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General Aspects of Mortality in the Americas

Life Expectancy at Birth

In adopting the Plan of Action for implementation of the Regional Strategies to attain health for all by the year 2000, the Member Governments of the Pan American Health Organization (PAHO) defined a minimum goal stating that by the end of the century no country in the Americas would have a life expectancy at birth of less than 70 years.

Life expectancy is an indicator calculated on the basis of a life table, which in turn is prepared on the basis of age-specific mortality rates. Life expectancy at birth is the reciprocal of the crude mortality rate from the life table, and sums up in one figure the mortality experience of all the age groups in a population; it is the average number of years that a newborn child may expect to live if the rates used to calculate the life table hold constant during its life. In addition to serving as an indicator of the level of mortality, it is quite frequently used to characterize the level of welfare and hence the degree of social development of a country.

Deficiencies in mortality and population data compromise the validity of the mortality rates, the life table, and all the indicators derived from it, including life expectancy at birth. However, there are demographic analysis procedures that can be used to construct life tables based only on census data and on techniques derived from population theory. The analyses that follow are based on figures for life expectancy at birth calculated, projected and published by the United Nations Population Division.

The countries of Latin America and the Caribbean are expected to achieve during the period 2000-2005 the level of life expectancy at birth that existed in the countries of North America during the period 1950-1955. Similarly, the average expectancy of 70 years, which the latter countries attained in 1960, will not be achieved until after the year 2010.

Table 1 indicates that there exist major differences between countries, some of which had already raised their life expectancy at birth to more than 70 years during the period 1980-1985. According to recent projections of the UN Population Division, other countries should attain the minimum goal by the end of the century, but 11 countries will have to make special efforts to reduce their mortality levels. Moreover, these national values are averages and shed no light on differences between population subgroups within a country, just as regional averages do not reflect differences between countries.

The life expectancy at birth of women is consistently greater than that of men, and it is striking that this difference is greater in the countries of North America, where it reaches about eight years -almost double the difference seen in the countries of Latin America and the Caribbean (Table 1).

Another obvious fact is that the higher the life expectancy at birth, the more slowly it continues to

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Table 1. Life-expectancy at birth in the period 1980-1985, by sex, and percentage increase since the period 1950-1955, in selected countries of the Americas.

Country	Life expectancy at birth (years) 1980-1985			Per cent increase since 1950-1955		
	Total	Male	Female	Total	Male	Female
Argentina	69.7	66.4	73.1	11.1	9.9	12.3
Barbados	72.7	70.0	75.4	27.1	27.3	26.7
Bolivia	50.7	48.6	53.0	25.5	26.2	24.7
Brazil	63.4	60.9	66.0	24.4	23.6	25.1
Canada	75.7	72.3	79.3	9.6	8.2	10.8
Chile	69.7	66.7	72.9	29.8	28.5	30.9
Colombia	63.6	61.4	66.0	25.6	25.8	25.5
Costa Rica	73.0	70.5	75.7	27.5	25.9	28.2
Cuba	73.4	71.8	75.2	24.8	26.6	23.3
Dominican Republic	62.6	60.7	64.6	38.8	39.2	38.3
Ecuador	64.3	62.3	66.4	33.0	32.3	33.9
El Salvador	64.8	62.6	67.1	43.3	42.0	44.5
Guatemala	59.0	56.8	61.3	40.1	35.6	44.6
Guyana	68.2	65.8	70.8	23.6	23.0	24.2
Haiti	52.7	51.2	54.4	40.1	41.0	39.8
Honduras	59.9	58.2	61.7	42.1	42.3	41.8
Jamaica	73.0	70.3	75.7	27.6	26.2	29.0
Mexico	65.7	63.5	68.1	29.6	29.1	30.0
Nicaragua	59.9	58.7	61.0	41.5	43.5	39.6
Panama	71.0	69.2	72.9	28.4	27.2	29.7
Paraguay	65.1	62.8	67.5	25.4	25.6	25.1
Peru	58.6	56.8	60.5	33.5	32.5	34.5
Suriname	68.0	65.6	70.6	21.4	20.6	22.4
Trinidad and Tobago	68.7	66.2	71.3	18.7	17.4	20.0
United States	74.3	70.6	78.1	7.7	6.6	8.5
Uruguay	70.3	67.1	73.7	6.2	6.1	6.3
Venezuela	69.0	66.0	72.1	25.0	22.7	27.4

