.5 per 100,000). The population covered by DOTS grew from 51% in 2000 to 90% in 2004. In that last year, of the 860 reported cases of bacilliferous tuberculosis, 557 patients were discharged as cured (64.8%) and 116 completed the treatment, that is, in total, a successful outcome of 78.3%. The percentage of patients who abandoned treatment was 10.5%; transfers and those awaiting evaluation, 7.7%; deaths, 2.3%; and those with failed treatment, 1.2%. From the start of the epidemic in 1984 to 2005, HIV/tuberculosis coinfections totaled 1,655 cases. In 2003, 9.6% of tuberculosis cases were associated with AIDS (137/1,427).

Acute Respiratory Infections

It is compulsory to report clinically identified influenza. Annual outbreaks occur associated with the increase in rainfall in May to October. The accumulated incidence in 1995–2004 grew from 6,250 to 9,822 cases per 100,000 population. In 1999, there was an epidemic that affected a national total of 46,262 per 100,000 population.

HIV/AIDS and Other Sexually Transmitted Infections

The number of people infected with HIV is estimated as 18,000 to 22,000 people between the ages of 15 and 49. From 1984 to 2005, 7,111 cases of AIDS were notified, with a national prevalence of 0.9%. Cases have been reported in 88% of the districts (66 out of 75). Since the start of the epidemic, males have been most heavily affected with 75.6% of AIDS cases and the highest seroprevalence rates are found in men who have sex with men (17%). The male-to-female ratio nationwide has declined gradually, from 17:1 at the start of the epidemic to 3:1 in 2006; however the ratio is just 1.6:1 in people between the ages of 15 and 24 years (45). There have been 203 cases of vertical transmission reported, and more than four out of every five cases (81.7%) were reported from 1999–2006. Higher frequencies are notified for the following age groups: 25 to 29 years (13.3%), 30 to 34 (19.2%), 35 to 39 (16.5%), and 40 to 44 (13.2%). Of reported

cases, the mode of transmission was as follows: 67.4% (4,792), sexual transmission; 3.7% (262), vertical transmission (perinatal); 2.0% (139), blood transmission; and 27.0% (1,918), unknown transmission method. The concentration index for inequality in the distribution of new cases of AIDS during 2002, according to data aggregated at the provincial level, was 0.41. Panamanians in the poorest quintile accounted for 6% of the new cases of AIDS, while 47% were found in the highest income quintile. The relative risk between the wealthiest and poorest quintiles was 7.6. No national studies have been conducted to provide useful information on the behavior of the population at risk or the consistent use of condoms as a means of prevention of sexually transmitted infections/HIV. Antiretroviral treatment is administered to 70.5% of people with reported cases of HIV (46).

According to the Department of Epidemiology of the Ministry of Health, in 2005 the rates of sexually transmitted infections were as follows: **vulvovaginitis** (962.4 per 100,000 population), **inflammatory pelvic disease** (315.2), **papillomavirus** (150.6), **gonorrhea** (41.1), **nonspecific urethritis** (23.6), **acquired syphilis** (13.3), **genital herpes** (12.8), **white canker** (1.0), **congenital syphilis** (0.1), and **venereal lymphogranuloma** (0.1).

Zoonoses

The last cases of urban **rabies** were reported in 1973; subsequently two human cases were reported in 1994, caused by bat bites, and in 1995 there was a case in a Colombian child who had been bitten by a wild cat. The most recent notification of wild rabies was in 2002, with two cases of human rabies caused by hematophagus bats.

As for enzootic **Venezuelan equine encephalitis** (VEE), ever since enzootic subtype ID was identified in Panama in 1968, frequent endemic-enzootic outbreaks of the disease have occurred, and the virus has been isolated in vector mosquitoes, host or reservoir rodents, horses, and humans. Reports indicate that the virus was isolated in 39 human cases between 1991 and 2005. The largest outbreak took place in the Darién region in 2001, with 11 pediatric cases diagnosed in the laboratory, one of which was a girl under 5 who died.

Among emerging viral zoonoses, **hantavirus** was reported in Panama in December 1999. Up to 2006 (epidemiological week no. 28), there were 83 cases of hantavirus cardiopulmonary syndrome, with 15 deaths, for a lethality rate of 18.8%. The seroprevalence study conducted in the affected communities revealed seropositivity of 12.9% (40/311), an average age of 31.5 years, and a range of 1 to 79 years, with no differences by sex or age. Two new hantavirus serotypes have been identified, one of which is associated with the rodent *Oligoryzomys fulvescens* (pygmy rice rat), that has infected humans, and the other with the rodent *Zygodontomys brevicauda* (cane rat or grey mouse).

