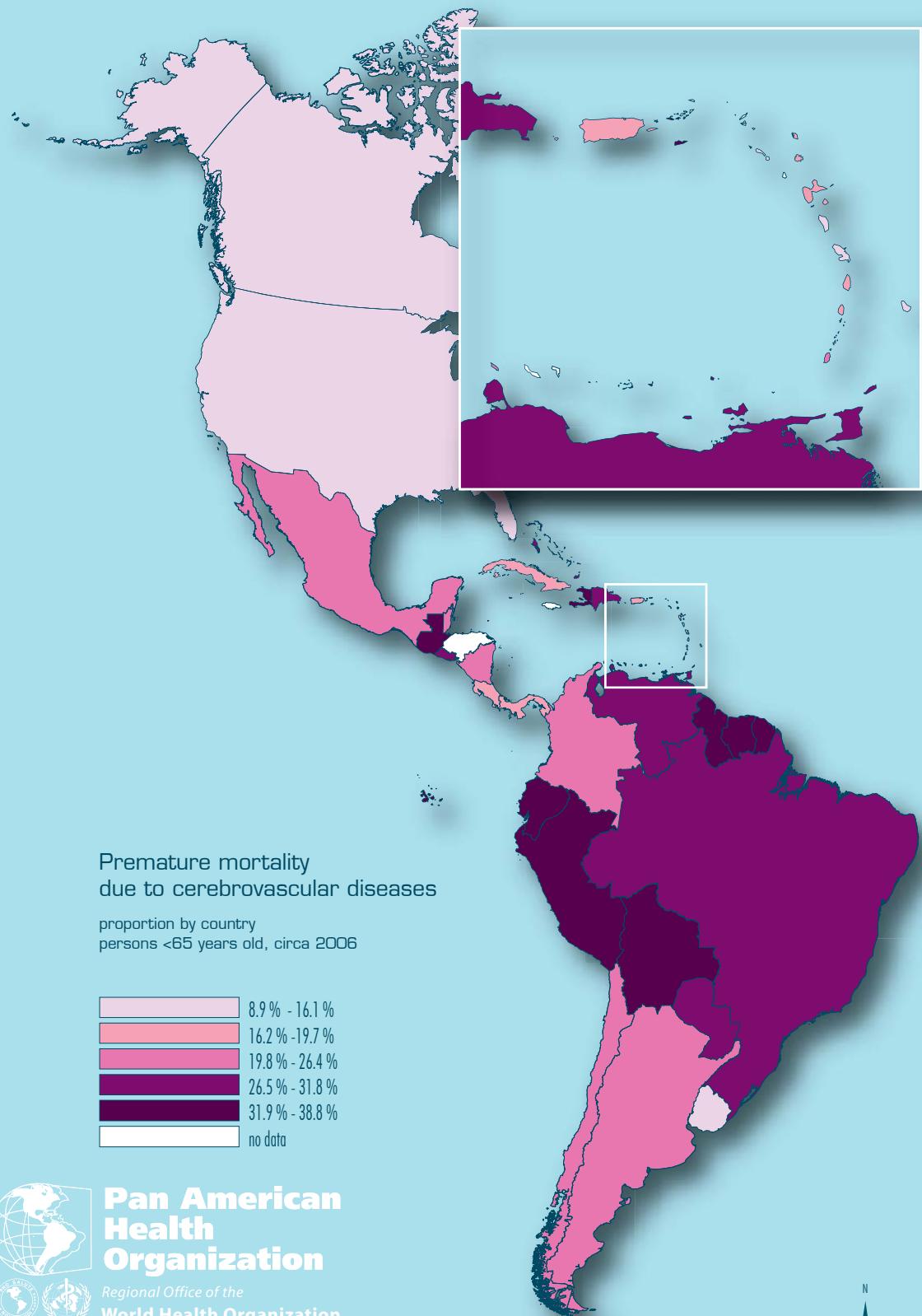


health situation in the americas

Basic Indicators

2009



**Pan American
Health
Organization**

Regional Office of the
World Health Organization

Office of the Assistant Director
Health Surveillance and Disease Prevention and Control
Health Information and Analysis



preface

Chronic noncommunicable diseases currently are reaching epidemic proportions in the Americas and are contributing substantially to overall mortality and disease burden in the Region. They result from complex and dynamic socially determined health processes, including epidemiological and demographic transitions. Once thought to be an issue primarily affecting the older population in high-income countries, chronic noncommunicable diseases are now affecting younger population segments and the poor in the lower-income countries of Latin America and the Caribbean.