Source: United Nations. *World Population Prospects: Estimates and Projections as Assessed in 1984*. ST/ESA/SER.A/98. New York, 1986.

rise; it is harder for a country to gain a year when its life expectancy at birth is already high because it has already eliminated many of the problems for which the knowledge and proper techniques for their solution are available. The percentage increase is much greater for countries of low life expectancy at birth, some of which raised their expectancies more than 30% during the period considered. It is also true that some countries have raised their life expectancy faster than anticipated and others much more slowly.

General Mortality and Causes of Death

PAHO requests mortality data from Member Countries by means of an annual questionnaire. These data from the returned questionnaires are collated, edited, and processed. Every effort is made to produce timely data, but many delays are inherent in this process. For example, the most recent final mortality statistics available at PAHO from any country in the Region of the Americas are for 1984. Summary statistics such as crude death rates, are frequently available before more detailed data are obtained by PAHO.

At the time this analysis was prepared, age- and sex-specific mortality data classified according to the Ninth Revision of the International Classification of Diseases were available at PAHO for 39 out of a total of 49 countries and other political units in the Region. The most recent available data for 7 countries pertained to 1982, for 7 countries to 1981, for 2 countries to 1980, and for 2 countries to 1979.

Any mortality analysis at the national, subregional, or regional level will be influenced by many variables: the extent of coverage of the population by death registries, which are the source of the statistics; the completeness of death registration within the population covered by the registries; the manner in which the data are collected and processed, including the accuracy of the coding; the completeness of medical certification of cause of death; and the accuracy of the final diagnosis. Data are not available with which to assess fully the influence of many of these variables.

In most countries death certification is required for interment. Hence, the total number of deaths registered is usually quite complete (greater than 90% of the events occurring). According to a United Nations study requesting countries to estimate the completeness of their data[1], of 43 countries responding, 12 (28%) had less than 90% completeness, while 6 (14%) provided no specific information regarding completeness. Death registration for infants less than one year of age, deaths due to armed conflict, and deaths occurring in remote areas may be incomplete. In this same study, 15 out of 43 countries (39%) reported less than 90% completeness of registration of infant deaths. The magnitude of underregistration of these deaths is not stated and is probably unknown in many countries. Nevertheless, although deaths occurring in remote rural areas may go undetected, their number may not influence the totals very much since most of the population (over 70% in 1980) in the Region is located in urban areas where registration of death is more complete. While death registration may be reasonably complete, the same cannot be said for the accuracy of the information recorded. Records of age at the time of death, residence, and cause of death are frequently incorrect. The age may be incorrectly reported or rounded; residence at the time death occurred, rather than permanent residence, may be recorded.

Errors in establishing the cause of death are a major problem, mainly due to the incompleteness of

[1] United Nations. *Demographic Yearbook* 1983, New York, 1985, pp.290, 344,and 373.

Table 2. Percentage of medically certified deaths and of deaths due to symptoms, signs, and ill-defined conditions, in selected countries.

Country (year)	Medically certified deaths (%)	Deaths due to ill-defined conditions (%)
Brazil (1980)	75.0	21.5
Chile (1979)	89.5	10.9
Colombia (1977)	75.2	8.6
Costa Rica (1979)	43.0	9.3
Dominican Republic (1979)	43.0	28.3[a]
Ecuador (1978)	57.0	16.5
El Salvador (1983)	46.5	21.5[b]
Guatemala (1981)	30.0	23.8
Honduras (1983)	11.0	85.4
Panama (1978)	75.0	11.3[c]
Paraguay[d] (1979)	43.0	37.1[a]
Peru (1980)	62.7	8.3
Suriname (1983)	88.6	30.2[b]
Uruguay (1984)	100.0	13.2
Venezuela (1981)	85.5	14.5

[a] Data for 1980.
[b] Data for 1982.
[c] Data for 1979.
[d] Area of information.

medical certification of death and the inaccuracy of the final diagnosis. With or without medical certification, the final cause of death may be unclear and thus classified as due to "symptoms and ill-defined conditions," while in those cases where a defined cause is recorded, the accuracy of the final diagnosis may be questionable. Some indication of this problem can be obtained by measuring the percentage of medically certified deaths. Table 2 summarizes data for selected countries. The percentage of deaths that are medically certified ranges from a low of 11% in Honduras to a high of 100% in Uruguay.