In the fight against this set of diseases, emphasis has been placed on vaccinating dogs against rabies; controlling the sources of hantavirus, VEE, Chagas' disease, and leishmaniasis; and

maintaining surveillance to prevent the introduction of the West Nile virus.

NONCOMMUNICABLE DISEASES

Metabolic and Nutritional Diseases

The prevalence of total **malnutrition** (weight for age) in children under 5 years was 6.8% (non-poor 2.1%, non-extreme poor 4.6%, extreme poor 16.3%), and rose to 21.5% in children aged 5 years in rural indigenous zones. In this age group, 22.1% were at risk of malnutrition (non-poor 16.7%, extreme poor 31.6%), while at the other extreme, **overweight** affected 4.1% (non-poor 6.3%, non-extreme poor 3.5%, extreme poor 1.1%). About 9.2% of children under 5 were at risk of being overweight (non-poor 13.1%, extreme poor 3.8%) (25). The 1997 Standard of Living Survey contained similar figures for total malnutrition (18). The prevalence of moderate/severe chronic malnutrition (height/age) in this same group was 20.6% (non-poor 10.2%, non-extreme poor 19.1%, extreme poor 39.6%), and was 56.6% among children under 5 years in indigenous rural zones. In comparison with the data from 1997, chronic malnutrition increased by six percentage points (18). Acute malnutrition (weight/height) affected 1.3% (non-poor 0.8%, non-extreme poor 1.5%, extreme poor 2.0%). The risk of malnutrition among children under 5 was 9.2% (non-poor 8.9%, extreme poor 9.9%) (25). There was a slight increase in acute malnutrition, which was 1.0% country-wide in 1997 (18).

Among the adolescents evaluated for body mass index, 4.5% had low weight (non-poor 5.1%, poor 3.8%), 6.9% were overweight (non-poor 10.1%, poor 2.9%), and 12.1% were at risk of being overweight (non-poor 13.0%, poor 11.1%) (25). ENV 2003 found that 33.6% of the population was overweight, without distinction by sex, and 18.3% were obese (females 21.8%, males 14.4%). In combination, these conditions affect 56.4% of the urban population, 43.8% of the rural indigenous and non-indigenous population, and 36.8% of the population in indigenous areas. When the prevalence of excess weight and obesity is compared by economic level, these conditions affect 56.8% of the non-poor, 39.7% of the poor, and 35.0% of people living in extreme poverty (25).

With regard to nutrition during pregnancy, in the second and third trimesters, 21.6% of pregnant women presented low weight (non-poor 10.0%, non-extreme poor 17.4%, extreme poor 39.9%), rising to 38.2% of pregnant women in rural indigenous zones; and 39.3% were overweight (non-poor 50.6%, non-extreme poor 40.7%, extreme poor 23.3%) (25). In 2005 (47), 9.3% of newborns had low birthweight, which is less than the 13.1% found in ENV 2003 (non-poor 10.7%, non-extreme poor 12.3%, extreme poor 21.6%). For indigenous newborns the figure was one in four (24.6%) (9). Eighteen percent of babies were fed nothing other than breast milk until the age of 6 months (15% in

urban zones, 22.4% in rural ones), for 13% among the non-poor, 20% among the poor, and 26% among the extreme poor (25).

As for micronutrients, the analysis by socioeconomic level showed that the indigenous rural group and the group living in extreme poverty presented lower levels of apparent consumption of calcium (national average 307 mg, indigenous rural 126 mg), iron (national average 7.3 mg, indigenous rural 5.2 mg), and vitamin A (national average 376 mg, indigenous rural 111 mg) (25). Iron-deficiency **anemia** affected more than one-third of children under 5 and pregnant women and women of fertile age, and so since 1998 the Ministry of Health (MINSA) has been carrying out a preventive iron supplement program for preschool and school-aged children and pregnant women. In evaluations performed in 2005, it was found that the prevalence of iron-deficiency anemia in school-children who had received supplements since grade one was just 1.8%. The National Vitamin A Survey 1999 indicates that 10% of children between 12 and 59 months presented blood retinol levels below 20 μg (24% in indigenous children and 7% in non-indigenous ones). In 2002, Panama was certified as free from iodine-deficiency disorders thanks to universal iodization of salt. In 2004, the National Secretariat for Coordination and Monitoring of the Nutrition Plan (SENAPAN), which reports to the Office of the President, was established to optimize nutritional interventions.

Among metabolic diseases, **diabetes mellitus** has increased. The rates in 2000 and 2005 were 134.5 and 170.1 per 100,000 population, respectively. In 2005, distribution by province indicated that Los Santos, Panamá Oeste, and San Miguelito presented rates of 648.3, 483.5, and 259.6 per 100,000 population, respectively.

