

# COSTA RICA



Costa Rica has a land area of 51,100 km<sup>2</sup>. The country is divided into seven administrative provinces and 81 cantons. The estimated population in 2004 was 4,248,508 inhabitants. Of this number, 49.7% lived in urban areas and 50.8% were male.

## GENERAL CONTEXT AND HEALTH DETERMINANTS

### Social, Political, and Economic Determinants

The country's macroeconomic performance over the period 2000–2005 was moderately satisfactory. Using national production as a point of reference, measured in terms of gross domestic product (GDP), the economy grew by 6.5% in 2003, but slowed to 4.1% in 2004 and 2005, which was below the 4.6% growth rate achieved over the previous decade. External demand for the country's agricultural and manufactured goods and services, rising sales in the electronics and high-technology sectors, and the growing national tourism market have played a significant role in the country's economic growth.

From a fiscal standpoint, the country has taken steps to curb tax evasion in its efforts to improve public finances and invest in social development policies. However, the central government's final consumption expenditures have stalled due to the country's austere fiscal policy. As a result, social spending has been lower, accounting for between 15.0% and 15.9% of GDP during the period 2000–2005. Inflation, as measured by changes in the Consumer Price Index (CPI), has remained near or above 10% during recent years, increasing from 10.1% in 2001 to 14.1% in 2005, which is also the highest rate observed within the last ten years.

Costa Rica has a democratic tradition and the country holds presidential elections every four years. In recent years, the country's lack of responsible political leadership, weak institutional systems of public expenditure management, and declining quality of governance have fueled citizen discontent with the country's political leadership. This fact has been evidenced in widespread voter abstention, which was 34.8% during the last elections in February 2006. The National Liberation Party (PLN), which will govern the country during the period 2006–2010, did not win a majority in the National Assembly. Consequently, negotiations, alliance-building, and concerted political action with the other parties will be necessary if treaties, legislation, and other legal instruments are to be approved. It was precisely the outgoing legislature's inability to compromise that slowed down the approval of a number of laws, among them a draft bill for a new general health law, which, although endorsed by the Legislative Assembly's Social Affairs Committee, has yet to be approved by the full Assembly. The incoming administration, which took of-

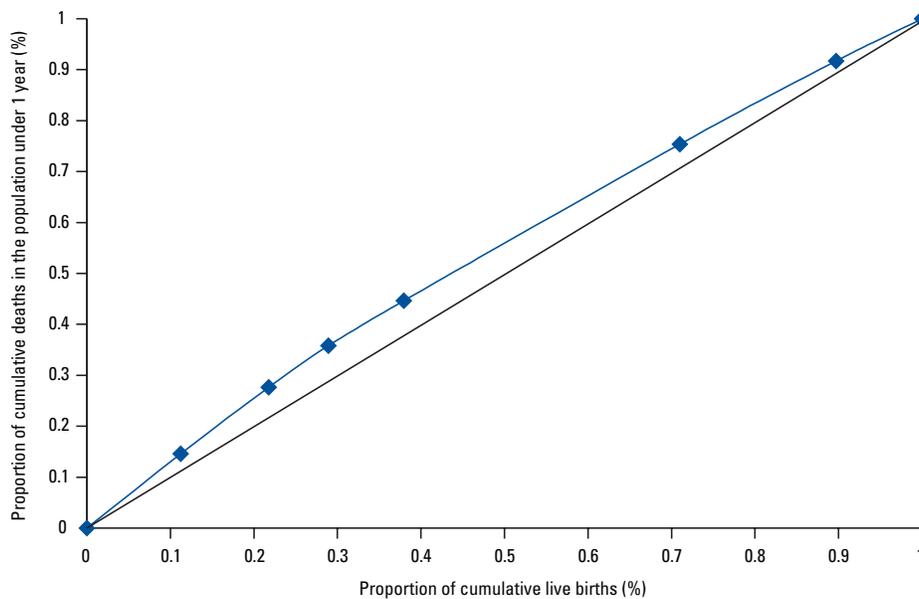
fice in May 2006, is seeking to create new sources of jobs and reduce poverty levels as means to reactivate the economy, and is pursuing two courses of immediate action: promoting the Free Trade Agreement in the Legislative Assembly and fiscal reform.

Costa Rica's ranking in the United Nations Development Program Human Development Index slipped from 41st in 2001 to 47th in 2005, effectively downgrading the country from the high human development to medium human development category. This measure of socioeconomic development is based on a series of indicators, especially the poverty level, which has been approximately 20% over the last decade. In 2000, the urban poverty rate was 17.1% as compared to 25.4% in rural areas.

With respect to income distribution in Costa Rica, since 2000 the poorest income decile has witnessed a greater percentage improvement in income than the highest, although in absolute terms, the purchasing power of the country's most poor continues to be negligible. Moreover, the income gap between the poorest and wealthiest deciles, which was a difference of 36.6% in 2001, decreased by seven percentage points to 29.6 in 2004. Consequently, the inequity gap in the distribution of income continues to be quite wide. Open employment increased from 5.2% in 2000 to 6.6% in 2005 (5.0% among men and 9.6% among women).

With a view to fulfilling the Millennium Development Goals (MDGs), ambitious targets have been set for reducing poverty, child mortality, and maternal mortality. In the case of the poverty rate, which was 21.7% in 2004, the established goal is to reduce it to half its 1990 level of 18% or by 9%. However, current trends suggest that a 9.0% reduction is unlikely to be achieved by 2015. In terms of the infant mortality rate, which was 9.2 per 1,000 births in 2004, the goal of a two-thirds reduction of the country's 1990 level (14.4 per 1,000 live births) or 4.8 per 1,000 live births would be impossible to reach by 2015. Infant mortality in 34 of the country's cantons surpasses the national rate, two exceed 20 per 1,000 live births, and 16 have rates equal to or greater than 15 per 1,000 live births. In 2004, national measles vaccination coverage of children under 1 year was 87.4%, while only four of the country's seven provinces had coverage levels above 95%.

Using a Lorenz curve to compare the distribution of infant mortality in 2005 with the period 1995–1999, a more pronounced curve is observed due primarily to a larger gap between the national rate and those of the Huetar Atlántica, Puntarenas, and Chorotega regions (Figure 1).

**FIGURE 1. Distribution of infant mortality, by province, Costa Rica, 2005.**

**Source:** Pan American Health Organization. Basic indicators 2005.

In 2004 the maternal mortality rate was 3.0 per 10,000 live births. Costa Rica has committed to the Millennium Development Goal of reducing maternal mortality by three-quarters between 1990 and 2015. The maternal mortality rate between 1990 and 2004 and the trend for 2015 can be seen in Figure 2.

With respect to malaria, the country's annual parasitic index (API) was 0.3 per 1,000 population in 2004, and 32.8% of the population was at risk for infection. Consequently, reducing malaria by 2015 is completely feasible. Only the province of Limón has an API above the national level (1.88 per 1,000 population). With respect to tuberculosis, whose incidence rate was 16.7 per 100,000 population in 2004, its reduction is also fully feasible by 2015. However, 25 cantons had incidence rates higher than the national average, 10 of which had rates as much as twice or even three times the national average.

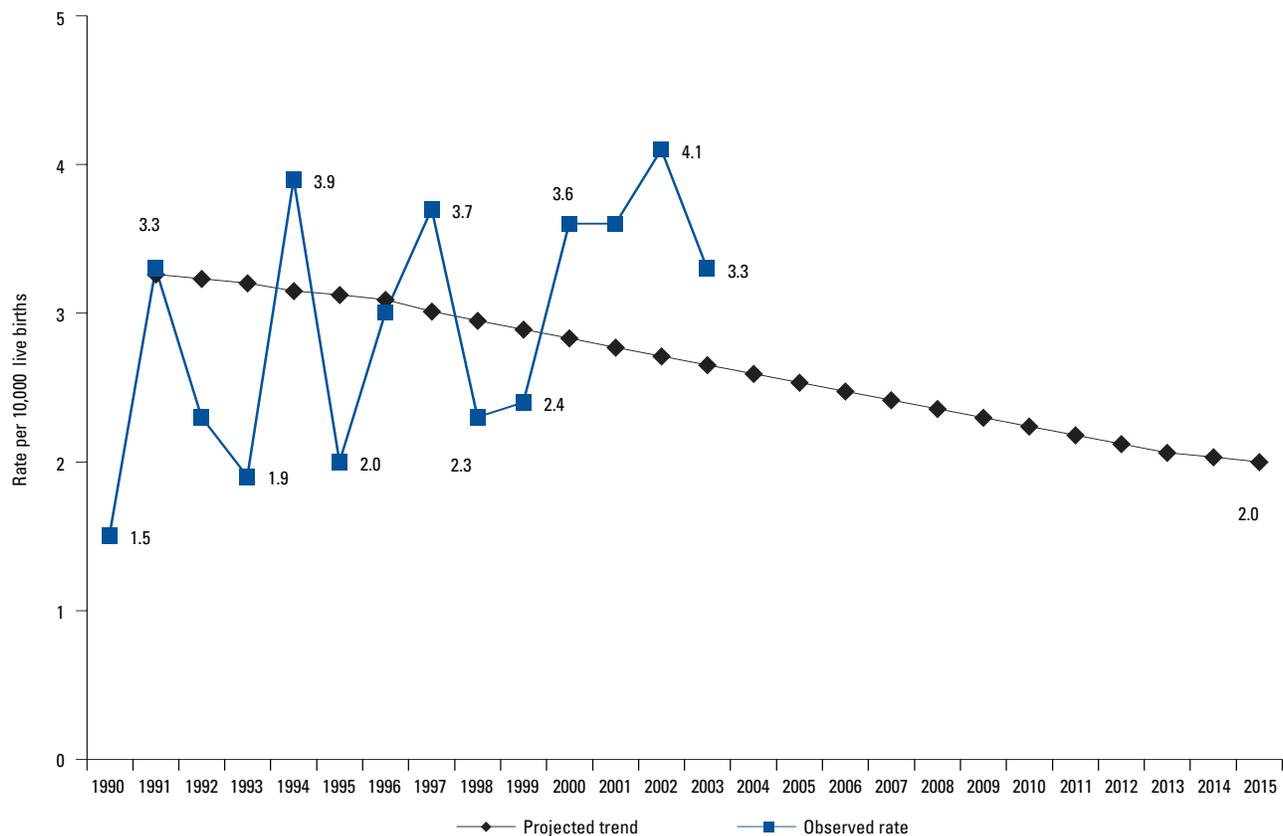
Since the 1990s, there have been significant advances in access to education, including expanded participation in preschool education, which increased 28.3% between 1990 and 2004. The primary school net enrollment rate has remained stable at around 99.0% in recent years, dipping slightly to 98.5% in 2004. The increase in secondary education coverage has been less substantial: from 55.3% in 2000 to 63.8% in 2004. Considerable progress has been made in educational coverage. The current challenges in this regard focus on substantially improving educational performance and reducing dropout rates.

The social development index (SDI) is an indicator elaborated by the country's Ministry of National Planning and Economic Policy. The index is based on a combination of seven indicators:

educational infrastructure; special education programs; infant mortality; the burden of childhood mortality; growth delay; residential electricity consumption; and births to single mothers. This index is used to stratify the population into five large groups and serves as the basis for mapping the distribution of poverty in the country. Most cantons in group one (more developed) are located in the San José metropolitan area of central Costa Rica. Conversely, a significant part of the 17 cantons in group five (less developed) are located in border areas (Brunca and Chorotega regions). Of the total population, 15% lives in group one; 32% in group two; 21% in group three; 18% in group four; and 14% in group five. Fifteen cantons have SDIs below the national average of 46.9%.