While collection and collation of data may not be timely, coding of the information according to the Ninth Revision of the International Classification of Diseases is quite accurate, with no more than 2-5% error rates.

Crude and age-adjusted death rates

To compare death rates in different countries and in the same country over time, age-adjusted death rates are used since they permit comparisons between rates from populations with different age structures. Age-adjusted rates represent the mortality rate that would be expected if a country's age-specific mortality rates had prevailed, and if its population had an age distribution equal to that of a standard population. In calculating adjusted rates, PAHO uses a standard population derived from an estimated age distribution of the entire Latin American population around the year 1960. Table 3 summarizes both crude and age-adjusted rates for 41 countries.

No data were available for Bolivia or Haiti. Age-adjusted mortality rates range from a low of 3.2 per

Table 3. Number of deaths and crude and age-adjusted rates, per 1,000 population, around 1984.

Country (year)	Number of deaths[a/]	Crude rate	Age-adjusted rate
Latin America			
Andean Area			
Colombia (1981)	167,293	6.3	...
Ecuador (1980)	57,020	7.0	7.6
Peru (1982)	85,441	4.7	4.4
Venezuela (1983)	76,725	4.7	4.9
Southern Cone			
Argentina (1981)	241,904	8.4	5.2
Chile (1983)	74,428	6.4	5.0
Paraguay[b] (1984)	14,106	6.2	5.8
Uruguay (1984)	30,011	10.0	4.9
Brazil[b] (1983)	768,608	...	...
Central America			
Belize (1984)	785	5.0	4.9
Costa Rica (1983)	9,432	3.9	3.9
El Salvador (1984)	28,870	5.4	5.7
Guatemala (1981)	71,748	10.1	10.0
Honduras (1983)	19,304	4.7	5.8
Nicaragua (1984)	13,541	9.7	...
Panama (1984)	8,250	3.9	3.6
Mexico (1982)	412,345	5.6	5.7
Latin Caribbean			
Cuba (1983)	58,348	5.9	3.9
Dominican Republic (1981)	24,743	4.4	4.8
Puerto Rico (1983)	21,400	6.6	4.0
Caribbean			
Antigua y Barbuda (1983)	352	4.5	...
Bahamas (1981)	1,207	5.7	4.9
Barbados (1984)	2,027	8.0	3.9
Cayman Islands (1983)	105	5.5	...
Dominica (1984)	432	5.6	5.0
French Guiana (1983)	455	5.7	6.1
Grenada (1984)*	729	6.5	...
Guadeloupe (1981)*	2,091	6.3	...
Guyana (1979)	5,410	6.4	6.7
Jamaica (1982)*	10,861	4.9	...
Saint Lucia (1984)	736	5.5	6.1
St. Christopher and Nevis (1983)	478	9.5	...
St. Vincent and the Grenadines (1983)	700	6.8	5.2
Suriname (1982)	2,377	6.6	6.4
Trinidad and Tobago (1979)	7,060	6.5	6.0
Turks and Caicos (1979)	34	5.6	4.1
Virgin Islands (UK) (1982)	68	5.7	5.1
Virgin Islands (US) (1980)	540	5.5	4.8
North America			
Bermuda (1978)	362	7.3	4.6
Canada (1984)	175,727	7.0	3.2
United States (1983)	2,019,201	8.6	3.7

[a] Includes deaths of unknown sex.
[b] Area of information.
* Provisional data.
... Data unknown.

1,000 in Canada to a high of 10.0 in Guatemala. Most countries (19) had adjusted rates in the 4-5.99 per 1,000 range, while seven (Ecuador, French Guiana, Guatemala, Guyana, Saint Lucia, Suriname and Trinidad and Tobago) had higher rates.