Diabetes is the fourth leading cause of death, and rose progressively from 11 per 100,000 population in 1990 to 24.4 per 100,000 in 2004. In the latter year, there was a predominance of cases in women (29 per 100,000 population) compared to men (19.9 per 100,000).

Cardiovascular Diseases

As for **arterial hypertension**, the records point to an increase: from 529.4 per 100,000 population in 2000 the rate climbed to 905.9 per 100,000 in 2005. Diseases of the circulatory system represent the leading cause of death in almost all provinces. Ministry of Health records for **ischemic heart disease** reported a rate of 40.2 per 100,000 population in 2000 and 43.8 per 100,000 in 2004. In the latter year, males were more affected, with 51.0% of cases compared to 36.5% for women. **Cerebrovascular disease** rose from 42.1 per 100,000 population in 2000 to 44.7 per 100,000 in 2004.

Malignant Neoplasms

Medical records presented a predominance of **prostate cancer** in men, with a rate of 25.6 per 100,000 population in 1990 which rose to 66.5 per 100,000 in 2004. In women, cancer of the cervix predominated, but dropped from 81.2 per 100,000 population in

1990 to 47.2 per 100,000 in 2004, while breast cancer rose from 22.6 per 100,000 population in 1990 to 39.4 per 100,000 in 2004.

OTHER HEALTH PROBLEMS OR ISSUES

Disasters

In 2005, floods in the Tocumen area caused more than 20 deaths and numerous injuries. The situation was similar when the Sixaola River flooded. General seismic activity is moderate, but the country can still be affected by earthquakes. In 1991, an earthquake in Bocas del Toro caused several deaths and many injuries. Major seismic movements have been recorded recently in the high part of Chiriquí Province.

Violence and Other External Causes

Surveys indicate that 24.6% of Panamanians consider insecurity to be the worst problem in their municipality; 8% said they had been victims of a crime (58.8% unarmed robbery with no physical threats, 18.5% robbery with aggression, 11.0% robbery in the home, 6.2% physical aggression without robbery, and 4.0% rape), but 48.6% of them did not report the crime (8). Official figures (48) show that during 2003, 63,988 people (26.5%) were arrested for crimes against life and bodily security; against property, 21.5%; and against modesty and sexual freedom, 2.6%. The highest crime rate is among the following age groups: under 18 (13.0%), from 18 to 20 (10.6%), and from 20 to 24 (22.5%). The national detention rate was 20.3 per 1,000 population; for Panama City it was 26.9, and for the city of Colón it was 75.5.

In 2003, 36,176 traffic accidents were reported (97.1 accidents per 1,000 registered vehicles), which injured 11,161 people (2.5% seriously) and caused 421 deaths; 56.7% of the injured and 53.9% of the deaths were in the 15-to-39-year age group. The national rate was 13 deaths per 100,000 population. The province of Panama with 76.5%, Colón with 7.2%, and Chiriquí with 6.8% reported the largest number of accidents. In 2003, traffic accidents occurred about every 15 minutes and caused one death every 20 hours; 62% of those deaths occurred on weekends (Friday to Sunday), and 48.5% were on Saturday and Sunday; 39.4% of the victims were pedestrians, 30.2% drivers, 29.9% passengers, and 0.5% horseback riders (49).

In 2004 external causes (accidents, suicides, homicides, and other types of violence) ranked as the third cause of death, with 1,035 victims (33), and affected men (55.3 per 100,000 population) more than women (11.8 per 100,000 population) (50). In this context, domestic violence is growing in epidemiological, economic, and social importance. Statistics from a Ministry of Health report show that the number of victims of domestic violence or other forms of abuse treated in the public health care system remained stable between 2002 and 2004: 2,462 cases in 2002, 2,371 in 2003, and 2,476 in 2004. Distribution by sex in 2004 was: women, 78.9%; men, 20.5%; and unspecified, 0.6% (50).

Mental Health

Ministry of Health statistics on mental health are limited. In 2004, the main reasons for outpatient consultations for mental health services were stress-related neurotic and somatoform disorders (33%), followed by affective disorders (23%). In Panama's 103 outpatient mental health establishments, 93,239 consultations took place with an estimated five contacts per user. In the National Mental Health Institute, the main diagnoses on discharge were schizophrenia (33%) and affective disorders (26%) (51). Psychiatric beds are distributed as follows: 41% in the National Mental Health Institute (psychiatric hospital) and 59% in psychiatric services in general hospitals. The country has made a major effort to reform and modernize the psychiatric services. The National Psychiatric Hospital reduced the number of beds considerably (63% in the last five years), to become the National Mental Health Institute. Psychiatric services have been developed in general hospitals and mental health teams have been decentralized in almost all the provinces. Estimates indicate that about 3% of the general health care budget is allocated to mental health, and 44% is used by the National Mental Health Institute (51).