With regard to environmental quality, it bears mentioning that 25% of the country is under some category of protected area management. In global terms, this is a high percentage, inasmuch as only 14 countries worldwide have more than 23% of their territory under a system of protected area management. Nevertheless, some shortcomings have been observed in regard to urban planning, highway infrastructure, pollution control, and comprehensive water resource management, which, together with hydrometeorological conditions and the increased population density, determine the country's vulnerability to drought and floods, and point to the need to resume efforts to step up protection of the country's water sources.

In 1991 and 2002, access to water for human consumption was 92% and 97%, respectively, and access to sanitary sewer or septic tank systems was 76% and 94%, respectively. Considering this as-

**FIGURE 2. Maternal mortality rate, 1990–2003 and projected trend, Costa Rica, 1991<sup>a</sup>–2015.**

<sup>a</sup>1991 is considered baseline year.

pect of environmental sustainability, and based on indicators adopted for monitoring progress on MDG Target 10, the country is making good headway toward achieving the MDGs. However, in contrast to the aforementioned national averages, 62% of households in areas of indigenous population do not have in-house access to potable water. Of these, 10% have an on-premises connection to a water supply; 3.2% an off-premises connection; and 42% have no water pipes. According to estimates, 21% of households have septic tanks and 65% latrines.

### Demographics, Mortality, and Morbidity

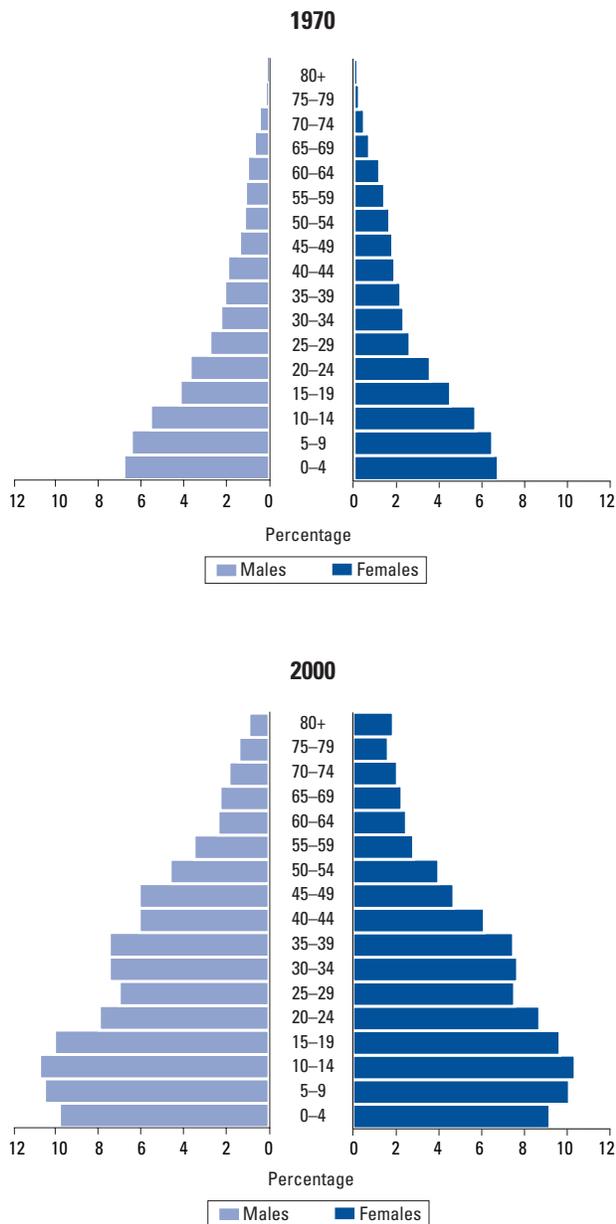
In 2004, the population density was 83.14 persons per km<sup>2</sup>. The country has experienced profound demographic changes over the last 40 years and is currently in a stage of advanced demographic transition, characterized by low mortality and fertility. The population growth rate continues to be relatively high, but will trend downward with the relative aging of the population. Despite the considerable demographic changes that have taken place in the country, population growth will continue to

figure prominently in the new challenges associated with the demographic transition.

The population pyramid has changed dramatically over the last several decades, bulging at the center (Figure 3). These changes are attributable to the marked decrease in mortality and fertility. Over the past 10 years it has become evident that the country's population has entered a pattern of relative aging that will continue into the coming years.

Mortality (1970: 6.8 per 1,000 population; 2004: 3.6 per 1,000) has not declined at the same pace as fertility and the birth rate, but has been stabilizing since 1985 (1994: 13,313 deaths; 2004: 15,949 deaths).

Another characteristic of this demographic transition is the sustained decrease in fertility and the birth rate, which has been so pronounced that despite the country's larger population and greater number of women of childbearing age in absolute terms, the number of births has actually decreased (1985: 84,337 children; 2004: 72,247 children) to the point that women are currently having only two children. This means that the fertility rate is lower than the population replacement level. Finally, the

**FIGURE 3. Population structure, by age and sex, Costa Rica, 1970 and 2000.**

process of demographic transition shows that the most direct effects of the aging of the population will be an increase in the dependency ratio of people over age 65. The dependency ratio is currently 55%; however, the demographic dividend will bring the ratio down to approximately 44% in little more than ten years, after which it will rise again.

According to the Ninth National Population Census (2000), which was the country's first to consider information on ethnic groups, indigenous groups accounted for 1.7% of the national

population. Of the total indigenous population, 51.5% were male and 48.5% female, and 79.0% resided in primarily rural areas (INEC 2001). This population is concentrated in the Talamanca and Southern Pacific regions, especially in the border area with Panama. Although indigenous people live in all provinces of the country, more than three-quarters (77.4%) reside in the provinces of Limón (39.2%), Puntarenas (23.5%), and San José (14.4%). The indigenous population is comprised of eight peoples—the Bribri, the Borucas or Brunucas, Cabecars, Chorotegas, Guayamis, Huetars, Malekus, and Teribes, which are distributed among 24 indigenous territories.

With respect to immigration, according to the tenth annual State of the Nation Report, Nicaraguans continue to constitute by far the absolute majority of immigrants in the country. According to the latest census, Nicaraguans accounted for 76.0% of all foreigners in the country and their percentage of the total population increased from 1.9% to 5.9% during that period. There are also significant numbers of immigrants from Panama, the United States, El Salvador, and Colombia; however, only immigration from Colombia and Nicaragua has increased. According to the 2000 census, 10% of all households include persons of Nicaraguan origin. Due to the effects of international immigration, no substantial changes in the makeup of the Costa Rican population by sex or age are expected during the next 25 years. However, depending on the future course of immigration, the natural growth rate of the population may increase anywhere from 24% to 45%.

With respect to the seven broad groups of causes of death in the period 1970–2004, diseases of the circulatory system were the leading cause of death among both men and women. The cumulative rate for these diseases in males ranged between 13.4 in 1970 and 11.0 in 2004. In 2000–2004, the next two principal causes of mortality were other diseases and tumors. Table 1 lists the mortality rates by cause and 5-year period between 1970 and 2004.

An analysis of mortality by cause in the period 1995–2001, with adjusted rates per 100,000 population, indicates that diseases of the circulatory system had been declining since 1997, but trending upward beginning in 2001; the same trend has also been observed with respect to tumors. External causes and diseases of the digestive system have followed a stable trend.

With respect to the relative distribution of hospital discharges by cause in 1990, 1995, and 2005, most cases were associated with pregnancy, delivery, and the puerperium, at 35.9%, 34.2%, and 31.7%. Table 2 provides the distribution of hospital discharges by groups of causes in 1990, 1995, and 2005.

With respect to the risk of emergencies and disasters, the geographic areas of the country most exposed to floods continue to be the Atlantic and Pacific basins, a fact attributable to social disparities. The earthquake-prone regions of the country are located in the provinces of Cartago, Alajuela, and Limón. Other threats have emerged as a consequence of man's exploitation of natural resources, including deforestation, environmental pollution, and

**TABLE 1. Cumulative mortality rates, by cause and 5-year period, Costa Rica, 1970–2004.**

	1970–1974	1975–1979	1980–1984	1985–1989	1990–1994	1995–1999	2000–2004
	Cumulative rate (%)						
<b>Males</b>							
Communicable diseases	4.67	2.45	1.90	1.62	1.83	1.90	1.95
Conditions originating in the perinatal period	0.32	0.24	0.23	0.19	0.15	0.14	0.12
Tumors	6.14	6.39	6.66	6.84	6.76	6.75	6.80
Diseases of the circulatory system	13.44	11.05	11.15	10.80	11.28	11.04	11.00
External causes (injuries and poisonings)	2.24	2.52	1.98	1.95	2.14	2.16	2.14
Other diseases	3.86	4.47	5.06	5.97	5.89	7.25	7.32
Ill-defined signs, symptoms, and morbidity	2.42	1.51	0.87	0.29	0.39	0.26	0.26
<b>Females</b>							
Communicable diseases	4.35	1.95	1.57	1.27	1.26	1.35	1.37
Conditions originating in the perinatal period	0.22	0.18	0.16	0.14	0.11	0.10	0.14
Tumors	5.01	4.70	4.52	4.85	4.42	4.35	4.51
Diseases of the circulatory system	12.38	9.81	9.57	8.85	8.66	8.30	8.28
External causes (injuries and poisonings)	0.66	0.86	0.81	0.85	0.87	0.82	0.80
Other diseases	3.89	4.72	4.58	5.35	4.97	5.60	5.55
Ill-defined signs, symptoms, and morbidity	2.01	1.28	0.64	0.21	0.23	0.14	0.14

*Source:* Costa Rica, Instituto Nacional de Estadística y Censos y Ministerio de Salud.

**TABLE 2. Relative distribution of hospital discharges, by cause, Costa Rica, 1990, 1995, and 2005.**

Cause	1990	1995	2005
Health measures	4.2	4.3	5.2
Infectious and parasitic diseases	4.1	3.7	2.8
Tumors	4.1	4.8	4.8
Nutritional support for endocrine conditions	2.2	2.2	0.5
Blood	0.6	0.6	1.8
Mental disorders	2.6	2.0	2.0
Nervous system	3.0	3.3	1.5
Diseases of the eye and adnexa	...	...	2.7
Diseases of the ear or mastoids	...	...	0.5
Circulatory system	5.0	5.0	5.5
Respiratory system	6.2	6.6	7.1
Digestive system	7.6	8.6	9.5
Genitourinary system	6.9	6.7	6.8
Skin and tissue	1.5	1.4	1.4
Musculoskeletal system	2.7	2.6	2.8
Pregnancy, delivery, and the puerperium	35.9	34.2	31.8
Congenital anomalies	1.5	1.8	1.6
Perinatal conditions	3.5	3.5	3.6
Injuries and poisonings	7.2	7.1	6.6
Ill-defined signs, symptoms, and morbidity	1.2	1.1	1.3

*Source:* Costa Rica, Departamento de Información Estadística de los Servicios de Salud. Caja Costarricense de Seguro Social (CCSS).

the alteration of hydrographic basins. Extensive flooding occurs each year from May through July in the Sixaola region along the country's border with Panama, and from September through October in the Guanacaste region bordering Nicaragua.

## HEALTH OF POPULATION GROUPS

### Children under 5 Years Old

In the period 1990–2004, the infant mortality rate decreased from 14.4 to 9.2 per 1,000 live births, which is the lowest rate of the previous ten years. According to data of the National Statistics and Census Institute (INEC), the country's neonatal mortality rate decreased from 8.78 in 1990 to 6.73 in 2004, while post-neonatal mortality dropped from 6.1 in 1990 to 2.5 in 2004. The highest rates are found in the provinces of Guanacaste (11.2), Puntarenas (9.9), and Limón (9.4), which are also the country's least developed in socioeconomic terms. In 2004, the primary causes of infant mortality by broad groups of causes were certain conditions originating in the perinatal period (49.0%), followed by congenital anomalies (31.0%); respiratory diseases (8.1%); infectious and parasitic diseases (2.1%); and others (9.8%). This pattern has remained steady in recent years. In the period 1990–2004, the relative weight of neonatal mortality in infant mortality increased from 69% to 73% by the last year of the period. Forty percent of infant deaths are preventable.