The means for preventing and controlling most noncommunicable diseases are already well established and high-income countries—followed by middle-income countries—are now showing continuous progress in both prevention and control interventions. The low- and lower-middle-income countries, on the other hand, face the dual challenge of coping with scarce resources to address both noncommunicable and communicable diseases, as well as infant and maternal mortality.

Among chronic noncommunicable diseases, cardiovascular diseases are a leading cause of morbidity and mortality in the Americas, occurring increasingly within the working age population and thereby contributing disproportionately to the loss of potential years of healthy life and economic productivity. This situation is already recognized as a major and growing public health problem, particularly affecting low- and middle-income countries, but what is less recognized is the role of social disparities as determinants of the premature mortality due to cardiovascular diseases in the Region.

The purpose of this publication is to call the attention of the general public and the governments of the Americas to an exploratory analysis of the relationship between premature mortality due to cerebrovascular diseases (CeVD) and potential socioeconomic inequality determinants at the ecological level.

The map on the first page of this brochure depicts the quintile distribution of proportional premature mortality due to cerebrovascular disease in the countries and territories of the Americas.

The material presented in this brochure has been compiled, drafted, and reviewed by PAHO regional staff, and staff from ministries of health. For more information, including all basic indicators, and their definition, please refer to
http://new.paho.org/hq/index.php?option=com_content&task=view&id=34&Itemid=456.