Addictions

Different studies indicate that alcohol is the drug that is most widely used by the general population and that men are more apt to consume illegal drugs, while women are more likely to take minor tranquilizers. As for the consumption of hazardous substances, the Global Youth Tobacco Survey (52) showed that one out of every three students between the ages of 13 and 15 (31.6%) had smoked at some point in their lives. The prevalence of tobacco use in the last 30 days was 18.3% (cigarettes, 12.5%); 13.2% said they had never smoked, but would probably start next year. In 2003, the Environmental Tobacco Smoke Surveillance Study (53) revealed that gas-phase nicotine levels in Panama City can be considered low or moderate; however, exposure to tobacco smoke was detected in places where smoking is prohibited, such as airports and hospitals, and the level of exposure in bars and restaurants was classified as high or very high.

RESPONSE OF THE HEALTH SECTOR

Health Policies and Plans

The health sector has two main players—the Ministry of Health and the Social Security Fund (CSS)—which formulate, implement, monitor, and evaluate their own plans and projects, but do not have a unified planning system; there is, therefore, no sector plan. During the last three governments, ministerial planning documents that contain government guidelines were prepared and made into ministerial policies. The current government prepared the document “Health Policies and Strategies, 2005–2009,” which reflects the main areas where MINSA pro-

poses to work: strengthening the National Health Authority; the primary health care model; environmental sustainability and protection; increase in social participation; modernization of administrative management; the development and strengthening of human resources in health; and promotion of applied research. The document directly mentions gender equity and human rights, but they are included in a general, not explicit, fashion.

The right of health care access in Panama is enshrined in Articles 109 and 110 of the Constitution, which require the state to guarantee all Panamanians comprehensive, preventive, curative, and rehabilitative services, regardless of their social status or political, ethnic, or religious group. The framework health act (the health code) has been in effect, unamended, for 45 years and is considered obsolete. With regard to the Social Security Code, despite the fact that social security reform (2006) was proposed and discussed, it only touched on social insurance, without resolving the separation of functions of the National Health Authority or unifying the system.

In relation to essential public health functions, function 7 (on evaluation and promotion of equitable access to necessary health services) and function 5 (on policy development and institutional capacity for planning and management of public health) received the best evaluations (with 0.87 and 0.81 points, respectively). Conversely, function 11 (on reducing the impact of emergencies and disasters on health) and function 9 (on ensuring the quality of individual and public health services) received the lowest evaluations (0.32 and 0.29 points, respectively). The score obtained by function 9 reflects the gradual erosion of the steering role that typically comes about when administrative fragmentation results in segmented plans and programs that, in turn, lead to a decrease in the quality of services offered to poorer groups. The remaining functions scored in the higher middle range, with the exception of function 1 (health situation monitoring and analysis), which received almost 0.80 points, placing it in the upper range.

Panama was the second country in the Region to sign and ratify the WHO Framework Convention on Tobacco Control, which has already begun to be implemented and which represents important progress in the fight against smoking. Specific rules have now been developed that restrict the sale and public use of tobacco and its byproducts, which are contained in Law 17 of 2005. Executive Decree No. 17 of 11 March 2005 was issued subsequently, regulating the law and establishing measures in effect for “smoking prevention and the reduction of tobacco use and exposure to tobacco smoke.”

The process of health sector reform goes back to the 1990s and its main guidelines were unification of the system, comprehensiveness of service, equity, universal access, and better efficiency, but sustained changes were not achieved. The process was limited to one health region (San Miguel Arcángel) in the Panama City metropolitan area.

Health Strategies and Programs

At the end of 2005, Law 51 was passed, thus reforming the social security statute. An overview of the changes introduced by this new law makes it clear that the main focus was on disability, old age, and life insurance, improving the medium-term sustainability of the program through actions to raise the contribution ceiling and the pensionable age. The ceiling for general health and maternity insurance did not increase, which leaves the problem of the program’s financial deficit unaddressed.

As part of the current government’s strategy to combat poverty, a social protection system has been implemented that basically seeks to create the capacity to enable 25,000 families to rise out of absolute poverty through conditional cash transfers. The system has not been evaluated yet.

Organization of the Health System

The health system is fragmented and divided into two sub-sectors: the public (MINSA and CSS) and the private. The public sector institutions are highly centralized and vertically structured and do not involve community participation in the co-management of services; the care model is predominantly curative; and risk and harm prevention programs are targeted to the more prevalent health problems with the greatest negative effects on the population. MINSA has begun a process of deconcentrating some administrative functions and partial management of expenditures, although the processes of budgetary planning, allocation, and management continue to be concentrated at the central level.