The 1–4 years age group accounts for 9.6% of the population. In 2002, the mortality rate was 4.8 per 10,000 population. That year, accidents and violence were the leading cause of death (1.7 per 10,000), followed by diseases of the respiratory system; congenital anomalies; tumors; infectious and parasitic diseases; and diseases of the nervous system. In 2002, this group accounted for 4.9% of emergency visits and 5.0% of outpatient consultations. With respect to the causes of morbidity, acute respiratory infections accounted for 35.7% and injuries from external causes for 10.7%. Mortality was greater among boys than girls, at 5.5 and 4.1 per 10,000, respectively.

### Children 5–9 Years Old

Children in the 5–9 years age group account for 11.7% of the population. In 2002, the mortality rate for this group was 2.0 per 10,000. The leading causes of death were external causes, tumors, diseases of the nervous system, and infectious and parasitic diseases. That same year, this age group accounted for 10% of emergency consultations, the leading cause of which were respiratory diseases (51.6%), followed by external causes (12.6%) and infectious and parasitic diseases (11%).

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

In 2002, the 10–14 years age group accounted for 10.6% of the country's total population, and the 15–19 years age group for 10.5%. The leading causes of death among these groups were external causes—10.9 and 29.9 per 100,000 among the 10–14 and 15–19 years age groups, respectively—followed by tumors (4.6 and 8.5 per 100,000) and diseases of the nervous system (3.0 and 5.4 per 100,000). Mortality was greater among males of both groups. The 10–14 years age group accounted for 6.7% of emergency consultations and 4.9% of outpatient consultations at the health services, and the 15–19 years age group for 8.4% of emergency consultations and 6.1% of outpatient consultations. Respiratory infections and external causes were the most common reasons for consultations among both sexes, in addition to pregnancy care visits for women. According to the second report on the status of the rights of childhood and adolescence in Costa Rica (UNICEF, 2002), adolescent girls and young women under 19 years old accounted for slightly more than 20% of births (14,860 births). Eighty percent of this group was unmarried. Moreover, infant mortality among the group was 15 per 1,000 live births, and 25% of these deaths were due to obstetric causes.

### Adults 20–59 Years Old

In 2002, the 20–59 years age group accounted for approximately 51% of the total population. The mortality rate was 11.5 per 10,000 population among the 20–44 years age group, and 50.0 per 10,000 among the 45–64 years age group. With respect to the former group, the leading causes of death were external causes, followed by tumors in men, and cardiovascular diseases in women; and in the latter group, external causes followed by cardiovascular diseases in men, and tumors followed by cardiovascular diseases in women.

Young adults aged 20–44 years accounted for 36.6% of emergency services provided, 35.0% of outpatient consultations, and 45.0% of hospital discharges. The most frequent reasons for the demand of all these services were injuries in men and conditions related to reproduction in women. Adults aged 45–59 years benefited from 9.8% of emergency services provided, 14% of consultations, and 8.5% of hospital services. The most frequent reasons

for the demand of these services were diseases of the respiratory tract, diseases of the musculoskeletal system, and injuries.

With respect to reproductive health, fertility levels have fallen in recent decades. The leading causes of maternal death are labor and delivery-related complications, hypertensive disorders of pregnancy, hemorrhages, and infections. Prenatal care administered by qualified health professionals reached 92% and delivery care, 98%. According to estimates, 98% of deliveries are attended in hospitals and 2% in the home or in ambulances. More than 90% of pregnant women had prenatal care, and deliveries by cesarean section increased from 14.1% in 1983 to 22.0% in 2004.

### Older Adults 60 Years Old and Older

In 2002, older adults accounted for 7.5% of the country's total population, 90% of which had social security coverage and 36% retirement pensions. According to estimates, 28% live in poverty and one-third of men in this group are still economically active; 10% live alone; and only 1% resides in nursing homes. The leading causes of mortality for this group are cardiovascular diseases (40%), neoplasms (20%–25%), and other conditions (20%–25%), which include chronic respiratory diseases, diabetes, and the default category “senility.” Cancer rates are higher among men, while other chronic conditions, especially diabetes, affect women more. Together, these three large groups account for nearly 90% of mortality among older adults. With regard to morbidity, the main causes are hypertension, diabetes mellitus, neurotic disorders, and gastrointestinal and respiratory infections.

### The Family

The number of single-parent households headed by women has increased. In 2002, women headed 22.2% of the country's households and also accounted for 32.1% of all poor households, more of which were located in urban (38.6%) rather than rural (26.0%) areas. Trends by sex and marital status of female and male heads of household indicate that the former tend to be single, living in consensual unions, separated, divorced, or widowed. In 2001, the Legislative Assembly approved the Law on Responsible Paternity, which has significantly reduced the percentage of births registered without a recognized father—from 29.3% in 2001 to 8.1% in 2002.

### Workers

The annual per worker incapacity rate remained steady over the period 2000–2004. Accordingly, each year 800 of every 1,000 workers are affected by some form of incapacity that causes them to miss work. The area of the country with the highest average of sick leave days per worker is the Brunca region (7.2 days), which is only surpassed by the country's decentralized hospitals (average of 13.41 sick leave days), followed by the

Huetar Norte (6.83 days) and Chorotega (6.83 days) regions. In the San José metropolitan area, an average of only 3.87 sick leave days are provided. The national incapacity rate is 6.84 days of sick leave.

The four most frequent causes of incapacity by annual number of sick leave days are upper respiratory tract infections (100,000 days), back pain (60,000 days), infectious intestinal diseases (45,000 days), and behavioral disorders (35,000 days). Consequently, measures aimed at improving the workplace environment could help to prevent missed days of work.

Agriculture is Costa Rica's second most important industry, employing on the order of 240,000 people. According to estimates, about 3% of agricultural workers become poisoned each year or approximately 7,500 poisoning cases. However, only 600 to 1,000 such cases are reported annually, which points to under-reporting of between 82% and 97%. Women account for some 8% of the agricultural workforce, and, due to a combination of biological and other factors, they are more vulnerable to pesticide exposure than men. The rate of occupational poisonings is 2.5 times greater among men, at an average age fluctuating around 31 years. The lethality rate due to occupational poisonings is the lowest for all types of poisonings.

### Persons with Disabilities

Data of the INEC's 2000 National Census of Population and Housing revealed that 5.4% of the total population suffers from some form of disability; 52% are men and 48% women. The disabled account for 5% of the urban population and 6% of the rural population. In some rural cantons such as Corredores, Parrita, Osa, and Montes de Oro in the province of Puntarenas, the disability rate surpasses the national average by at least 1.5%. The central part of the country has the highest concentration of the disabled, estimated at 184,452 persons, followed by the Chorotega region (32,586 persons), the Huetar Atlántica region (29,012), the Brunca region (26,109), the Pacific Central region (20,299), and the Huetar Norte region (18,901). Blindness is the most common disability among both men (32,784) and women (29,772), followed by deafness, paralysis, and mental retardation.

### Immigrants

According to the most recent census data (2000), there were 226,374 Nicaraguans residing permanently in Costa Rica (nearly 6% of the total population), 50.9% of whom were female and 49.1% male. Approximately half of this population was between 20 and 39 years of age. This figure does not include the population of short-term cyclical migrants from Nicaragua or those not captured by the census for lack of a fixed address.

The distribution and settlement patterns of the Nicaraguan migrant population are irregular and vary by region, but in geographic terms, tend to be concentrated in the central, Atlantic

coast, and northern parts of the country, which are home to industries that attract migrant labor (export agriculture, agro-industry, and services). In Costa Rica, 295,456 persons live in "bi-national" households, of which 36.9% were born in Costa Rica and 62.6% in Nicaragua.

## HEALTH CONDITIONS AND PROBLEMS

### COMMUNICABLE DISEASES

#### Vector-borne Diseases

Since reemerging in 1993, **dengue** has become a serious public health problem in Costa Rica. The highest incidence of cases occurred in 1994, 1997, 2003, and 2005 (rate of 55–89 per 10,000 population in this period). It is estimated that 95.7% of the population is at risk of dengue, especially people residing in areas of dengue transmission and high indices of *Aedes aegypti* infestation. In 2005, a total of 37,798 cases were reported. The regions with the highest incidence (81.1%) were Pacific Central (421.3 per 10,000 population), Huetar Atlántica (264.2), Chorotega (172.5), and North Central (67.7). Fifty-two cases of dengue hemorrhagic fever and two deaths were reported for a 3.8% lethality rate. Dengue outbreaks are ordinarily seasonal, with cases increasing at the start of the rainy season. In recent years, however, the seasonal nature of the disease has blurred, resulting in transmission practically throughout the year. Circulation of three serotypes—dengue 1, dengue 2, and dengue 3—has been identified, thus increasing risks for the reemergence of dengue hemorrhagic fever. Over the period 1995–2005, a total of 329 cases of dengue hemorrhagic fever and eight deaths were reported. Upon comparing the cases reported by month during the last three years, increases were observed beginning in May 2003 and 2004, and in April 2005, which peaked in July 2003 and in August 2005. Entomological surveys carried out in the period 2004–2005 revealed infestation indices that fluctuated between 0 and 23.2 cases; some areas were found to have higher Breteau indexes than infestation indices, which points to the presence of more than one breeding foci per household. *Aedes aegypti* larval sites are classified into the following categories: unusable water receptacles (60.6%) such as used tires (which also accounted for the highest percentage of positive larvae tests in this category at 22.7%); cans and scrap metal (33.5%); special man-made receptacles (38.6%); receptacles in use (38.3%), including barrels and containers used to store water for household use (which accounted for the highest percentage of positive larvae tests in this category at 72.8%); and food and water troughs (13.0%).

A sustained increase in **malaria** cases was observed halfway through the period 2001–2005. The number of reported cases jumped from 718 in 2003 to 3,541 in 2005, which represents a 393.2% increase. The annual parasite incidence (API) increased from 1.05 in 2001 to 2.25 in 2005. The highest percentage of cases

during this five-year period was reported in the Huetar Atlántica Health Region, located in the northeastern part of the country along the border with Panama, accounting for 66.2% in 2001 and 95.2% in 2005. The 15–49 years age group continues to be most affected, accounting for 62.7% cases in 2001 and 72.0% in 2005. The percentage of males affected fluctuated between 60.6% in 2001 and 62.67% in 2005. No malaria deaths were reported during the five-year period. Of malaria cases reported during the five-year period, 99.7% were caused by *Plasmodium vivax*, which is sensitive to chloroquine. All eight reported cases of *P. falciparum* malaria in 2004 and 2005 (five in 2004 and three in 2005) were imported: five from Nicaragua; two from Africa; and one from the Dominican Republic. Given Costa Rica's geographic, climatic, and land-use conditions, nearly 70% of the country is considered a malaria zone, or favorable for developing the most significant transmission vector, *Anopheles albimanus*. These factors, as well as migratory flows to and within agricultural production zones, and the socioeconomic conditions of the population residing in these places carry significant weight in terms of malaria control.