Mirta Roses Periago
Director

mortality indicators

	10 maternal mortality ratio (100,000 lb) or number of deaths (Nº)	11 maternal mortality ratio estimated (100,000 lb) 2005 WHO	12 infant mortality rate (1,000 lb) or number of deaths (Nº)	13 < 5 mortality estimated (1,000 lb) 2007 WHO	14 15 registered deaths < 5 due to		16 ill-defined and unknown causes (%) (2005)	17 mortality under- registration (%) (2003-05)
					ratio (Nº)	year		
The Americas	63.7	97	14.8	19	2.9	5.7	4.8	10.4
North America	13.3	11	6.6	8	0.1	1.6	1.3	1.0
Bermuda	-	2008	...	n/a 3	2006	...	...	...
Canada	8.8	2005	7	5.0	2006	6	1.0	1.8 e
United States of America	13.3	2006	11	6.7	2006	8	0.1	0.9
Latin America & the Caribbean	87.4	135	18.7	24	4.1	7.4	6.9	16.1
Latin America	87.6	136	18.7	24	4.1	7.4	7.0	16.2
Mexico	55.6	2007	60	15.7	2007	21	4.0	3.3 f
Central American Isthmus	118.0	228	22.4	31	7.8	14.5	7.0	16.4
Belize	n/a 3	2008	52	17.2	2007	25	8.0	14.1
Costa Rica	n/a 14	2007	30	10.0	2007	11	1.3	9.6 f
El Salvador	71.2	2005	170	21.5	2007	24	8.8	21.6 g
Guatemala	148.8	2005	290	...	39	12.6	25.9	7.2 h
Honduras	...		280	23.0	2006	24	...	...
Nicaragua	76.5	2007	170	33.0	2006	35	8.0	38.8
Panama	83.6	2006	130	14.7	2007	23	4.4	16.7 k
Latin Caribbean	319.1	335	34.2	49	5.5	5.6	10.3	39.4 f
Cuba	46.5	2008	45	4.7	2008	6	1.3	...
Dominican Republic	86.3	2008	150	29.6	2008	38	4.7	47.0 e
French Guiana	...		...	12.1	2007	...	4.8	-
Guadeloupe	n/a 1	2005	...	6.1	2007	...	-	11.8
Haiti	630.0	2006	670	57.0	2006	76	9.7	28.2 a
Martinique	12.8	2005	...	8.8	2007	...	-	7.4
Puerto Rico	n/a 5	2007	18	8.4	2007	...	-	1.8
Andean Area	71.3	163	17.3	24	5.1	8.7	7.7	26.5
Bolivia	...	290	...	57	7.3	3.0	45.0 d	69.5 d
Colombia	75.0	2006	130	15.5	2006	20	3.8	21.7 g
Ecuador	90.2	2007	210	18.1	2007	22	4.8	16.2 g
Peru	...	240	21.0	2004-06	20	2.9	12.3	40.5 e
Venezuela	56.8	2007	57	16.1	2007	19	8.5	10.1
Brazil	77.2	2006	110	20.0	2007	22	3.1	15.7 f
Southern Cone	49.6	71	12.5	16	1.4	5.0	6.9	6.2
Argentina	43.7	2007	77	13.3	2007	16	1.0	4.8 f
Chile	18.2	2007	16	8.3	2007	9	0.2	1.1 g
Paraguay	127.3	2007	150	16.7	2007	29	4.9	32.5 g
Uruguay	n/a 4	2008	20	10.6	2008	14	1.6	...
Non-Latin Caribbean	...	...	...	32	1.4	4.7	3.0	11.1
Anguilla	-	2008	...	...	-	-	5.5 c	8.1 g
Antigua & Barbuda	-	2008	...	17.5	2008	11	2.4	11.7 l
Aruba	n/a 1	2004	...	n/a 3	2004	...	-	28.9 k
Bahamas	n/a 4	2007	16	17.6	2007	13	2.5	14.7
Barbados	-	2007	16	14.2	2005	12	2.1	3.5 d
Cayman Islands	-	2008	...	n/a 1	2008	...	-	26.1 l
Dominica	n/a 1	2008	...	n/a 9	2008	14	-	15.4 g
Grenada	-	2007	...	n/a 13	2008	19	18.8	...
Guyana	112.5	2007	470	22.0	2005	60	9.9	21.4
Jamaica	...	170	21.1	2006	31	...	...	...
Montserrat	-	2008	...	-	2008	...	-	...
Netherlands Antilles	...	...	...	...	...	...	...	...
Saint Kitts & Nevis	n/a 1	2008	...	n/a 10	2008	18	-	-
Saint Lucia	n/a 2	2007	...	15.0	2005	13	...	...
Saint Vincent & the Grenadines	n/a 2	2007	...	26.2	2006	17	2.9	...
Suriname	184.3	2007	72	19.8	2007	28	1.0	9.6
Trinidad & Tobago	n/a 9	2004	45	16.5	2004	35	3.0	6.3 l
Turks & Caicos Islands	-	2008	...	n/a 1	2008	...	-	28.0
Virgin Islands (UK)	-	2008	...	n/a 7	2008	...	-	...
Virgin Islands (US)	-	2006	...	n/a 9	2006	...	-	1.7

BI 16 - 17: (a) value 2004; (b) value 2007; (c) value 2006; (d) value 2003; (e) value 2003,2004; (f) value 2005-2007; (g) value 2004-2006; (h) value 2005, 2006; (k) value 2003, 2004, 2006; (l) valor 2002-2004; (m) valor 2004, 2005, 2007; (n) valor 2001-2003.