As for the degree of segmentation of the population, the CSS had nominal coverage of 2,003,108 beneficiaries in 2004, 33.8% of whom were active contributors, 7.6% pensioners, and 58.6% dependents, while 35.0% were the responsibility of MINSA. Private sector participation is indeterminate but nominally low, given that there are no major private insurers. Cross-subsidies exist, however, since the public system is open and has no mechanisms for identifying selective demand for social security beneficiaries, and MINSA is the only supplier available in some parts of the country.

The CSS is the institution responsible for insuring all public and private sector workers under general health and maternity insurance, occupational accidents and diseases insurance (ATEP), and disability, old age, and death insurance. The types of membership are established in a CSS law: compulsory membership applies to workers in the formal public and private sectors and independent workers who provide services to the government or formally to private enterprise; voluntary membership applies to people who are not subject to the compulsory regime and underage workers who receive the same benefits as workers of legal age. Similarly, this law defines groups of beneficiaries: beneficiaries are spouses or permanent companions and dependents up to age 25 (provided there is no voluntary emancipation, and they

are enrolled in the country's formal education system); lifetime beneficiaries are disabled dependents or parents over 60 years of age. The ATEP is applicable to CSS members, which means that only about 30% of the population is covered (formal and affiliated sectors). At present, however, coverage is limited only to care in the case of illness or accident, and financial compensation is limited to temporary or permanent disabilities and does not cover systematic occupational health activities. The CSS has no plan setting out the services covered, waiting periods, or differences in plans between contributors and beneficiaries, which means that the costs of care are growing and will lead to a crisis in general health and maternity insurance, which is forecast to occur in 2011. In the private sector, the coverage plans are varied and subject to the individual's ability to pay, since they operate on the basis of reimbursement.

The regulatory function in public health is the responsibility of the Ministry of Health's Directorate General of Public Health (DIGESA), which is also the focus of a large part of the ministry's functions, such as acting as the National Health Authority. Its structure is divided into the health surveillance and regulatory areas, with the National Directorate of Pharmacy and Drugs reporting to it. Functions overlap in various areas; for example, environmental surveillance and waste management are also the responsibility of the National Environmental Authority (ANAM).

Public Health Services

The Ministry of Health and the Social Security Fund implement programs for vulnerable groups through classical primary care activities centered on age groups, specialties, or pathological processes, such as programs for mental health, sexual and reproductive health, environmental protection, children, adolescents, adults, persons with disabilities, and maternal health, among others. Although all of these programs form part of the health offerings provided by the Ministry and are free of charge to the entire population through different delivery mechanisms, they are not well coordinated and do not constitute a comprehensive system of primary health care.

Services are driven by demand. Another method used for rural and indigenous populations that live in remote areas, with little or no access to regular health services, is traveling care provided by contracted agencies, health fairs organized by the health regions (FOGI), and health caravans organized directly by the Ministry, which provide second level care, including outpatient surgeries. In all cases, the services are limited to those included in the Ministry of Health's basic plan, known as the Comprehensive Health Services Package (PAISS), and do not receive systematic support from the CSS. ENV 2003 indicated that the 17.5% of people with health problems who did not seek care gave financial reasons (11.6% did not have the money to pay for transportation to the place where the care was being offered, and 5.9% said that the health services were expensive). Economic barriers had more impact in rural (26.1%)

and indigenous zones (40.0%), and obviously among the poorer population (28.6% of the poor and 36.1% of the extreme poor), which underlines the need to extend coverage (9).

The ministries of Health and of Social Development and other government agencies and civil society organizations are making efforts to address the problems of accidents, suicides, and violence, using different tools: the Equality Plan for Panamanian Women 2000–2006, Law No. 4 on equal opportunities for women, the National Plan to Combat Domestic Violence and Promote Civic Coexistence (which includes the problem of street gangs), Law No. 16 on the commercial exploitation of sex and human trafficking, and the Protocol to the Convention on the Elimination of All Forms of Discrimination against Women.

An estimated 90.2% of the population has access to potable water (57.2% in indigenous communities, 85.7% in rural areas, and 96.3% in urban ones). Nationwide, 33% of the population obtains water from pipes that are not on their properties. In relation to the quality of drinking water service, 72.2% of households with residential connections receive water uninterrupted. There are differences between poor and non-poor: in urban areas, just 56.6% of poor households and 45.4% of households in extreme poverty receive water 24 hours a day (9). In general, total annual water consumption is 408.46 hm³/year and average per capita consumption is 444 liters a day (26).