The country's **filariasis bancrofti** problem is limited to the city of Puerto Limón, located in the Huetar Atlántica region. According to the results of epidemiological (1974–1983) and antigenemia (2002–2003) studies, there is a low probability that the sources of infection needed to maintain active transmission exist. Antigenemia screenings of 3,044 schoolchildren from all neighborhoods of Puerto Limón were negative; 70% of carriers had less than 6 microfilaria per 20 microliters of blood, and residual morbidity occurred only among older adults. *Culex quinquefasciatus* was identified as the primary vector. Inasmuch as lymphatic filariasis has been declared eliminated in Puerto Limón, the pertinent certification process is currently under way.

### Vaccine-preventable Diseases

The Expanded Program on Immunization currently includes vaccination against measles, rubella, mumps, diphtheria, tetanus, pertussis, poliomyelitis, hepatitis B, *Haemophilus influenzae* type b, tuberculosis (meningeal and miliary), and against complications due to seasonal influenza (flu) viruses (the latter for groups at risk). In 2004, surveillance of influenza viruses was launched at four sentinel centers—the National Children's Hospital, the National Geriatric Hospital, Hospital Max Peralta, and Clínica de Pavas—in order to strengthen testing aimed at identifying a flu vaccine more consistent with the strains circulating in the country. No confirmed **measles** cases have been reported (the last outbreak occurred in 1999), although one sporadic case was reported in 2005. Beginning in 2001, a program was launched to control **rubella** and eliminate **congenital rubella syndrome** (CRS), which included the vaccination of the population aged 15–39 of both sexes in a campaign that achieved 98% coverage. The program was supplemented with postpartum vaccination of the cohort of pregnant women. **Hepatitis B** is a

disease whose incidence is highest among the 15–44 years age group; however, in recent years it has been rising among the 10–14 years age group. The *Haemophilus influenzae* type b (Hib) vaccine was introduced into the country's basic immunization schedule in March 1998. The most marked decrease in **meningitis** cases has occurred since 1998, when efforts began to achieve national vaccination coverage. No cases of **neonatal tetanus** have been reported in the country since 1988, with the exception of one reported and confirmed case in 2002. As a result, measures were taken to strengthen coverage levels among the adult population and pregnant women at risk. Tetanus cases among adults continue to occur sporadically, with between one and three cases reported annually. No cases of **diphtheria** have been observed in the country since 1976, after introduction of the vaccine against diphtheria and tetanus (DT) into the national immunization schedule six years earlier.

Throughout the last decade and into the present day, the Expanded Program on Immunization has maintained coverage levels of 80% and higher for all antigens. Coverage for tracer vaccines in the official schedule, BCG (bacillus Calmette-Guerin), OPV3 (Sabin oral poliovirus vaccine), and DPT3 (diphtheria-pertussis-tetanus triple vaccine) increased over the period 1998–2002.

### Intestinal Infectious Diseases

**Acute diarrheal disease** rates have been rising over the past years, from 2,917 per 100,000 population in 1992 to 3,939 in 2001 (35% increase). However, hospital discharges attributable to these diseases have been decreasing, from 8,151 in 1990 to 4,821 in 2000 (40.8% decrease). This decrease has been observed in all age groups except older adults over the age of 80 and children aged 5–9 years, whose rates have increased. Mortality from diarrheal diseases has tended to remain stable, with the exception of increases observed in 1994, 1995, and 1996. Their lethality has been declining over the past years, from 0.12% in 1994 to 0.06% in 2001. However, upon a review of the information it bears mentioning that significant underreporting of cases in some areas of the country has hindered the ability to monitor the monthly trends of these diseases; nevertheless, an increase in reported cases has been observed in March and June. Incidence and mortality rates for these diseases are highest among children under the age of 5 years and adults over age 65. Males in the former group are most often affected, whereas those of the latter are least affected. Traditionally, the provinces Puntarenas, Guanacaste, and Alajuela have always had the highest mortality rates.

### Chronic Communicable Diseases

Costa Rica is among the countries of the world with the lowest prevalence of **tuberculosis**, with a reported incidence of 17.35 per 100,000 population over the last four years. Pulmonary tuberculosis is the most commonly diagnosed form of the disease, accounting for 85% of total cases. People over the age of 25 are most affected, and men account for more cases than women.

Moreover, the immigrant population accounts for 10% of total cases. Although underreporting of tuberculosis deaths has been a problem, mortality from the disease has been declining since 1999 at an average rate of 2.3 per 100,000 population.

BCG vaccination coverage in recent years has exceeded 90%, and there have been no reported cases of **tubercular meningitis**. Although cases of multi-drug resistant tuberculosis have been reported, this type of tuberculosis is not viewed as a significant problem in Costa Rica. From the operational standpoint, there have been improvements in the screening of patients for respiratory symptoms and an increase in the number of diagnostic bacilloscopies, but this figure is still lower than expected, with 3% culture-positive tests among patients with respiratory symptoms. In this regard, efforts to increase the number and quality of bacilloscopies will help provide a clearer picture of the epidemiological situation.

Coverage with the Directly Observed Treatment, Short-course or DOTS strategy was 100%; in 2001 the cohort of new bacilliferous cases in DOTS areas achieved a 58.2% cure rate and a 25.3% treatment completion rate, resulting in an 83.2% treatment success rate, a 5.6% death rate, and a 10.1% dropout rate. In non-DOTS areas, there was a 34.2% cure rate and 27.9% treatment completion rate, resulting in a success rate of only 62.1%, a 14.6% death rate, and a 22% dropout rate. The most new cases were observed in the health regions covering the Huetar Atlántica, Pacific Central, South-Central, and North-Central regions.

In 2002, active surveillance of **leprosy** cases was launched in conjunction with dermatology consultations at national and regional hospitals. Surveillance activities since that time recaptured and identified a total of 114 cases of leprosy during the period 1998–2003, for a prevalence of 0.28 cases per 10,000 population. The province of Puntarenas had the most cases and highest prevalence (0.7 per 10,000 population). Over recent years, some 15 to 20 new cases have been detected annually.

### Acute Respiratory Infections

Acute respiratory infections (ARIs) require mandatory notification and are the most common reason for outpatient consultations in the country. ARIs were on the rise through 1999, but began to trend downward in 2000, and remained steady through 2004 (rate of 20,000–25,000 per 100,000 population). Most affected are children under 10 years of age, especially children under 1 year of age, whose hospitalization rates range between 26.7 and 32.8 per 1,000; followed by the age group 1–4 years old with hospitalization rates between 1.65 and 2.41 per 1,000; and finally the 5–9 years age group with rates between 0.36 and 0.79 per 1,000. Children under 5 years of age accounted for between 80% and 90% of hospital discharges for ARIs. The other significantly affected age group is the population over the age of 50, whose hospitalization rates fluctuate between 0.30 and 0.56 per 1,000. However, mortality is higher among this last group than children under the age of 10. The seasonal distribution of re-

ported cases over the last four years points to higher incidence during the months of March, April, and June.

### HIV/AIDS and Other Sexually Transmitted Infections

AIDS cases were on a rising trend from 1983 through 1998, which was the year treatment with antiretroviral drugs was introduced. A total of 2,742 cases were reported through 2004. The classification of AIDS cases by mode of infection shows that 84.2% of cases were contracted through sexual contact (43.7% homosexual, 24.9% heterosexual, and 15.6% bisexual), 3.9% exposure to tainted blood (hemophilia 2.1%, transfusions 0.9%, and intravenous drug use 0.9%), 1.2% perinatal transmission, and in 6.8% of cases the mode of infection is unknown. The HIV/AIDS mortality rate has increased steadily since the onset of the epidemic, peaking in 1997 at 4.8 deaths per 100,000 population. That same year, however, a decrease—although not steady—was observed, and in recent years the rate appears to have stabilized at about 3.5 deaths per 100,000 population. The male population has been most affected by the disease. The male-female ratio has been declining: from 12:1 in 1998 to 7:1 in 2001, and down again to 5.4:1 in 2005. In terms of mortality by sex, there has been a slight decrease observed in female mortality. With respect to mortality by age groups, an increase has been observed in the 25–39 years age group.

In regard to other sexually transmitted infections, the highest cumulative incidence rates for **syphilis** were among infants under 1 year of age (105.2 per 100,000 population), followed by the 15–54 years age group (24.0). The rate by sex indicates that for every 1.17 cases of female infection there is one male case. In contrast to all other forms of syphilis, congenital syphilis followed a rising trend in 1996, 1998, and 2004. In 2005, the 15–44 years age group had the highest cumulative incidence rate for **gonorrhea** (37.5 per 100,000 population).

### Zoonoses

According to the list of diseases of compulsory notification, the zoonotic disease with the highest cumulative incidence is **leptospirosis**. Studies of the epidemiological trend of leptospirosis during the period 1996–2005 reveal that this disease has become a reemerging zoonosis, which has been trending upward since 1999 due to improved active case finding through fever monitoring activities. Consequently, efforts are needed to strengthen research with a view to establishing cut-off points for each serovar strain and identifying those with the widest circulation in the country. The case distribution by provinces shows that Puntarenas (2.4 per 10,000 population) and Limón (1.1) had the highest incidence, whereas the most affected cantons were Corredores (1.0 per 1,000 population), Golfito (0.7), Talamanca (0.3), and Matina (0.2). The distribution by sex reveals that the male population is disproportionately affected, with a male-female ratio of 4:1. With respect to distribution by age groups, the youngest and oldest of the population had the least incidence,

while the highest incidence was found among people employed in agro-industry; residents of flood-prone or marginal areas, or both; and the economically active population.

Costa Rica has had no cases of **canine rabies** since 1987. In 2002, two cases of human rabies were reported involving a rabies virus circulated among vampire bats. The infection was transmitted by a rabid cat in a rural area with a history of bovine rabies. The country's rabies epidemiological surveillance has been strengthened through the coordination of activities with the Ministry of Agriculture and Livestock. **Cysticercosis** is not a disease of compulsory notification and, consequently, no data is available on its incidence. However, upon reviewing the causes of death for communicable diseases, two cysticercosis deaths were discovered in 1995, in addition to four more in 2000. Accordingly, additional investigation is needed to determine whether incidence of the disease is in fact increasing.

## NONCOMMUNICABLE DISEASES

### Metabolic and Nutritional Diseases

Inasmuch as the most recent national nutrition survey was conducted in 1996, and the latest height census of first grade schoolchildren in 1997, the country has no recent data on the anthropometric situation of the nutritionally vulnerable groups: preschool children; schoolchildren; adolescents; and women of reproductive age. However, a national study of schoolchildren aged 7–15 years was carried out in 2002, which included measurement of body mass index (BMI). The study revealed that 6.2% of the children were underweight, 73.2% normal weight, 12.7% overweight, and 7.9% obese. In 2000, a nutritional assessment carried out in the rural sentinel community of Nicoya, Guanacaste, found that—according to serum ferritin testing—30.4% of preschool children had deficient iron reserves, and 12.1% of women of reproductive age had deficient serum folate levels. The assessment also revealed deficient vitamin A serum levels in 9.9% of preschoolers and in 11.1% of schoolchildren, as well as marginal vitamin A deficiency in 41.1% and 47.7%, respectively.

A 2001 national survey of apparent consumption of foodstuffs in the home revealed that nutritional adequacy rises with family income up to values exceeding 100% adequacy among the higher income households. Food consumption in the home and at the national level is satisfactory; however, differences are observed by degree of urbanization and disparities by income decile, both in urban and rural areas.

The **diabetes** mortality rate has been increasing and gaining momentum in recent years for a rate of 19.3 per 100,000 population in 2004. Data from a 2004 survey conducted in the San José metropolitan area indicate a diabetes prevalence of 7.9% and that 1.9% of those affected are unaware they have the disease. Prevalence is higher among men (8.3%) than women (7.6%) and increases after 40 years of age. Data from the same survey show that

the percentage of persons with a BMI over 25 is 58.9% (males 62% and females 55.9%). It is estimated that 41.2% of the population fails to get 30 minutes of exercise a day at least five times a week.