Sex and age-specific mortality rates

Table 4 shows the most recent data available on number of deaths by sex and the sex-specific death rates per 1,000 population for all countries except Antigua, Bolivia, Haiti, and Martinique. For males, the mortality rate ranges from a low of 3.2 per 1,000 population in Turks and Caicos to a high of 11.9 in Guatemala. In Argentina, Barbados, Bermuda, French Guiana, St. Christopher and Nevis, the United States and Uruguay, the male mortality rate was also relatively high i.e., 8.0 per 1,000 population or greater. Female mortality rates are generally lower and range from a low of 3.4 per 1,000 population in Costa Rica and Panama to a high of 11.0 in St. Christopher and Nevis.

Sex and age-specific death rates for six age groups (1-4, 5-14, 15-24, 25-44, 45-64, and 65+ years) from 36 countries are analyzed. Mortality rates were plotted versus age for the total population and separately for males and females. Four general patterns of mortality emerged based on the level of mortality in the 1-4 year age group and differences in sex-specific mortality rates.

Argentina, Bahamas, Canada, Chile, Puerto Rico and the United States had similar patterns in which childhood mortality is low. Adolescent and young adult mortality is equal and low for both sexes until the 45-64 year age group when a significant excess of male mortality develops and continues through the age group 65 and older.

Barbados, Costa Rica, Cuba, Panama, St. Christopher and Nevis, and Saint Lucia had another pattern. In this profile, childhood mortality is also low, and male and female mortality rates closely parallel each other throughout all age groups with only a slight increase in male mortality rates by ages 45-64, which continues through age 65 and over. St. Christopher and Nevis was relatively unique in that the mortality rate for the 65+ age group (112/1,000 population) was far greater than in any other country in this or any other group.

A third pattern exists in Belize, Dominican Republic, Honduras, Paraguay, and Venezuela. In this pattern, male and female mortality rates were even more closely identical until ages 65+ but childhood mortality was relatively elevated. The Netherlands Antilles and St. Christopher and Nevis were the only countries in this or any other group in which female mortality exceeded male mortality in the 65+ age group.

Table 4. Number of deaths and rates per 1,000 population, by sex and by country, around 1984.

Country	Number of deaths[a]		Rate	
	Male	Female	Male	Female
Latin America				
Andean Area				
Colombia (1981)	94,646	72,647	7.1	5.5
Ecuador (1980)	30,663	26,357	7.5	6.5
Peru (1982)	44,841	40,600	4.9	4.5
Venezuela (1983)	44,101	32,624	5.4	4.0
Southern Cone				
Argentina (1981)	138,504	103,400	8.0	9.0
Chile (1983)	42,135	32,293	7.3	5.5
Paraguay[b] (1984)	7,368	6,738	6.5	6.0
Uruguay (1984)	16,589	13,401	11.3	8.8
Brazil[b] (1983)	449,054	319,083	...	...
Central America				
Belize (1984)	454	331	5.8	4.3
Costa Rica (1983)	5,313	4,119	4.3	3.4
El Salvador (1984)	17,320	11,550	6.4	4.3
Guatemala (1981)	42,929	28,819	11.9	8.2
Honduras (1983)	10,877	8,427	5.3	4.1
Nicaragua (1977)	7,012	5,480	6.2	4.7
Panama (1984)	4,674	3,376	4.3	3.4
Mexico (1982)	236,592	173,185	6.5	4.7
Latin Caribbean				
Cuba (1983)	33,161	25,187	6.6	5.2
Dominican Republic (1981)	13,725	11,018	4.9	4.0
Puerto Rico (1983)	12,418	8,982	7.8	5.4
Caribbean				
Bahamas (1981)	662	545	6.4	5.1
Barbados (1984)	963	1,064	8.0	8.1
Cayman Islands (1983)	62	43	6.6	4.5
Dominica (1984)	205	222	5.4	5.6
French Guiana (1983)	287	168	8.2	4.8
Grenada (1984)	328	401	6.0	7.0
Guadeloupe (1983)*	1,186	967	7.3	5.8
Guyana (1979)	3,016	2,394	7.1	5.6
Jamaica (1982)*	5,417	5,444	4.9	4.8
Saint Lucia (1981)	405	438	6.4	6.6
St. Christopher and Nevis (1983)	228	250	10.2	11.0
St. Vincent and the Grenadines (1983)	341	359	6.9	6.8
Suriname (1982)	1,303	1,074	6.6	5.9
Trinidad and Tobago (1979)	3,867	3,193	7.1	5.9
Turks and Caicos (1979)	11	23	3.2	6.5
Virgin Islands (UK) (1982)	47	21	7.9	3.5
Virgin Islands (US) (1980)	304	236	6.3	4.8
North America				
Bermuda (1978)	205	157	8.2	6.3
Canada (1984)	97,872	77,855	7.9	6.1
United States (1983)	1,071,923	947,278	9.4	7.9