As for access to adequate sanitation, just 54.3% of the population has sewer connections or septic tanks. In urban areas, 75.4% has access to this service (82.1% for the non-poor and 48.3% for the poor); in rural zones, 67% use pit toilets or latrines. Among the indigenous population, 61% has no sewage disposal system of any kind (9).

The waste generated in the country amounts to 1,463.53 tons a day (26). The percentage of urban housing whose solid waste is collected by the municipality is 86.8%, but 28.5% of poor urban households burn or dump their trash. In rural zones, one-fifth of households have trash collection, 56.0% of households burn their trash, 9.2% bury it, and the rest dump it wherever they can (9). The districts of Panama, Colón, and San Miguelito generate the largest amounts of trash, most of which is deposited in the sanitary landfill at Cerro Patacón. Nationally there is a shortage of sanitary landfills, which means that most waste is disposed of in dumps with little or no sanitary or environmental control. These dumps are often the source of lixiviates that contaminate surface and groundwater and attract the poor who pick through the garbage for usable items (54).

The National Civil Protection System (SINAPROC) is the government agency responsible for emergency preparedness and disaster prevention and for mitigating the consequences and providing a rapid response to victims.

As for the preparations for an influenza pandemic, since 1977, virological surveillance has detected activity by influenza viruses A (H3N2), A (H1N1), and B. This surveillance has detected new strains, some of which have been incorporated into the vaccine

antigens. A national intersectoral committee has been established that has prepared a comprehensive plan to deal with an influenza pandemic.

Individual Care Services

For individual care services, MINSA has 14 health regions and, correspondingly, the CSS has the same number of regional directorates. Health care is delivered through the MINSA and CSS service networks, which are composed of provider establishments organized into different levels of complexity and treatment capacity. Panama has three levels of hierarchy and three levels of care. The hierarchical levels are the central and regulatory level (MINSA), the regional and coordination level (health regions), and the local level, which is purely operational. From the standpoint of complexity, there is the primary care level, which includes seven different types of centers classified in accordance with their treatment capability, ranging from community centers that have a traveling health promoter and community volunteers, to the so-called basic polyclinics or health centers with beds. The secondary level of care consists of six institutional subtypes, ranging from specialized polyclinics that have basic specialties, to the main regional hospitals. Last, a tertiary level includes national specialized hospitals (supraregional) and national centers with medical subspecialties. To coordinate the continuity of care by level, MINSA and the CSS created a master referral and counterreferral system (SURCO) in 2003 that is still not fully operative, which means there are no defined entry levels, and levels are duplicated inside the same institution. In 2003, MINSA and the CSS had 846 total establishments, with the following distribution: 39 hospitals, 36 polyclinics, one polycenter, 151 health centers without beds, 31 health centers with beds, 10 local primary care units (ULAPS), nine health promotion centers (CPS), 116 health subcenters, 451 health posts, and two sociosanitary facilities classified as hospitals. However, despite the large number of institutions, there is irregular distribution and integration of diagnostic and/or emergency support, with a higher concentration of resources in the main urban centers to the detriment of the rural and indigenous regions. The third level is overused owing to the shortage of MINSA second tier units.

The country has no unified network of emergency services; however, there are rules that make it compulsory for all institutions, including private ones, to provide first aid at no cost. Panama City has a unified system of ambulances administered by the CSS, which are free of charge for the general public. In the rest of the country, emergencies are the responsibility of different operating units depending on treatment capabilities, but there are no unified operational protocols for emergency management and referral.

With regard to blood supplies and diagnostic aids, there is no network but rather a scattered succession of collection and transfusion centers and a medium-complexity blood bank. The main sources of blood for transfusions in the country are not consid-

ered secure, since they continue to be replacement donors and paid donors. Voluntary donations do not amount to 3% of the total collected and do not involve more than 0.5% of the population. The situation with clinical laboratories is similar. Each hospital has one laboratory which generally lumps services together indiscriminately into a single area. The country does not have a legally established reference laboratory, although the ICGES has been acting in that capacity. A quality guarantee program began in 2006, which includes private and public sector institutions, represented in the National College of Laboratory Technicians (CONALAC).

The National Comprehensive Health Office for the Disabled has been operating since October 2004, and the National Physical Medicine and Rehabilitation Institute has been offering physiotherapy, occupational and language therapy, and medical and dental services since 1985. The CSS offers rehabilitation programs for children and adults in different hospitals and in some polyclinics. There are no precise data on social security coverage for people with disabilities, but it is estimated to be low, particularly in rehabilitation. According to SENADIS, all rehabilitation services are concentrated in the country's capital, which means there is no comprehensive rehabilitation network. The network of orthotics and prosthetics workshops and other technical aids currently consists of five small workshops, three of them private, and one that works exclusively for the CSS. They are concentrated in the capital, are not coordinated, and provide low coverage of technical aid requirements in general.