### Cardiovascular Diseases

Diseases of the circulatory system have been the country's leading cause of death since 1970. The mortality rate for this group has been declining since 2002, and the levels for men have been persistently higher. In 2004, the rate was 112 per 100,000 population among men and 103 per 100,000 among women. The mortality rate for **hypertensive diseases** has been increasing and was 13.2 per 100,000 in 2004, without notable differences between the sexes. Data from a 2004 survey conducted in the San José metropolitan area show a hypertension prevalence of 25.2 per 100 population, which increases with age. Mortality from **ischemic heart disease** has been decreasing since 2001 (rate of 50.6 per 100,000 population in 2004, affecting men disproportionately), as well as **cerebrovascular diseases** (rate of 22.1 per 100,000 in 2004, affecting women disproportionately).

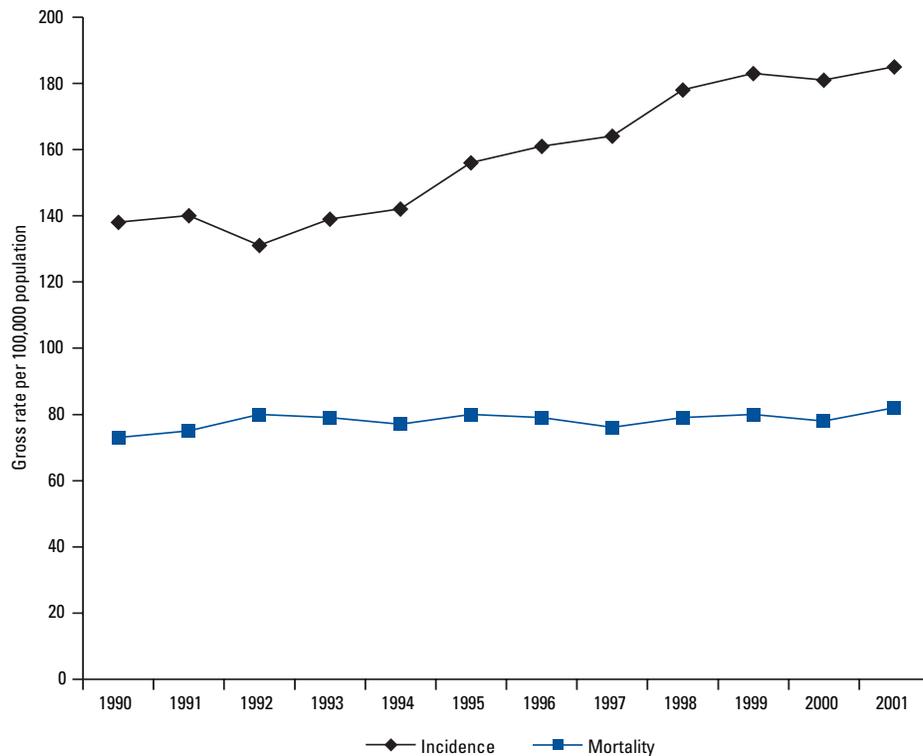
### Malignant Neoplasms

Malignant tumors are the third leading cause of death. Each year 7,500 new cancer cases are diagnosed, resulting in more than 3,500 deaths. The country's tumor registry, which has been in place since 1980, shows that incidence rates have increased by approximately 40% since the early 1990s, although the mortality rate has not changed significantly in recent years (Figure 4).

The incidence of **breast cancer** reveals a 45% increase in its age-adjusted rates over the period between 1990 (rate of 25.96 per 100,000 population) and 2000 (37.88). Mortality has decreased in recent years from an adjusted rate of 12.09 per 100,000 population in 1990 down to 11.27 in 2003. It is most concentrated in the urban areas of the country's central valley.

The incidence of **cervical cancer** was highest in 2000, with an adjusted rate of 46.94 per 100,000 population. The incidence rates of *in situ* and invasive cancers were 30.90 and 18.17 per 100,000 population, respectively. The adjusted incidence rate of *in situ* cancer increased from 22.62 in 1990 to 30.90 per 100,000 population in 2000, while the corresponding incidence of invasive cancer decreased from 17.48 to 16.80 per 100,000 population, which is attributable to effective screening. During the same period, the adjusted mortality rate decreased from 9.95 to 5.6 per 100,000 population. Its distribution is rural and in the coastal regions of the country.

Costa Rica figures among the ten countries of the world with the highest **stomach cancer** incidence and mortality rates. From 1990 to 2000, there were no notable variations in the incidence rate; however, adjusted mortality decreased from 25.73 to 16.59 per 100,000 population. In 2000, a total of 815 cases were diagnosed, 399 of which corresponded to males. The eastern portions of the central valley and southern Costa Rica have the most cases.

**FIGURE 4. Annual incidence and mortality for tumors, both sexes, Costa Rica, 1990–2001.**

Source: Costa Rica, Instituto Nacional de Estadística y Censos, Registro de Tumores.

The adjusted incidence rate of **prostate cancer** has nearly tripled in the last years from 17.86 per 100,000 population in 1990 to 45.10 in 2000. Likewise, the adjusted mortality rate has been increasing over the same period from 10.29 per 100,000 population to 15.89.

## OTHER HEALTH PROBLEMS OR ISSUES

### Disasters

Due to the country's geographic location, it is exposed to a variety of threats from natural phenomena and hydrometeorological changes which, together with the vulnerability of the exposed populations residing in the Atlantic coastal areas, shortcomings in terms of implementing appropriate environmental management policies, and the nature of the country's hydrographic basins, have resulted in recurrent flooding. In the period 1998–2005, economic losses sustained by the health sector reached US\$ 23 million or the equivalent of 2.7% of total losses from this cause. Given past experiences and the concentration of the population within the areas of the country at risk, the threats posed by volcanic eruptions and earthquakes must always be weighed. Moreover, the risks associated with technological development must also be

considered, which increase at a faster pace than the oversight and control activities of the responsible authorities.

### Violence and Other External Causes

In 2004, there were 52,352 traffic accidents that resulted in 587 deaths (13.8 per 100,000 population), which accounted for a 5.6% decrease from the previous year. According to 2005 data of the Highway Safety Board, males accounted for the majority of highway fatalities at the scene of the accident (88.5%). That same year, driver deaths accounted for 23.4% of mortality from traffic accidents and pedestrian deaths for 23.2%. In 2005, there were 7.2% more serious injuries than the previous year. The causes of traffic accidents in 2005 were speeding (29.8%), pedestrian neglect (16.8%), and alcohol (15.3%).

With respect to social violence, the rate of violent deaths (homicides, suicides, and all types of accidents) showed significant increases. Programs of domestic violence assistance offering a variety of institutional services, which include health services, have been growing steadily in recent years. The number of requests for protective orders filed with the court system increased by more than 55% between 1998 and 2002. Violence against women is a serious and growing problem in the country: 58% of women suffered at least one incident of physical or sexual vio-

lence, or both, most often at the hands of the men in their lives. The majority of rapes of women (81.9% of cases) over the age of 16 were committed by a male family member or partner; 84.3% of domestic violence occurs in the home. Between 2000 and 2005, there were 152 homicides of women in situations of domestic violence and extramarital sexual violence, or an average of 25.3 women slain each year.

Of the 331 children treated for acts of violence at the National Children's Hospital in 2002, 53.5% were victims of sexual abuse and 25.5% victims of physical assaults. Of the 7,621 individual instances of care provided in 2005 to children under 18 years of age by Costa Rica's child welfare authority (PANI), 49.5% were for physical abuse, 23.3% sexual abuse within the home, 10.6% sexual abuse outside the home, and 16.7% emotional abuse.

### **Mental Health and Addictions**

According to records of the Costa Rican Social Security Fund (CCSS) for 2002, the leading reasons for psychiatric consultations among the population over the age of 10 years were anxiety, depressive, and neurotic disorders. The prevalence of depression in the country is estimated at 7.2%. Twice as many women are treated for depressive disorders than men. The most recent CCSS survey (2001) found that the leading reason for consultations by both sexes was anxiety, followed by alcoholism and depression. Psychoses were the leading cause of discharge from psychiatric hospitals, including schizophrenia. As a percentage, male patients have consistently accounted for more hospital discharges than female patients.

The suicide mortality rate in recent years was as follows: 6.2 per 100,000 population in 1995; 6.3 in 2000; 4.7 in 2001; and 6.7 in 2005. Males accounted for 88.2% of these deaths, and women 11.8%. In 2004, the province of Guanacaste had the highest suicide rate at 7.5 per 100,000 population, followed by Heredia and San José at 7.1, Alajuela at 6.9, and Cartago at 6.7. With respect to homicides, 86% of victims were male and 14% female, for a male-female ratio of 6:1.

### **Environmental Pollution**

According to the 2005 report of the Office of the Controller General of the Republic, over the last ten years there has been increasing use of imported, extremely toxic and hazardous pesticides (WHO classes Ia and Ib), which are likely carcinogenic (classes A and B, according to the U.S. EPA's Environmental Protection Agenda). The report also points out policy, regulatory, and inter-agency cooperation shortcomings, with a view to monitoring and curbing the use of these substances, guaranteeing their quality, and reducing the associated health and environmental risks. Pesticide poisonings continue to pose a significant public health threat in areas of intensive agricultural activity. Costa Rica is among the countries of the world with the highest per capita pesticide use, at 2 kg per person per year.

### **Oral Health**

The most recent national nutrition survey was conducted in 1996. That survey provided information on improvements in oral health among preschoolers and schoolchildren since the previous such survey in 1992. The DMFT (decayed, missing, and filled teeth) index in the preschool population surveyed in 1996 was 3.8, with differences according to area of residence: San José metropolitan area, 3.0; all other urban areas, 2.7; and rural areas, 4.0. Among the school-age population the DMFT prevalence was 49.9%.

## **RESPONSE OF THE HEALTH SECTOR**

### **Health Policies and Plans**

Costa Rica defines its health policies every four years with each administration through participatory negotiations coordinated by the Ministry of Health. The National Health Policy 2002–2006 was developed on the basis of specialized studies, including health sector analysis, performance measurement of the essential public health functions (EPHFs), and evaluations of the steering role in health. The results of these studies were then used to define four core policy areas: strengthening and consolidation of the health sector; the design of health policies based on equity, universality, access, and quality; health promotion; and environmental health and disaster preparedness. These policy areas stem from the Concerted Health Agenda, which sets out the following ten health sector commitments: 1) to strengthen interventions for maintaining or building on achievements in the areas of infant and maternal mortality, communicable diseases, and nutritional deficiencies; 2) to promote the building of a culture of health based on health promotion and the fostering of healthy lifestyles; 3) to prevent and treat noncommunicable diseases and their risk factors; 4) to promote and treat mental health in a comprehensive manner, with an emphasis on social violence; 5) to improve the equity, access, quality, and ethical nature of services, emphasizing the first level of care; 6) to improve environmental health, emphasizing basic sanitation and the comprehensive management of water resources; 7) to promote actions aimed at reducing vulnerability to disasters; 8) to strengthen the institutional framework and performance of the health sector; 9) to ensure that investment, expenditures, and financing are consistent with the values and principles that govern the sector's policies and priorities; and 10) to strengthen the National Health Surveillance System. The Concerted Health Agenda is the framework that guides the work of the sector at the national level. Likewise, each of the country's nine health regions has its own agenda that defines a framework for health action at the regional level.