[a] The sum of male and female deaths may not be equal to the total number of deaths given in other tables, due to some deaths being reported as "sex unknown."
[b] Area of information.
* Provisional.
... Data unknown.

A different pattern is demonstrated by data from El Salvador, Guatemala, and Suriname. Male mortality rates are much greater than female rates from age 15 onwards throughout all age groups. Childhood mortality may or may not be elevated.

Mortality by cause

The Ninth Revision of the International Classification of Diseases (ICD-9) was adopted by the 29th World Health Assembly in 1976; some countries implemented it on 1 January 1979, while others did not begin to use it until 1980.

The previously mentioned incompleteness of medical certification of death and inaccuracy of final diagnosis have major implications for any analysis of causes of mortality. In many countries a significant proportion of deaths is classified as being due to "symptoms, signs and ill-defined conditions." There is an inverse correlation between the percentage of deaths with medical certification and the percentage of deaths recorded as due to "symptoms and ill-defined conditions" (ICD-9, codes 780-799). Where medical certification is more or less complete, fewer deaths are coded in this category. Thus, the occurrence of a large proportion of deaths classified as being in this category reflects to some extent the level of coverage of the population by health care services.

Table 5 summarizes the total number of deaths from all causes and the number and percentage of deaths due to "symptoms and ill-defined conditions" for 35 countries. The countries with the lowest percentage of deaths due to "symptoms and ill-defined conditions" were Cuba, 0.3%, Puerto Rico, 0.8%, and Canada and the United States with 1.2% and 1.5%, respectively. The countries with the highest percentage were Honduras, 48.1% Dominican Republic 25.5%, and Paraguay 23.5%. Less than 5% of the total number of deaths due to all causes were due to "symptoms and ill-defined conditions" in ten countries -Argentina, Barbados, Canada, Costa Rica, Cuba, Puerto Rico, Trinidad and Tobago, United States, Venezuela, and the Virgin Islands (US). Ten countries -Bahamas, Colombia, Chile, Dominica, Grenada, Guadeloupe, Mexico, Panama, Peru, and Uruguay were in the 5-9.9% range, while six countries -Belize, French Guiana, Guatemala, Guyana, St. Vincent and the Grenadines, and St. Christopher and Nevis -were in the 10-14.9% range. Three countries -Ecuador, Saint Lucia, and Suriname- were in the 15-19.9% range, while six countries -Brazil, Dominican Republic, El Salvador, Honduras, Paraguay, and Virgin Islands (UK)- classified 20% or more of their deaths due to ill-defined causes.

Table 5. Number of deaths due to all causes and number and per cent of deaths due to symptoms, signs and ill-defined conditions, by country, around 1984.