With regard to care for the indigenous population, the number of health care facilities and their distribution in the indigenous territories in 2000 pointed clearly to the lack of specialized personnel to serve this group. Most of the facilities were health posts that were managed by the community and visited by a nurse at intervals, which indicates the insecure conditions affecting these people. Comarca Kuna Yala has hospitals, health centers, and subcenters but there are not enough staff, as reflected in the percentage of medical coverage, which is the worst of all the provinces (2,701 people per physician) (40). In 2002, the population in Comarca Kuna Yala presented the following coverage for maternal and child services: prenatal check-ups, 121.8%; puerperal check-ups, 66.9%; tetanus vaccinations in women of fertile age, 50.8%; and growth and development checks in children under 5 years, 73.3%. In Comarca Ngöbe Buglé, coverage was: prenatal check-ups, 68.9%; puerperal check-ups, 74.7%; tetanus vaccinations in women of fertile age, 25.0%; and growth and development checks in children under 5 years, 62.5%. No data are available for Comarca Emberá (55).

Health Promotion

To boost community participation in health, health committees and rural water supply system management boards have been established by law. Other forms of participation have also

been promoted, such as involvement by community leaders and groups and by volunteer groups such as health promoters and the so-called health guardians. However, community participation has not developed as a mechanism for social control or participation in decision-making, and continues to have a welfarist connotation. The national government has recently made commitments to allow community groups and interested sectors to participate in health programs for adolescents, older adults, diabetics, persons with hypertension, and persons with HIV, among others. During the period under study, MINSA has been preparing a National Health Promotion Plan that also envisages cooperation by the local level.

Human Resources

To operate the network of public services on the national level, the health system has 4,321 physicians (13.63 physicians per 10,000 population), 3,665 nurses (11.55 nurses per 10,000 population), and 923 dentists (2.91 professionals per 10,000 population) however, the number of resources per 10,000 population is up to 10 times lower in the indigenous territories than in the rest of the country (Comarca Ngöbe Buglé 0.62 physicians per 10,000 population, and province of Panama, 17.96 physicians per 10,000 population). This situation continues despite financial incentives (bonus of 40% of the base salary) to get professionals to move to these areas. Almost two-thirds (61.8%) of children who had problems with diarrhea and respiratory infections were treated by competent personnel (in 57.3% of the cases by a physician, 2.7% by a nurse or nursing assistant, and 1.8% by a health promoter). The figure ranges from 69.8% in urban areas (69.4% by a physician and 0.4% by a nurse) to 35% in indigenous areas (14.5% by a physician, 12.5% by a nurse, and 7.7% by a health promoter). Two-thirds (65.3%) of indigenous children with respiratory problems, diarrhea, or both were not taken to a health facility and were treated by family members (58%) or by a traditional indigenous doctor or healer (4.7%). From the standpoint of social service, just over half of poor children (52%) who suffered from diarrhea or respiratory infections were treated by appropriate personnel in contrast to 75% of non-poor children. Most children who received care from competent personnel were treated in public health institutions (82%) and more than half of them (53%) came from poor families. On the other hand, 87% of the non-poor were treated in private institutions (9). As for care during delivery, 95.4% were assisted by trained personnel (88.9% of the time by a physician), and 95.1% were assisted in health care institutions. There are significant differences in assistance during delivery between urban and indigenous zones: in Comarca Ngöbe Buglé, for example, out of a total of 904 reported births, 10.2% were attended by qualified personnel, and of them just 38.0% were attended by a physician.

At the end of 2005, certification of technical and professional health workers began with the regulations to Law 43 of 2004,

which created councils and interagency certification and recertification procedures for health professionals. These processes were interrupted in mid-2006 when MINSA repealed the regulations through Executive Decree 329, so that at present the country has no mechanisms for certification or recertification of its technical and/or professional staff. An administrative career path is being implemented, but does not yet cover 100% of sector employees and lacks transparent mechanisms for performance evaluation.

Health Supplies

As for the regulation, sale, and distribution of complementary supplies such as medications and medical-surgical equipment and materials, Law 1 of 2003 and Law 54 of 2005, which regulate supplies and medications, respectively, have been promulgated and are being implemented. Through this legislation, the country has a list of essential medications and mechanisms for updating it; protocols for imports and a single registration process for medications and for medical-surgical equipment; clear rules on bioequivalency and the interchangeability of generic medicines; and an early system of post-marketing technosurveillance and pharmacosurveillance.