Health has constitutional status and is considered a basic human right. The health system is based on the principle of universality and the entire population is entitled to the public ser-

## Citizen Participation in Health

According to the National Registry of Health Promotion Organizations prepared in 2005 by the Costa Rican Social Security Fund (CCSS), the country has 3,500 active health organizations. Of this number, 143 are health boards, 681 health committees, and the remainder are patients' associations, volunteer groups, and other community-based organizations. The country also has a significant number of social networks working in the areas of domestic violence and HIV/AIDS. Over the past 10 years, the Costa Rican health sector has carried out a number of activities designed to promote increased civil society participation, particularly: community participation in the Health Insurance Regulations; the creation of health boards through the CCSS Hospital Deconcentration Law of 1998 (Law No. 7852); the opening of branch offices of the Health Services Comptroller in 95% of the country's hospitals; the preparation of a 2005 manual for health committees; and the development of strategic plans for social participation in some health regions.

vices the CCSS provides. The country has authorities both inside and outside the health sector to oversee and safeguard the citizens' exercise of this right. First among these are the IV Constitutional Court, responsible for safeguarding the exercise of constitutional rights, including the right to health; and an ombudsman's office called the "People's Defender" [Defensoría de los Habitantes], which exercises oversight on the timeliness and quality of health care. The Ministry of Health, acting through the Office of the Health Services Auditor General [Auditoría General de Servicios de Salud], which was created by law in 2002, promotes the rights and duties of health system users, both public and private. Moreover, the CCSS system includes an Office of the Health Services Comptroller within its health establishments. This office receives and processes user complaints in conjunction with health councils, which are made up of civil society representatives. The functions of the health councils include managerial oversight of health establishments and the use of budgetary resources.

Over the period 2001–2005, the deconcentration of authority and public health services from the Ministry of Health continued, as well as the deconcentration of CCSS assistance and health care services for individuals. The CCSS Hospital Deconcentration Law of 1998 accords legal autonomy to health establishments to administrate human and financial resources through management commitments, which are signed each year with the central level of the CCSS. With regard to public health, the Ministry of Health has decentralized authority for health surveillance activities based on the "Regulations Governing the Organization and Operation of the National Health Surveillance System," which establish the rules for notifying events of compulsory reporting to inter-agency health surveillance committees at the central, regional, and local levels. Moreover, the Ministry has decentralized health regulatory functions such as the accreditation of health and environmental health establishments. Technical cooperation activities have supported decentralization efforts aimed at training public employees to improve institutional capacity with re-

spect to specific oversight tasks, such as measuring performance of the EPHFs and management functions, and to measure social exclusion in health by geographic areas, ethnic groups, age, and other categories of analysis. In 2001, the health sector conducted a national study to measure the performance of the EPHFs, which was subsequently conducted in each of the nine health regions between 2003 and 2004. Corrective plans for improving the performance of specific EPHFs have yet to be developed, including essential research for implementing innovative solutions in public health, human resources development, and public health training.

According to the 2001 report on measuring the performance of the essential public health functions in Costa Rica: "Social protection in health, which is measured in terms of the population covered with health insurance provided by the Costa Rican Social Security Fund, has experienced some ups and downs over the last 5-year period. Between 2000 and 2004, the uninsured population fluctuated between 12.1% and 14.7%, and this is related to the insurance coverage levels of the economically active population, state insurance coverage, insured family members, and insured retirees."

The increase and expansion of social protection in health is the result of the different insurance mechanisms the CCSS has implemented over the years: mandatory insurance for salaried employees; voluntary, out-of-pocket insurance coverage for self-employed workers; special agreements with trade associations, such as taxi drivers and agricultural workers; agreements with different categories of retired workers; and state insurance coverage of the poor, indigent, and prison populations funded by the national treasury. Between 1975 and 1985, the population covered by these mechanisms increased from 60% to 80%. However, over the subsequent two decades—from 1985 to 2004—public insurance coverage increased by only 7%, or from 81% to 88%.

The expansion of public health insurance coverage under the CCSS is facing problems of financial sustainability. All citizens are

entitled to CCSS services, but audits of the CCSS' collection system reveal problems of contribution evasion and delinquent payments. As a result, revenues entering the system tend to be less than the benefits paid out by a difference of approximately 0.2% of GDP. This situation reduces the institution's capacity to invest in equipment and supplies and hire new staff, which ultimately leads to long patient waiting lists for treatment, substandard quality care, and limitations on coverage. Moreover, this situation has given rise to some unpopular measures, such as requiring the CCSS workforce (approximately 40,000) to pay the full mandatory social insurance contribution for salaried workers (5.5% of annual income), when for many years they were only required to pay half that amount. Other measures taken to improve institutional management at the CCSS include: reducing the billing payment term (from 30 days in 2002 to 18 in 2005); payroll automation; expanding collection centers and payment systems for providers and workers; decreasing the annual provider delinquency rate (from 13.5% in 2002 to 8.5% in 2005); creation of mechanisms to capture information on new salaried workers and independent contractors; development of regulations for the incorporation of independent contractors and individuals under the voluntary insurance system; the national program for incorporating independent contractors; filing of court actions; and orders to prevent businesses from closing down when they fail to disclose information. Whether or not these measures can actually increase social protection in health and improve the quality of CCSS services can only be determined over the medium term.

Finally, the country also has other social protection mechanisms in place, such as the occupational hazard insurance fund and a mandatory driver's insurance fund. The first covers salaried workers and has provided coverage to 71% of the economically active population in recent years. The latter finances medical care and hospital services for people injured in traffic accidents, both passengers and pedestrians.

The regulation of public health and health care services are steering functions of the health sector. Consequently, the Ministry of Health is responsible for their coordination and establishes national policies which are applicable at all levels of the health system. The Ministry regulates the following three areas: health services, basic health supplies, and the environment.

The Bureau of Health Services [Dirección de Servicios de Salud] is responsible for the regulation of health services. Its regulatory activities are divided into three areas of focus, each of which includes appropriate methodologies and instruments: accreditation of health establishments; hospital accreditation; and comprehensive assessment of the primary care level. The Bureau publishes annual reports with the results of evaluations of public and private health establishments, and advancements made in comprehensive care at the primary care level.

With regard to the regulation of health supplies, the Bureau of Registration and Control defines the guidelines and procedures

for the approval and registration of drugs, foodstuffs and products for human consumption, and technical equipment offered on the national market. Currently these activities are still regulated at the central level.

With regard to environmental regulation, the Bureau of Environmental Health is responsible for defining guidelines and procedures at the regional and local levels for construction, waste management, and water quality.

### Health Strategies and Programs

The Concerted Health Agenda, as set out in the National Health Policy, defines the strategies of action and institutions responsible for ensuring compliance with the ten health sector commitments. Commitment 2 is concerned with the building of a culture of health based on social participation; commitment 5 with improving the equity, access, quality, and ethical nature of health care services; and commitment 9 with exercising prudence in the financing, expenditure, and investment in health. This agenda forms the technical and political cornerstone for the development of national health programs, which are promoted at the leadership levels of the Ministry of Health. Leadership in the health sector is the main government strategy for promoting the equity, quality, and coverage of health care services, and for ensuring these objectives are met. However, this leadership role has been weakened due to limitations of the Ministry of Health, such as insufficient resources and institutional capacity, although efforts to correct these problems are under way and the situation is gradually improving. Leadership of the health sector in Costa Rica is based on a series of general and specific laws and executive orders such as the General Law on Health, the Ministry of Health Act, the Public Administration Act, and executive orders regarding the organization and functions of the national health system. Upon taking office in May 2006, among the first actions of the incoming administration was the issuance of an executive order to regulate the internal operations of the Executive Branch, which established the Ministry of Health as the country's leading health authority and incorporated the health boards under the Executive Branch, which are comprised of the Minister of Health and the administrative officers of the decentralized institutions. Follow-up will be needed to decipher if these measures successfully strengthen the leadership role in health.

### Organization of the Health System

The Costa Rican health system is defined as the set of health institutions, programs, and establishments whose mission is to safeguard the health of the individual, the family, and community which, by definition, also includes citizens, local governments, and intersectoral action. The Ministry of Health oversees the performance of the essential public health functions and exercises

the steering role in the health sector. The CCSS is the sole public insurer of comprehensive health care services for the population; the National Insurance Institute (INS) administers mandatory insurance funds that offer protection against occupational risks and traffic accidents. The INS also offers voluntary insurance plans for health care (INS-Salud) and accident liability coverage, through private health care providers and its own facilities. The Costa Rican Institute of Water and Sewerage Systems (AyA) regulates the supply of water for human consumption and wastewater management. The Costa Rican Institute for Research and Education in Health and Nutrition (INCIENSA) performs the functions of a national public health reference laboratory. The Costa Rican Institute on Alcoholism and Drug Dependency (IAFA) administers programs for the prevention and care of addictions. The Costa Rican Cancer Institute (ICCC) was created to develop human resources, promote research, and coordinate the national cancer program. The University of Costa Rica and municipal governments were incorporated into the health sector by a 1989 executive order. The Ministry of Health is part of the Executive Branch, whereas the CCSS, INS, and AyA are all autonomous agencies governed by a board of directors. Each of these autonomous agencies was created through specific laws which provide them with their own resources.

As part of the reform of the health sector during the period 2002–2006, the Ministry of National Planning and Economic Policy approved the structural reorganization of the Ministry of Health with a view to continue efforts to modernize and strengthen its steering role. This reorganization included the creation of several new units to enhance the performance of specific steering functions in health that were performing below expectations, such as expenditures and financing, research and technological development, and public health insurance.

The health sector reform effectively transferred responsibility for service delivery and financing—which were formerly exercised under the leadership role of the Ministry of Health—from the Ministry to the CCSS, where they are administered in accordance with local legislation. However, the Ministry is still responsible for assistance programs such as the program to educate and feed poor children under 7 years of age and the vector control program, the latter of which is currently under study by authorities at the nine health regions to determine whether or not it should be transferred to other agencies.

The Health Sector Council decides the major issues involving the health system. Its members are the incumbent authorities of each of the aforementioned institutions. However, the Council meets sporadically at best, due to a lack of political will on the part of its members. Despite this limitation, the Council has proven useful with respect to coordinating sectoral actions, including national vaccination campaigns and emergency and disaster relief in areas of the country prone to these events, and, more recently, has developed a National Pandemic Influenza Plan.

### Public Health Services

Primary care is the responsibility of Basic Comprehensive Health Care Teams (EBAIS). Each team is comprised of a general physician, an auxiliary nurse, and a primary health care technician. Costa Rica has 893 EBAIS teams, each of which administers care to approximately 4,000 people. National EBAIS coverage is on the order of 90%, which means additional EBAIS teams are still needed to ensure full coverage of the population.

Each health area is supported by a certain number of EBAIS teams. Some teams are not CCSS employees, but workers of cooperative organizations and programs whose services are funded by the CCSS under previously negotiated management commitments. In addition to providing health care to the population in their assigned areas, EBAIS teams also perform field work in health promotion and disease prevention, which is not fully successful due to a lack of community work. Since 2005, all the health areas have signed annual management commitments. During the negotiation phase, prior to signing the commitment and budget approval, each health area is required to submit a situational analysis of the area under its control. This analysis includes the plans and proposed levels of coverage to be carried out over the course of the year.

Health care services for the population are based on a primary care strategy and provided through health promotion and disease prevention programs. These include programs in the areas of nutrition, early stimulation techniques, immunization, vector control, food fortification, basic sanitation, water supply, solid waste disposal, recreation and sports, and social communication in health. Different agencies of the health sector are responsible for administering these programs. However, the Ministry of Health is responsible for sectoral coordination and supervision of such programs. Social networks, organized community groups, volunteer community health agents, nongovernmental organizations, and local governments are also involved in the planning, implementation, and evaluation of these programs, although their role is limited.