socioeconomic indicators

	50T literate population (15+ years old) (%) 2007			51 calories availability (Kcal/p/day)	52A gross national income (US\$ per capita) 2007		53 annual GDP growth (%)	54 highest 20%/ lowest 20% income ratio	55T 2006 population with access (%) to		
	total	male	female		current value	ppp value			improved facilities of drinking water sources	total	urban
				2003			2006-07	2000-06, lay		rural	rural
The Americas	...	...	...	3,206	21,393	23,178	3.1	13.6	94	98	80
North America	...	...	...	3,739	45,424	44,843	1.1	8.2	99	100	95
Bermuda	...	...	...	2,235	...	...	4.3	...	...	...	...
Canada	...	...	...	3,605	39,650	35,500	1.7	5.5	100	100	99
United States of America	...	...	...	3,754	46,040	45,840	1.0	8.4	99	100	94
Latin America & the Caribbean	...	...	...	2,873	6,009	9,787	4.4	...	91	97	72
Latin America	91.1	92.0	90.3	2,887	6,035	9,829	4.4	17.2	91	97	72
Mexico	92.8	94.4	91.4	3,171	9,400	13,910	2.2	11.5	95	98	85
Central American Isthmus	81.2	83.8	78.9	2,384	2,753	5,419	4.2	17.8	88	96	79
Belize	...	...	...	2,876	3,760	6,080	-0.9	...	...	100	...
Costa Rica	95.9	95.7	96.2	2,813	5,520	10,510	6.3	12.4	98	99	96
El Salvador	82.0	84.9	79.7	2,556	2,850	5,640	3.3	16.4	92	98	88
Guatemala	73.2	79.0	68.0	2,227	2,450	4,520	3.2	16.8	...	...	...
Honduras	83.6	83.7	83.5	2,373	1,590	3,610	4.3	23.9	84	95	74
Nicaragua	78.0 ^a	78.1 ^a	77.9 ^a	2,291	990	2,510	2.6	15.0	79	90	63
Panama	93.4	94.0	92.8	2,287	5,500	10,610	9.8	23.1	93	99	83
Latin Caribbean	...	...	...	2,585	...	...	...	...	82	90	69
Dominican Republic	99.8	99.8	99.8	3,286	...	...	...	...	91	95	78
French Guiana	89.1	88.8	89.5	2,281	3,560	6,350	7.3	14	95	97	91
Guadeloupe	...	...	...	...	...	...	...	...	98	...	...
Haiti	...	...	...	2,109	520	1,050	1.4	25	58	70	51
Martinique	...	...	...	...	...	...	...	...	...	...	...
Puerto Rico	...	...	...	...	...	...	...	...	...	...	...
Andean Area	91.5	93.4	89.7	2,484	4,391	8,481	5.9	19.5	90	97	74
Bolivia	90.7	96.0	86.0	2,219	1,260	4,150	2.8	33.7	86	96	69
Colombia	92.7	92.4	92.8	2,567	4,100	8,260	6.2	26.6	93	99	77
Ecuador	84.2	87.3	81.7	2,641	3,110	7,110	1.6	17.2	95	98	91
Peru	89.6	94.9	84.6	2,579	3,410	7,200	7.6	13.9	84	92	63
Venezuela	95.2	95.4	94.9	2,272	7,550	12,290	6.6	10.0	...	...	...
Brazil	90.0	89.8	90.2	3,146	5,860	9,270	4.2	19.4	91	97	58
Southern Cone	97.0	97.1	97.0	2,892	6,192	11,909	6.5	15.2	91	98	70
Argentina	97.6	97.6	97.7	2,959	6,040	12,970	7.6	15.9	96	98	80
Chile	96.5	96.6	96.5	2,872	8,190	12,330	4.1	13.8	95	98	72
Paraguay	94.6	95.7	93.5	2,524	1,710	4,520	4.9	16.9	77	94	52
Uruguay	97.9	97.4	98.2	2,883	6,390	11,020	7.1	11.5	100	100	100
Non-Latin Caribbean	...	...	...	2,698	5,969	9,432	-0.4	...	94	97	91
Anguilla	...	...	...	...	...	...	...	...	...	99	...
Antigua & Barbuda	...	...	...	2,313	11,650 ^b	17,680 ^b	-2.1 ^b	...	...	95	...
Aruba	98.1	98.2	98.1	...	...	...	...	...	100	100	100
Bahamas	...	...	...	2,709	...	...	1.6	...	98	...	100
Barbados	...	...	...	3,123	...	...	...	...	100	100	100
Cayman Islands	98.9	98.7	99.0	...	...	...	...	...	...	99	99
Dominica	...	...	...	2,785	4,030 ^b	6,930 ^b	2.6 ^b	...	100	...	...
Grenada	...	...	...	2,990	3,920	5,480	2.9	...	97	...	96
Guyana	...	...	...	2,764	1,250	2,580	9.2	...	93	98	91
Jamaica	86.0	80.5	91.1	2,690	3,330	5,300	-7.7	9.9	93	97	88
Montserrat	...	...	...	...	...	...	...	...	100	100	100
Netherlands Antilles	96.4	96.3	96.4	2,592	...	...	...	...	96	...	96
Saint Kitts & Nevis	...	...	...	2,713	9,990	13,680	2.5	...	99	99	99
Saint Lucia	...	...	...	2,975	5,520	9,240	2.0	...	98	98	98
Saint Vincent & the Grenadines	...	...	...	...	4,210	7,170	6.2	...	...	...	...
Suriname	90.4	92.7	88.1	2,697	4,730	7,640	4.7	...	92	97	79
Trinidad & Tobago	98.7	99.1	98.3	2,788	14,480	22,420	5.1	...	94	97	93
Turks & Caicos Islands	...	...	...	...	...	...	...	...	100	100	100
Virgin Islands (UK)	...	...	...	...	...	...	...	...	98	98	98
Virgin Islands (US)	...	...	...	...	...	...	...	...	100	100	99

BI 50THM, 52AB, 53: (a) value 2005; (b) value 2006.