Research and Technological Development in Health

The area of health research is the responsibility of the Gorgas Memorial Institute for Health Studies (IGGES). The overlapping of functions leads to scattering of resources and limited coordination among the entities that work in this area. In 2000, the Ministry of Health prepared guidelines and policies in the fields of ethics and bioethics, and in 2005 regulations were introduced on conducting research on human subjects.

Health Sector Expenditures and Financing

Although there are no systematic records of expenditures in the health sector and only general estimates are available, there is a consensus that the Panamanian government spends close to US\$ 363 per person a year on health-related services. All the resources in the public system are used to subsidize the supply of health services through the public network. In the public system, close to 70% of funds are used to pay personnel and close to 2% for maintenance and investments in infrastructure, which means that less than 30% is used to purchase and provide medications and other supplies. According to data provided by the National Directorate of Welfare Services, the distribution of spending in the CSS is similar. There are no official figures on spending on research, but it is estimated to account for 0.5% of the total.

The funds come from the Ministry of Economic Affairs and Finance, from employees and employers in the case of the CSS, from out-of-pocket spending, and to a lesser extent, from inter-

national cooperation. With regard to the origin and allocation of funds, Panama spent over US\$ 1.1 billion, or 8.4% of its GDP, which is one of the highest figures in the region. It is estimated that US\$ 360 million (31%) came from direct contributions by users, either in the form of out-of-pocket payments for care or for medications, prostheses, etc. or as payments to private health insurers. The remainder (close to US\$ 794 million) was financed to similar extents by the Social Security System (US\$ 363 million) and the Ministry of Health (US\$ 431 million). Panama does not receive more than 1% in nonreimbursable cooperation. The Office of the Comptroller General is responsible for scrutinizing the use of resources, which is done prior to their execution.

ENV 2003 showed that on average, national household spending on health for children under 5 in the month before the survey was US\$ 9.50 (US\$ 11.60 in urban areas, US\$ 6.90 in rural ones); health spending by level of poverty indicates that the non-poor spent US\$ 14.10, while the poor spent US\$ 6.80 (extreme poor US\$ 6.50).

More than three-quarters of the money spent was used to buy medications and to defray the cost of doctors' visits and laboratory tests (53.9%, 23.0%, and 11.0%, respectively). The cost levels maintain a fairly homogenous structure in the different geographic areas, with the exception of the indigenous area, where a larger proportion of spending went to pay for doctors' visits (38%), medications (32%), and laboratory tests (25%). A cost analysis by poverty level shows that people who live in extreme poverty spend more on health services: 44.0% (25.1% for doctors' visits, 17.5% for laboratory tests, and 1.4% for consultations with healers), while the non-poor spent 30.5% (24.1% for doctors' visits, 6% for laboratory tests, and 0.4% for consultations with healers). Medications account for 41.2% of spending by the non-poor and 59.6% by the poor (9).

The supraregional hospitals and specialized national institutes are administered as foundations (*patronatos*) chaired by the Minister of Health or his delegate, with autonomy to legislate and control the entity, and whose legal representative is a manager appointed by the minister of health and paid by the public treasury to run the institution.

Another control mechanism recently incorporated by MINSA is the so-called management agreements that contain commitments (prior to receiving the budget) made by the 14 health regions and the four national hospitals to attain specific goals. This accountability tool is in its second year and facing its first evaluation; it is therefore too early to discuss the results.

Technical Cooperation and External Financing

Arranging and negotiating international cooperation is the responsibility of the Ministry of Economic Affairs and Finance, in close cooperation with the Ministry of External Relations and the International Cooperation Coordination Office of the Office of

the President. Also, each ministry has a liaison office for international cooperation. Significant funding comes from reimbursable loans from bilateral and multilateral banks, such as those made for the channeling and treatment of liquid waste in neighborhoods that still dump that sewage into Panama Bay (US\$ 50 million) and the Multiphase Program for the Institutional Transformation of the Health Sector (US\$ 50 million), that the Ministry of Health participates in. The latter program has three subcomponents: to strengthen MINSA's role as lead agency (US\$ 5.8 million); to extend coverage to areas that are not served, by contracting external organizations and establishing a comprehensive health services plan, PAISS (US\$ 28 million); and to transform health services to boost their productivity (US\$ 10 million).

The United Nations system agencies have a strong presence in response to the incentive plans established by the Government. Currently, the Pan American Health Organization/World Health Organization, United Nations Development Program, United Nations Children's Fund, United Nations Educational, Scientific and Cultural Organization, United Nations High Commission for Refugees, the World Food Program, the United Nations Joint Program on HIV/AIDS, and the United Nations Organization for Food and Agriculture have offices and accredited representatives in the country, who participate actively in implementing the Government's plan, particularly in activities related to the Millennium Development Goals, the exercise of individual freedoms, and access to opportunities.

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