During the period 2005–2006, the Bureau of Health Surveillance was reorganized and the new Health Situation Analysis Unit was created to supplement the Bureau's existing Epidemiological Surveillance and Health Statistics units. This brought about a change in the distribution of work within the Bureau and among its units. In addition, the Bureau of Health Surveillance was assigned responsibility for issues related to pharmacovigilance, the indigenous populations, and migrants. The Ministry of Health coordinated two health sector analyses for the periods 1998–2002 and 2002–2006, which served as a basis for formulating national health policies and the Concerted Health Agenda 2002–2006. During this process, the Bureau of Health Surveillance played a pivotal role in terms of identifying the limitations of information: a lack of organized, up-to-date, and uniform intersectoral and inter-agency databases; deficient mapping for data

management; and specific situations lacking sufficient risk analysis. The primary deficiencies observed in the data included underreporting in the notification system for various health situations, improper completion of death certificates, and improper completion of event notification reports. The public health laboratory network is operated by the Costa Rican Institute of Research and Education in Health (INCIENSA), which comprises 85 laboratories and a national reference center. This center is in the last stages of a reorganization which will result in a national network of reference centers and may eventually include a national health institute.

Water pollution, improper management of solid waste, and air pollution are persistent problems in urban areas of the country. The highest levels of pollutants are traditionally observed in the Grande de Tárcoles River Basin of the central valley, which is the most populated area of the country. Moreover, the waters from the basin flow into and pollute the Gulf of Nicoya.

Only 25% of the population is covered with sewage disposal via sanitary sewerage lines and only an estimated 2.4% is covered by functioning sewer systems and wastewater treatment plants. Seventy percent of wastewater is released untreated into the Virillas and Reventazón rivers. Approximately 70% of the population has septic tanks, but many are improperly designed and/or installed without the benefit of instructions on their use and maintenance, and, hence, pose the risk of contaminating aquifers. In spite of progress made in terms of sanitary landfills, only 42% of municipalities use them appropriately. More controls are needed to ensure compliance with existing standards, as well as new regulations governing the use of hazardous compounds. Volatile organic compounds have been detected in wells and increasing nitrate levels are being discovered in wells and springs of the San José metropolitan area, posing a very significant threat to the aquifers of the northeastern part of the central valley.

According to 2005 water access and quality data of the Costa Rican Institute of Water and Sewerage Systems (AyA), there are 2,206 aqueducts that supply 93.4% of the population's water; another 4% either have easy access to water or are supplied by developers or other collective organizations. AyA supplies 46% of the population with 176 aqueducts; the municipalities 18% with 243 aqueducts; the Heredia Public Utility Company (ESPH) 4.7% with 13 aqueducts; and rural associations and committees 24.7% with 1,774 aqueducts. Approximately 18% of the population is supplied with non-potable water. In terms of the population served by systems operated by the AyA, the ESHP, the municipalities, and rural organizations, 1%, 0%, 30%, and 35%, respectively, are supplied with non-potable water. Although disinfected water is distributed by all water systems serving areas with more than 50,000 inhabitants, disinfected water is only distributed by 35% and 10% of systems serving areas with 500–2,500 inhabitants and less than 500 inhabitants, respectively.

In order to close the current gaps in access to sanitary sewerage systems with sufficient treatment of wastewater in the San

José metropolitan area, AyA has projects under way that include the rehabilitation and expansion of collection sewers and sewer networks, and the construction of wastewater and sludge treatment plants with sanitary disposal of waste. The first phase of the project will provide 65% coverage (1 million inhabitants), and has financing of US\$ 230 million. The second phase will provide 85% coverage (1.6 million inhabitants).

Sanitary landfill permits are issued by the Ministry of Health, in coordination with the Ministry of the Environment's Technical Secretariat for the Environment (SETENA), which is supported with advisory services from the Municipal Development Authority (IFAM). The Office of the Controller General of the Republic reviews the budgets of municipal landfill service providers in each canton, either directly or through contract operators. There has been no comprehensive management of landfills, and with only a few but promising exceptions, no waste reduction, reuse, or recycling initiatives either. The amount of refuse generated per capita in the greater San José metropolitan area has doubled over the last 20 years.

With regard to the prevention and control of air pollution, a study of 100,000 emissions samples from gasoline-operated vehicles subjected to technical review showed that traffic emissions from this source have been successfully reduced by 47%. However, this is of little consequence considering the rapidly growing number of motor vehicles and percentage of used vehicles on the road. Over the period 1994–2004 vehicle traffic increased by an average of 8.3% and fiscal policies favor the entry and continued use of used vehicles. High fuel costs have encouraged the use of diesel-powered vehicles whose emissions contain greater levels of particulate matter and sulfurous oxides than gas engines. With regard to the Ministry of Health's "Clean Air" project, the health costs of air pollution in the greater San José metropolitan area are estimated to be US\$ 280 million. The study indicates that 78% of the population in the San José metropolitan area is exposed to PM-10 particulate levels in excess of 60  $\mu\text{g}/\text{m}^3$ .

The Food and Nutritional Safety (SAN) strategy has been deployed in marginal municipalities since 2000, with a view to enhancing the comprehensive development of low-income families through support in the form of projects designed to boost food production and income. By 2005, 19 priority cantons had SAN councils with operating plans and a portfolio of food production projects, administered by local organizations and institutions. At the national level, the SAN strategy is managed by the ministries of Health, Agriculture and Livestock, Economy, and Commerce, in conjunction with the Food and Nutrition Policy Secretariat (SEPAN). The country also has a national food policy and an intersectoral food and nutrition plan.

With respect to disaster preparedness, the Ministry of Health's Risk Management and Ionizing Radiation Control Unit was created through Ministerial Decision No. 129 of 2005, which exercises health sector leadership in this area. In 2005, the CCSS Emergency Command Center was established and a fire engi-

neering unit was added, with a view to strengthening teamwork and organization among the different institutions of the health sector. Among the Ministry of Health's main challenges are the development of a comprehensive health plan for disasters and the strengthening of management at the regional and local levels. Currently, several isolated efforts and shortcomings have been identified toward the implementation of coherent and sustainable strategies for disaster alleviation and prevention aimed at the hospital level. The loss of a wing of the Calderón Guardia Hospital complex due to a fire should serve as a “wake-up call” in terms of the need for establishing a hospital safety plan, managed as a core element of design, standards, and implementation, in order to ensure that the hospital network can adequately respond to such events.

Costa Rica has continued to bolster its response capacity to new diseases (emerging and reemerging), and specifically the threat of pandemic influenza. These efforts have included an expansion of intensive surveillance at 12 sentinel sites located throughout the country, with emphasis on border areas and ports. The country has carried out annual vaccination campaigns against seasonal influenza in which an estimated 250,000 doses of flu vaccines were given to risk groups, created the National Influenza Commission, and work is under way on a National Pandemic Influenza Plan.

### Individual Care Services

The CCSS is responsible for public health care services for individuals. The CCSS organizes and operates these services according to two types of criteria. In the case of the first, the complexity of infrastructure, equipment, and costs are organized and operated as a network of layered services at the primary, secondary, and tertiary levels of care. The second is based on the seriousness of the condition to be treated, according to which services are organized as either outpatient or hospital services. Both criteria complement each other, but their differences prove useful in terms of allocating resources and organizing the flow of patients through referral and counterreferral mechanisms, as well as for operating a model of comprehensive care. It bears mentioning that the model of care determines the extent of the services to be provided to the population in the tri-level care network. Moreover, the current care model was the result of the reorganization carried out as part of the health sector reform. Services are grouped into five program care categories—children, adolescents, women, adults, and older adults—each of which includes a predetermined portfolio of services.

As mentioned previously, the service model and network are oriented to the primary level of care, under the supervision of the Basic Comprehensive Health Care Teams (EBAIS), which operate out of small establishments located among the population. EBAIS teams are assigned to health areas, and each health area has a central clinic that includes resources such as x-ray equip-

ment and a laboratory to aid in the diagnosis and treatment of patients. The central clinics are staffed with a multidisciplinary health team to support the work of the EBAIS teams. In areas of the country with insufficient CCSS infrastructure, these services are provided by external public (University of Costa Rica, since 1999), private (Costa Rican Medical Services Association or ASEMECO, since 2002), or self-managed cooperative (Pavas, Tibás, and Santa Ana, since 1989) providers. The CCSS contracts with these external providers through special agreements under a per-capita cost arrangement. In turn, these providers offer the same services and insurance coverage as the CCSS and cover 10% of the country's population. The country's 104 health areas—which include those operated by the CCSS and external contractors—negotiate their operating budgets each year with the central level of the CCSS, after submitting a situational analysis of the population under their control, which includes the plans and proposed levels of coverage to be carried out over the course of the year. Each team receives its budget by means of a management commitment. At the end of the contract year, the teams' results are evaluated and form the basis for the next year's budget negotiations. Evaluations of these management commitments reveal differences in the form of disparities, both in terms of the coverage and quality of health care services by age groups and health regions. To cite examples, this has been observed in programs of cervicouterine cancer screening through the Papanicolaou or Pap test, and in the vaccination coverage of children under 5 years of age. In general, Pap test coverage is low in comparison to vaccination coverage, and the Huetar Atlántica and Brunca regions have the lowest coverage levels of all regions.

The secondary level of care offers specialized outpatient consultations, hospitalization, and medical-surgical treatment in the core areas of internal medicine, pediatrics, gynecology-obstetrics, and surgery, through a network of ten health centers, 13 peripheral hospitals, and seven regional hospitals. The tertiary level provides high-tech medical and surgical services in three national general hospitals (México, San Juan de Dios, and Calderón Guardia hospitals) and five specialized hospitals (women's, children's, geriatric, psychiatric, and rehabilitation). Due to insufficient investment in hospital infrastructure during the 1980s and 1990s, the supply of some services such as radiation therapy, ophthalmology, and pathology was gradually eclipsed by demand. As a result, there have been long waiting lists for care and user complaints. To alleviate these problems, the sector contracted with private hospitals and providers to close the gap in the demand for these services. However, this measure has proven to be insufficient considering that by early 2005, the number of patients on the waiting list had grown to 14,000. Moreover on a variety of occasions, the quality of contracted care services, the transparency of contracting mechanisms, and the prices agreed for private services have been called into question by civil society, the Office of the People's Defender, and state agencies, such as the Office of the Controller General of the Republic.

In short, access to the care system should be through the primary level of care. However, in the event of medical or surgical emergencies, patients may go to any hospital or clinic offering these services in the nine health regions. Where the seriousness of a condition so warrants, patients are referred from the primary level to a unit of the secondary level of care or to third-level hospitals. Once patients receive care in the hospital network, they are counterreferred to the primary level of care for control and follow-up by EBAIS teams. Shortcomings in the referral and counterreferral system have resulted in long waiting lists for treatment, and this is especially true for oncology procedures, some surgeries, and specialized studies. Comprehensive care provided in the CCSS system is supplemented with other services such as the Ophthalmology Clinic, the Center for Pain and Palliative Care, the Center for the Early Detection and Treatment of Gastric Cancer, the Laboratory of Human Molecular Genetics (“Responsible Paternity”), the National Cytology Laboratory, and the National Blood Bank, among others.

### Health Promotion

According to the National Registry of Health Promotion Organizations created by the CCSS in 2005, the country has 3,500 active health organizations. Of this number, 143 are health boards, 681 health committees, and the remainder patients’ associations, volunteer groups, and other community-based organizations. The country also has a significant number of social networks working in the areas of domestic violence and HIV/AIDS.