BI 55, 56TUR: (c) data provided by country.

premature mortality due to cerebrovascular disease (CeVD), c2006

Figure 1.

Proportional premature mortality due to cerebrovascular disease by income level; countries of the Americas; c 2006.

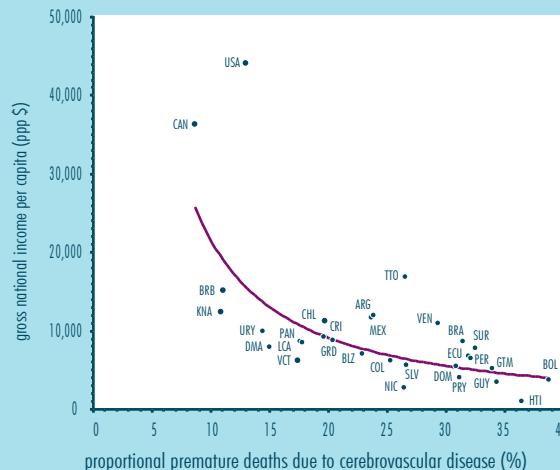
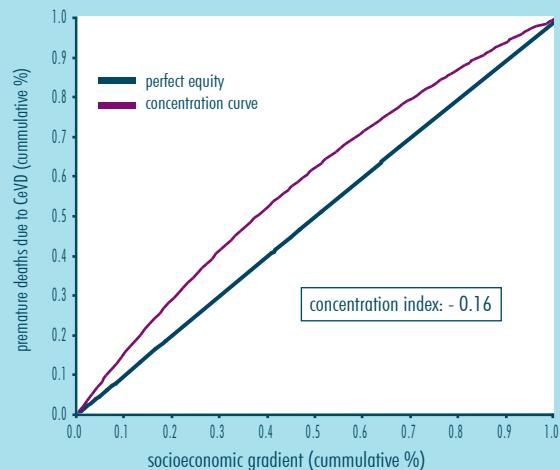


Figure 2.

Inequality concentration curve of premature mortality due to cerebrovascular disease; countries of the Americas; c 2006.



Both the expansion of life expectancy and the reduction of the disease burden - by postponing the age of onset of chronic infirmity relative to average life duration - are phenomena that are taking place in the populations across the Region of the Americas.

Cerebrovascular diseases (ICD 10: I60-I69) are among those chronic cardiovascular illnesses for which a great number of preventive interventions and disease management are available and, indeed, there has been a sustained reduction in mortality due to stroke in most countries of the Region of the Americas between 1970 and 2000. Despite these health gains, mortality due to cerebrovascular diseases remains four times greater in Latin American and Caribbean than in North American countries. More importantly, a considerable proportion of deaths originated by cerebrovascular diseases (~22%) occurs prematurely: each year, this untimely burden of mortality represents on average, 90,000 deaths among people younger than 65 years of age in the Americas (out of a total burden of more than 400,000 deaths due to this same group of causes). This burden of premature mortality disproportionately affects women.

The reasons for these differences are not well known, although it is suspected that there are significant disparities in the incidence of cerebrovascular events, access to health services, quality of medical care for stroke, and risk-factor control. The map of this brochure depicts the quintile distribution of proportional premature mortality due to cerebrovascular diseases in the countries and territories of the Americas.

Among the many uses of the PAHO Basic Indicators to generate evidence in public health, an exploratory analysis of the relationship between premature mortality due to cerebrovascular diseases (CeVD) and potential socioeconomic inequality determinants, at the ecological level, is presented here. Figure 1 shows the non-linear inverse relationship between premature mortality due to CeVD, as a proportion of the total number of deaths due to CeVD, and gross national income per capita, adjusted by purchasing power parity; the higher the income, the lower the proportional premature mortality due to CeVD; in other words, the wealthier people are more able to postpone deaths due to CeVD to ages older than 65 years than the poorer.