Country (year)	Deaths all causes	Deaths due to ill-defined conditions (ICD-9, 780-799)	
		Number	Percent
Latin America			
Andean Group			
Colombia (1981)	167,293	12,664	7.6
Ecuador (1980)	57,020	9,526	16.7
Peru (1982)	85,441	6,302	7.4
Venezuela (1983)	76,725	2,601	3.4
Southern Cone			
Argentina (1981)	241,904	7,733	3.2
Chile (1983)	74,428	6,733	9.0
Paraguay[a] (1984)	14,106	3,315	23.5
Uruguay (1984)	30,011	2,197	7.3
Brazil[a] (1983)	768,608	163,527	21.3
Central America			
Belize (1984)	785	92	11.7
Costa Rica (1983)	9,432	362	3.8
El Salvador (1984)	28,870	6,727	23.3
Guatemala (1981)	71,748	10,217	14.2
Honduras (1983)	19,304	9,294	48.1
Panama (1984)	8,250	774	9.4
Mexico (1982)	412,345	22,203	5.4
Latin Caribbean			
Cuba (1983)	58,348	183	0.3
Dominican Republic (1981)	24,743	6,305	25.5
Puerto Rico (1983)	21,400	167	0.8
Caribbean			
Bahamas (1981)	1,207	76	6.3
Barbados (1984)	2,027	88	4.3
Dominica (1984)	432	37	8.6
French Guiana (1983)	455	59	13.0
Grenada (1984)	729	63	8.6
Guadeloupe (1981)*	2,091	203	9.7
Guyana (1979)	5,410	709	13.1
Saint Lucia (1981)	843	153	18.1
St. Christopher and Nevis (1983)	478	63	13.2
St. Vincent and the Grenadines (1983)	700	70	10.1
Suriname (1982)	2,377	394	16.6
Trinidad and Tobago (1979)	7,060	155	2.2
Virgin Islands (UK) (1982)	68	10	20.3
Virgin Islands (US) (1980)	540	4	0.7
North America			
Canada (1983)	175,727	2,021	1.2
United States (1983)	2,019,201	29,628	1.5

[a] Area of information.
* Provisional.

Any analysis of causes of mortality must be interpreted with extreme caution in those countries that have a high percentage of total deaths coded as due to "symptoms, signs and ill-defined conditions." For example, in El Salvador if "symptoms and ill-defined conditions" were included in the ranking of

leading causes of death, it would be listed as the first "cause of death" for all age groups combined, first for the 1-4 year-old age group, second for the 5-14, fourth for the 15-24, third for the 25-44 year-old age group, and first again for the 45-64 year-old and the 65+ year-old age groups. Similar patterns are found in Guatemala, Honduras and Paraguay. In the Dominican Republic, "symptoms and ill-defined conditions" would be either the first or second "cause of death" in all age groups, except the under one age group, where it ranks third. Thus, if most of these ill-defined conditions were due to only a few causes, a totally different picture of the mortality structure might emerge.

The leading causes of mortality reflect, in a general way, the health profile of the population and the range of health problems each population must face. In each of the 35 countries, the first five leading causes of mortality were examined for the total population and for men and women separately, for five specific age groups, 5-14, 15-24, 25-44, 45-64 and 65 years and over. The first five causes of mortality generally include approximately 30-65% of all deaths from all causes for all ages.

Obviously, the very nature of the groupings contributes to whether or not specific disease problems are determined to be "leading" causes of death. For example, while infectious diseases, as a group, continue to cause appreciable morbidity and mortality in Latin America, individual, specific infectious diseases rarely appear among the first five causes of mortality. In some countries no infectious diseases appeared in the top 20 causes of mortality. Few specific infectious diseases appeared in the top five among the countries analyzed. In Ecuador, tuberculosis is the second leading cause of death in the 15-24 year-old age group as well as in the 25-44 year-old age group. In Guatemala, measles is the third leading cause of death in the 5-14 year-old age group.

The analysis of mortality by cause was hampered in the small Caribbean islands by the small number of total deaths. A few deaths due to one cause or another could significantly alter the ranking in particular age groups. For example, in Dominica, in 1982, there was a total of 414 deaths. Of these, 3 occurred in the 5-14 year-old age group while 7 occurred in the 15-24 year-old age group. An additional death due to any particular cause would significantly alter the ranking.

In general, regardless of a particular country's stage of development or progress in health care, violent death, in one form or another, dominates the mortality profile of the 5-24 year-old age groups, for both sexes. These deaths were due to motor vehicle accidents, all other accidents combined, suicide and homicide. Again, regardless of the stage of a country's development, the 45-64 year-old age group and the 65+ age group were dominated by cardiovascular disease, cerebrovascular disease, and malignant neoplasms.

In the 5-14 year-old age group, for both sexes combined, motor vehicle accidents, general accidents, and injuries dominate the mortality profile. Occasionally countries report leukemia as the fourth or fifth leading cause of death. In the less developed countries other conditions related to infectious diseases may occur among the first five leading causes of death. For example, in El Salvador, Guatemala, and Peru other intestinal infections, influenza and pneumonia, and measles appear among the first five causes. In the United States death due to congenital anomalies appears as the third leading cause of death in this age group.