Over the past ten years, the Costa Rican health sector has carried out a number of activities designed to promote increased civil society participation. These include: community participation in the Health Insurance Regulations; the creation of health boards through the CCSS Hospital Deconcentration Law of 1998 (Law No. 7852); the opening of branch offices of the Health Services Comptroller in 95% of the country’s hospitals; the preparation of a 2005 manual for health committees; the development of strategic plans for social participation in some health regions; Law No. 8239 regarding user rights and duties of public and private health services; implementation of initiatives such as the Healthy and Ecological Cantons Network; the Network of Health-Promoting Schools; the Healthy Dwellings Network; the Ecological Blue Flag program; and canton food security boards.

Moreover, the nationwide performance measurement studies of the essential functions of public health (EPHFs) conducted by the Ministry of Health in 2001 and in 2004–2005, revealed some strengths in function 4, “health participation,” such as the existence of formal citizen participation processes at the national and local levels, and information strategies for users on their health rights. However, they also revealed weaknesses with respect to the lack of strategies, actions, or processes to foster participation, as well as in the monitoring and evaluation of actions.

The foregoing involve some challenges, such as drafting institutional guidelines for carrying out and monitoring local strategic planning, based on an intersectoral approach, and establishing institutional and inter-institutional mechanisms (CCSS–Ministry of Health) for conducting and coordinating ongoing social participation in health, in coordination with the existing social network. It is important to note that social participation and citizenship in health have been gaining momentum on the agendas of political and technical levels as a key mechanism of accountability and the social production of health.

### Human Resources

The 2001 document on the evaluation of the essential public health functions as well as other studies underscore the problems of maintaining up-to-date information on the situation of the country’s human resources in health. In this regard, the country’s 2002 health sector analysis points out that one problem with human resources information is the “scattered, fragmented, and ‘non-interrelated’ nature of the available information,” and that it is therefore “crucial to strengthen all human resources information systems of the sector’s institutions,” arguing that doing so would “generate new data for use in strategic planning of human resources development,” and would also facilitate “the development of institutional capacity for human resources management.” Moreover, the National Health Policy 2002–2006 defines as strategies for developing human resources policies “the development of human resources information systems for each health sector employer that would likewise be integrated into a sector-wide human resources system,” and the “development of an information system that would integrate educational centers in health with those of the sector’s employers.”

Information on the country’s health professionals is available from the databases of the 2000 census, health sector employers, professional associations, and educational institutions. Based on data from the 2000 census, the ratio of physicians, nurses, and dentists per 10,000 population is 13.6, 8.9, and 3.8, respectively. According to 2005 data provided by the country’s professional associations, these ratios were 20.0 physicians per 10,000 population (8,500), 15.3 for nurses (6,537), and 6.5 for dentists (2,800).

With regard to human resources, disparities are observed both in the distribution of these resources—and consequently, there is no specific information on the needs of health sector employers—and in their management (hiring, salaries, incentives, and access to the human resources decision-making bodies). In terms of employment, the health reforms and structural adjustments carried out in the country over the period 1986–2004 have led to a decrease in the number of health professionals employed by the Ministry of Health. In contrast, the staff of the CCSS has nearly doubled in the last 15 years, reflecting the health system’s

commitment to providing the population with health services. The number of health science educational institutions has grown over the past 15 years. By 2005, the country had 17 schools of psychology, eight of medicine, eight of nursing, five of dentistry, five of pharmacy, three of nutrition, two of social work, two of veterinary science, and one of microbiology. In addition to the fragmented nature of information on human resources in health, other problems have been identified, such as educational curricula that lack adequate emphasis on the primary level of care; the persistence of a biological rather than holistic approach to care that promotes the development of biologically driven human resource competencies, instead of those that respond to the needs of the country's social profile; as well as a lack of definition governing the required skills of each category of health professionals. To address the problems identified in human resources for health, the Technical Commission for the Development of Human Resources in Health was created through Presidential Decree No. 32209-5 of 2005, which incorporated the University of Costa Rica into the sector.

### Health Supplies

Costa Rica does not have a policy in place to regulate the cost of drugs. Consequently, prices are determined by supply and demand. The health system is permitted access to drugs through the social security system, although such access is a slow process. Policies have been enacted to improve access in the private sector, which has resulted in greater competition and a liberalization of the pharmaceuticals market. The current drug registration and control policy has developed in a satisfactory manner and is responsive to the needs of the population. However, a more aggressive strategy of pharmacovigilance is needed. The country does not have a national institutional policy regarding biomedical supplies and equipment. The Ministry of Health is currently working to develop regulations to govern the importation, control, and registry of biomedical equipment and supplies.

### Research and Technological Development in Health

In 2004, the Ministry of Health initiated a process to strengthen research and technological development in health. One outcome of this process was the creation of the Bureau of Research and Technological Development in Health (2005), with a view to leading, monitoring, and strengthening initiatives to create the knowledge base among the different groups involved in the research, promotion, and evaluation of technology, in order to satisfy priority needs in the health field, in compliance with its steering role in the public and private sectors. Accordingly, the Ministry of Health defines the National Agenda of Health Research by preparing, reviewing, and updating standards and procedures; developing techniques and instruments for health re-

search; exercising the leading role in scientific and technological research in health, in coordination with the pertinent social actors; establishing research networks in specialized areas to facilitate the sharing of information, services, opportunities, and contacts; developing and maintaining an information system on technological research and innovations in health, which makes it possible to monitor developments and update the work of the sector in this area; and establishing networks of scientific ethics committees, accredited by the National Council on Health Research, which are governed by processes of standardization and accreditation, with systems to control, monitor, and evaluate compliance with the principles of ethical and scientific research mandated by national legislation, among other functions. The National Agenda of Research and Technological Development in Health 2005–2010 was approved in 2005, and a registry was compiled of the research projects carried out in this field during the period 2000–2005.

### Health Sector Expenditures and Financing

In 2000, the country's expenditures on health were 5.2% of GNP. Over the last three years, this figure has remained relatively unchanged at 5.7% of GDP. While no specific data is available detailing the private sector health expenditure, it is thought to be increasing and estimated at approximately 2.5% of GDP. The 2000 per capita expenditure in health was US\$ 209, which increased to US\$ 234 in 2004; nevertheless, the impact of inflation must be factored in with a view to evaluating the change in purchasing power. Health sector spending as a percentage of domestic production increased from 4.0% in 2000 to 4.5% in 2005.

With regard to public health expenditures, in 2004 the CCSS accounted for approximately 82.7% of health sector expenditures, which is slightly higher than the 80.3% registered in 2000. This is the result of policies designed to expand services, acquire more equipment, and build new facilities at the different levels of care. Expenditures of the Ministry of Health also increased from 6.1% in 2000 to 7.1% in 2004. The percentage of health sector expenditures attributable to the Costa Rican Institute of Water and Sewerage Systems decreased from 8.2% in 2000 to 7.3% in 2004. Health sector expenditures of the Costa Rican Cancer Institute accounted for 0.1% of GDP in 2004.

Upon analyzing CCSS expenditures by level of care, spending for outpatient care services increased from 32% in 2001 to 35% in 2005. In contrast, spending for hospital services decreased from 50.6% in 2001 to 46.2% in 2005, which is in keeping with policies designed to strengthen the primary level of care. It bears mentioning that institutional expenditures for research and development accounted for 1.5% of total sector expenditures in 2005.

As a result of the country's epidemiological transition and decisions of the IV Constitutional Court ordering the CCSS to purchase additional health supplies, CCSS institutional expenditures

**TABLE 3. External cooperation, non-reimbursable and reimbursable, Costa Rica, 2002–2004.**

Type of cooperation	2002		2003		2004		2002–2004	
	Total <sup>a</sup>	%	Total <sup>a</sup>	%	Total <sup>a</sup>	%	Total <sup>a</sup>	%
Non-reimbursable	41.1	4.9	89.3	10.7	62.8	7.6	193.2	23.2
Reimbursable	148.3	17.8	487.4	58.6	3.2	0.4	638.9	76.8
Total <sup>a</sup>	189.4	22.7	576.7	69.3	66	8	832.1	100

<sup>a</sup>In US\$ millions.**Source:** Costa Rica, Universidad para la Cooperación Internacional; Ministerio de Planificación Nacional y Política Económica, 2006.**TABLE 4. Approved international cooperation, by year and type, Costa Rica, 2002–2004.**

Year	Bilateral cooperation (in US\$ millions)	Multilateral cooperation (in US\$ millions)	Total (in US\$ millions)
2002	25.3	164.0	189.3
2003	115.7	461.1	576.8
2004	52.1	13.9	66.0
Total	193.1	639.0	832.1
%	23.2	76.8	100.0

**Source:** Costa Rica, Universidad para la Cooperación Internacional; Ministerio de Planificación Nacional y Política Económica, 2006.

for drugs have increased in recent years, rising from 7.5% of total health sector expenditures in 2001 to 8.6% in 2005.

With respect to sector financing, workers' social security premiums accounted for approximately 83% of total income in 2001, which decreased to 79% in 2004. In 2004, the total income of the CCSS accounted for 4.5% of GDP, whereas its total expenditures accounted for 4.7%, which underscores the financial weakness of public health insurance.

### Technical Cooperation and External Financing

Between 2002 and 2004, external technical cooperation amounted to US\$ 832.1 million (Table 3). Of this amount, only 23.2% was for non-reimbursable technical cooperation. The percentage of external resources was highest in 2003, for a total of US\$ 576.7 million (69.3% of the total during this period).

Bilateral technical cooperation for Costa Rica in the period 2002–2004 was 23.2% (US\$ 193.2 million), while loans from multilateral organizations accounted for 76.8% (US\$ 638.9 million). During this period, international cooperation for the health sector was US\$ 27.3 million, which accounted for 3.3% of total technical cooperation and ranked sixth among favored sectors (Tables 4 and 5).

The available information does not facilitate the breakdown of health sector data by origin of funding or type of cooperation. The multilateral and bilateral sources of technical cooperation to the sector include the Japan International Cooperation Agency, the Japan Bank for International Cooperation, the World Bank, the

**TABLE 5. Approved international cooperation, by sector, Costa Rica, 2002–2004.**

Cooperation by sector	Amount (in US\$ millions)	%
Environment, energy, and telecommunications	378.9	45.5
Economy and finance	103.8	12.5
Foreign trade	87.2	10.5
Public works and transport	79.2	9.5
Local development	28.7	3.4
Health	27.3	3.3
Agriculture and fisheries	25.2	3.0
Housing and urban development	23.9	2.9
Tourism	15.3	1.8
Science and technology	12.5	1.5
Education	11.6	1.4
Others (culture, security)	38.5	4.6
Total	832.1	100.0

**Source:** Costa Rica, Universidad para la Cooperación Internacional; Ministerio de Planificación Nacional y Política Económica, 2006.

Inter-American Development Bank, the Organization of American States, the Pan American Health Organization/World Health Organization, the Government of South Korea, the Government of the Netherlands, the European Union, the Regional Coordinating Committee of Potable Water and Sanitation Institutions of Central America, Panama, and the Dominican Republic, the Norwegian Agency for Development and Cooperation, the Central American Bank for Economic Integration, and the International Regional Committee for Plant and Animal Health. The primary work areas of projects financed by these cooperation agencies are: strengthening and modernization of the health sector; strengthening of the steering role of the Ministry of Health; strengthening of the country's response to HIV/AIDS; air quality improvement; control of environmental pollution; creation, expansion, and/or maintenance of hospital infrastructure and equipment; incorporation of the bio-psychosocial model in the National Rehabilitation Center (CENARE); accreditation of academic fields and teacher training; strengthening of the first level of care; improving gastric cancer early detection and care; access to potable water in urban centers; and the rehabilitation of health infrastructure in rural communities. In addition, training of health sector personnel with technical

cooperation assistance facilitates new knowledge for applications in specialized health areas and the management of social projects. Based on the trend observed since the 1990s, Costa Rica is increasingly receiving less preference for technical cooperation than other countries of Central America.

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