There is also a non-linear direct relationship (not shown) between the risk of dying prematurely due to CeVD, as measured by the mortality rate, and the magnitude of the average income ratio of the richest quintile to the average income of the poorest quintile. This so-called "20/20 Kuznets ratio" is a summary measure of the depth of income inequality in a society: the deeper the income inequality, the greater the risk of dying prematurely due to CeVD.

Figure 2 tells us how unequally distributed those premature deaths due to CeVD are among the countries of the Americas or, more specifically, along the social gradient of the population defined by income level. The concentration index, a robust summary measure of inequality, is 0.16, indicating that premature mortality due to CeVD is disproportionately concentrated among the poorer in the social gradient. The concentration curve indicates that almost 30% of the premature deaths due to CeVD are in the poorest 20% of the population of the Americas, whereas only 13% of those premature deaths are concentrated in its richest 20%.

This exploratory analysis shows the importance of chronic diseases with regard to premature mortality and its unequal distribution in the population. These untimely deaths are associated with both poverty and income inequality, as well as with difficulties to access health services and benefits of social policies. In fact, poverty-reduction and inequality-reduction strategies could contribute to reduce the burden of premature mortality due to cerebrovascular diseases in the Americas, along with other strategies such as those aimed at strengthening and developing health policies directed at the prevention and control of chronic diseases, health promotion, and access to health care.

technical notes & sources

Technical notes:

- Infant mortality rate (IMR) and maternal mortality ratio (MMR) (BI 10, 11) are reported by countries. For some countries due to the small number of events, rate/ratio does not meet standards for reliability and precision and number of events are presented. An increase of MMR or IMR may reflect an improvement in data coverage and quality.
- Certified deaths due to ill-defined and unknown conditions (BI 16) refers to death certificates issued in a given year for which the underlying cause of death was symptoms, signs, and ill-defined and unknown conditions (ICD-10: R00-R99).
- Mortality under-registration (BI 17) is determined by subtracting from 1 the total cumulative deaths registered in a country-period divided by the corresponding total cumulative estimated deaths, obtained after applying the UN estimated crude death rates to the corresponding population estimates by the UN. For countries with population fewer than 300.000 pop, US Census Bureau rate and population are applied.
- Corrected mortality rates (BI 18Tc/Mc/Fc – BI 28Tc/Mc/Fc) were computed based on registered mortality data, applying a correction algorithm for mortality under-registration and a redistribution algorithm for deaths from ill-defined causes. The methodology used is presented in Health Statistics from the Americas, 2006 edition (<http://www.paho.org/HSA2006>).
- Age-adjusted mortality rates (BI 18 Ta/Ma/Fa – BI 28Ta/Ma/Fa) were computed by direct standardization to the World Standard Population (2,400 under 1 year; 9,600 from 1 to 4 years; 19,000 from 5 to 14 years; 43,000 from 15 to 44 years; 19,000 from 45 to 64 years; and 7,000 65 years and older) (WHO, World Health Statistics Annual; 1996 Edition; Geneva, 1998).
- Malaria risk areas population (BI 31) shows the proportion of the total population in a country living in high and moderate malaria transmission risk areas. Moderate risk: API between 1 to 10/1,000 pop; high risk: API > 10/1,000 pop.
- National Health Expenditure (BI 42AB) corresponds to expenditure in the function 'health' (Division 07) of the functional classification of government expenditure of the International Family of Classifications of the United Nations. It includes expenditures by general government, from social security funds and other public health insurance systems (mandatory). Data are from the public finance statistics of the International Monetary Fund (printed version 2006 and CD, 2004) and from financial reports of public health insurance institutions. For more information, please go to:
www.paho.org/Spanish/DPM/SHD/HP/nhexp-metodos.htm
- Denominator for rates of BI 29, 30, 31, 35 y 41: UN WPP 2008 Revision; US Bureau of the Census.

Subregional aggregates express average values weighted by respective denominator. The sum of the total is presented for absolute numbers. Values from different years are included in this total.