The 15-24 year-old age group is also dominated by accidental and violent death. Suicide and homicide appear as leading causes in this age group. For example, in Suriname, suicide is the second cause of death with 25.5% of all deaths due to this cause; in women, suicide accounts for 33% of all deaths. In the United States, 36.7% of all deaths in this age group were due to motor vehicle accidents; if these are combined with all other accidents, homicides and suicides, violent death accounts for 78.7% of all deaths. In some of the countries maternal causes of death appear as important causes among females. For example, maternal causes are the first cause of death in Paraguay, the second cause in Ecuador, Mexico, and Suriname, and the third cause in the Dominican Republic, El Salvador, Guyana, Panama, Trinidad and Tobago, Uruguay, and Venezuela.

In the 25-44 year-old age group no clear-cut patterns emerged. In a sense, this is a transitional age group with a variable and sometimes unique profile. Motor vehicle accidents and accidents in general are less prominent as a cause of death, occasionally appearing as the fourth or fifth cause. Diseases of the pulmonary circulation and other heart disease begin to appear with greater frequency. Nevertheless, some countries have unique patterns. For example, in Chile, the third cause of death in this age group is chronic liver disease and cirrhosis.

In the 45-64 and in the 65+ year age groups the pattern of chronic debilitating degenerative diseases emerges for most countries of the Region. The 28 countries with more than 100 deaths in the 45-64 year age group reported malignant neoplasms and diseases of the heart among the five leading causes of deaths; 23 reported cerebrovascular diseases and

accidents within the first five; 12 reported chronic liver disease and cirrhosis, and 10 reported diabetes mellitus. Diseases of the heart ranked first among the leading causes in 16 countries, and were responsible for as much as 30% of the deaths in Argentina (30.0); Barbados (29.7); Belize (31.2); Canada (31.0); Costa Rica (33.0); Cuba (29.6); Netherlands Antilles (29.5); Puerto Rico (29.8); Trinidad and Tobago (34.7); United States (34.9), and Venezuela (29.8).

The above pattern is very similar for the 65+ year age group in which all 33 countries with more than 100 deaths in that age group reported malignant neoplasms and diseases of the heart among the five leading causes; 32 reported cerebrovascular disease, 17 reported diabetes mellitus, and 12 reported chronic liver disease and cirrhosis. One notable difference between this and the previous age group is that influenza and pneumonia, which was reported as a leading cause by only three countries in the 45-64 year age group, in the 65+ group was among the five first in 27 countries.

In spite of the limitations inherent in the data, it is clear that mortality in this Region is no longer dominated by infectious diseases alone. There now exists an epidemiological mosaic which also includes chronic degenerative diseases, violent death, and other consequences of the environment and certain life-styles. More detailed and comprehensive mortality analyses at local levels will provide valuable insights for epidemiologists, administrators, planners, and decision-makers.

(*Source*: Health Situation Analysis and Trend Assessment Program, PAHO.)

Analysis of Some Aspects of Mortality in Canada

Editorial Note

The two articles that follow, "Early Mortality Due to Unintentional Injury in Canada, 1985" and "Life Expectancy by Sex, Age and Income Level", are presented here because they illustrate some ways in which mortality data can be analyzed to achieve a picture which is more informative than the one obtained by looking at just the traditional rates and proportions. The first article shows an application of the indicator for years of life lost prematurely, which is being increasingly used to take into consideration the importance of age of death when analyzing the leading causes of mortality. The second article illustrates the use of another mortality indicator, life expectancy at birth, to relate the overall level of mortality and the level of income as a means of approximating the influence of social and economic conditions on health.

It is hoped that these two examples of epidemiologic analysis may stimulate similar endeavours in countries of the Americas, with the aim that mortality data, which are the most readily available data in all countries of the Region, be more widely used for priority and policy formulation and the creation of consensus required for action and resource allocation.

Early Mortality Due to Unintentional Injury in Canada, 1985

Introduction

Mortality occurring before age 65 is one of the leading problems facing our health care system. With the decline in importance of infectious diseases, unintentional injuries have become the leading cause of death for more than half the human lifespan, ages 1-44(*1*). Conventional mortality rates, which treat all deaths equally regardless of age, do not provide an adequate measure of this early mortality. One measurement of the number of economically productive years of life lost is the potential years of life lost index. This report uses this index to examine unintentional injury—the leading cause of potentially preventable early mortality in Canada.