Information presented in this publication supersedes that of previous editions and is under ongoing review. Users are advised not to compare data series between different editions. Data sources were defined to ensure comparability; therefore, statistics can differ from national statistics.

Suggested citation:

Pan American Health Organization, Health Information and Analysis Project. Health Situation in the Americas: Basic Indicators 2009. Washington, D.C., United States of America, 2009.

Data sources:

- Technical reports from PAHO/WHO Country Representatives; Region of the Americas; 2009, (BI 10, 12, 37, 41, 43-44, 49). As of 26 June 2009.
- Technical reports from PAHO/WHO Regional Areas; 2008 (BI 29-36, 38-40, 42AB, 45-48). As of 26 June 2009.
- United Nations Population Division. World Population Prospects: The 2008 Revision, New York; 2009 (BI 1-6, 9THM).
- U.S. Bureau of the Census. International Data Base (BI 1-6, 8, 9THM). Accessed 20 July 2009 at:
<http://www.census.gov/ipc/www/idb/informationGateway.php>
- World Health Organization. World Health Statistics 2009. Geneva, WHO; 2009 (BI 11, 13).
- United Nations Population Division. World Urbanization Prospects: The 2007 Revision, New York; 2006 (BI 7).
- PAHO/WHO. Technical Information System: Regional Mortality Database, HSD/HA; Washington DC; 2009 (BI 14-28).
- UNESCO. Institute for Statistics (UIS). Data Centre, UIS Estimates (BI 50THM). Accessed 20 July 2009 at: <http://www.stats.uis.unesco.org>.
- United Nations. Food and Agriculture Organization (FAO), FAOSTAT Statistical Database. Rome (BI 51). Accessed 27 July 2009 at: <http://apps.fao.org>.
- The World Bank 2009 World Development Indicators. Washington, D.C.; 2009 (BI 52AB-54).
- WHO/UNICEF. Monitoring Programme for Water Supply and Sanitation (JMP, 2008). Data provided by the Pan American Center for Sanitary Engineering and Environment Sciences (CEPIS) (BI 55-56).

Map:

PAHO/WHO Regional Mortality Database, 2008; Analysis: HSD/HA.

Abbreviations:

(-) magnitude zero; (0) magnitude less than half the measurement unit; (...) data not available; (c) circa; (pop) population; (lb) live births; (lay) latest available year; (ppp) purchasing power parity; (GDP) gross domestic product; (ADD) acute diarrheal diseases: CIE-10: A00-A09; (ARI) acute respiratory infections: CIE-10: J00-J22; (SS+) sputum smear positive; (API) annual parasite index; (aids) acquired immunodeficiency syndrome; (DPT3) diphtheria-pertussis-tetanus, third dose; (Polio 3) oral polio vaccine or inactivated polio vaccine, third dose; (BCG) anti-tuberculosis vaccine (bacille Calmette-Guerin); (MMR) measles, mumps and rubella; (n/a) not applicable; (IB) basic indicator.

Country codes according to ISO 3166-1:

Aruba (ABW), Anguilla (AIA), Netherlands Antilles (ANT), Argentina (ARG), Antigua and Barbuda (ATG), Bahamas (BHS), Belize (BLZ), Bermuda (BMU), Bolivia (BOL), Brazil (BRA), Barbados (BRB), Canada (CAN), Chile (CHL), Colombia (COL), Costa Rica (CRI), Cuba (CUB), Cayman Islands (CYM), Dominica (DMA), Dominican Republic (DOM), Ecuador (ECU), Guadeloupe (GLP), Grenada (GRD), Guatemala (GTM), French Guiana (GUF), Guyana (GUY), Honduras (HND), Haiti (HTI), Jamaica (JAM), Saint Kitts & Nevis (KNA), Saint Lucia (LCA), Mexico (MEX), Montserrat (MSR), Martinique (MTQ), Nicaragua (NIC), Panama (PAN), Peru (PER), Puerto Rico (PRI), Paraguay (PRY), El Salvador (SLV), Suriname (SUR), Turks and Caicos Islands (TCA), Trinidad & Tobago (TTO), Uruguay (URY), United States of America (USA), Saint Vincent & the Grenadines (VCT), Venezuela (VEN), Virgin Islands UK (VGB) and Virgin Islands US (VIR).