Material and Methods

A machine readable record of all deaths in

Canada in 1985, by 5 year age groups, was obtained from Statistics Canada. These data were used to compute directly age-stardardized death rates for All Causes; Unintentional Injuries (9th revision ICD codes E800-E949); Neoplasms (140-239); Cardiovascular Diseases (390-448); Suicide and Homicide (E950-E969); Congenital Anomalies (740-759); and Respiratory Diseases (460-519). Potential years of life lost (PYLL) before retirement, i.e. age 65, were calculated for these causes of death as well as for the major components of unintentional injuries. PYLL were computed by multiplying the number of deaths in each age group by the difference between the midyear of the age group and 65. The PYLL by age group were then summed to obtain the total PYLL for each cause of death. The average PYLL per death was calculated by dividing the total cause specific PYLL by the number of deaths observed.

Results

Unintentional injuries, i.e. those resulting from motor vehicle traffic accidents, drowning, fire, poisonings, and falls, are the leading cause of PYLL before age 65 in Canada. In 1985 they resulted in 219,641 PYLL or 22.3% of all PYLL that year (Table 1). Neoplasms (19%) and cardiovascular diseases (14%) ranked second and third, respectively, in terms of PYLL before age 65.

Motor vehicle traffic accidents (E810-E819) are by far the leading cause of death due to unintentional injuries. In 1985 they represented 57% of the total PYLL before age 65 and eight times more PYLL than the next leading cause of PYLL due to unintentional injuries (Table 2). Drowning (E910) and fire and flames (E890-E899) were the next two leading causes of PYLL from unintentional injuries in Canada in 1985, followed by poisonings (E850-E869) and falls (E880-E888). Table 2 also presents the cause specific PYLL rate sex ratios for the 5 leading causes of PYLL from unintentional injuries. The male PYLL rate per 100,000 population was more than twice the female rate for each cause. The largest sex ratio in 1985 was 7.1 for PYLL resulting from falls. The average PYLL per death (Table 2) reveals that in 1985 the average age at death due to drowning among women was 6 years less than the average age among men. For deaths due to falls, men died, on the average, 9 years younger than women. There was no significant difference in the average age at death between men and women for the other leading causes of death due to unintentional injuries.

Discussion

The age-standardized (all ages) mortality rate for cardiovascular diseases and neoplasms far exceeds that of unintentional injuries. However, the majority of deaths from the former two causes occur after age 60, in contrast to deaths from unintentional injuries which primarily involve much younger persons. This is reflected in the PYLL index. The average PYLL per death for unintentional injury was three times that of neoplasms or cardiovascular disease. Thus the allocation of health resources must consider not only the number of deaths by cause but also by age(*2*). The continuing large numbers of PYLL due to unintentional injuries, particularly motor vehicle traffic accidents, in Canada and elsewhere highlights the importance of effective preventive measures. When injuries are studied epidemiologically, many opportunities for prevention may become evident. What is known about host, agent, and environment can be translated into programmatically sound interventions that reduce

Table 1. Years of life lost before age 65 and age-standardized mortality rates, by cause of death, Canada, 1985.

Cause of death (9th revision ICD)	Years of life lost	Age-standardized mortality rates (per 100,000)	Average PYLL per death
All causes	985,640	590.2	18.4
Unintentional Injury (E800-E949)	219,641	34.6	32.5
Neoplasms (140-239)	185,744	155.3	11.1
Cardiovascular Diseases (390-438)	134,179	244.2	9.4
Suicide and Homicide (E950-E969)	96,068	13.5	28.8
Congenital Anomalies (740-759)	77,717	6.1	58.3
Respiratory Diseases (460-519)	26,854	46.1	14.3

Table 2. PYLL rates per 100,000 population, PYLL rate ratios, and average PYLL per death of the 5 leading causes of unintentional injury in Canada, by sex, 1985.

Cause of death	PYLL rate per 100,000	Rate ratio*	Average PYLL per death
MVTA			
Male	798.8		35.4
Female	300.1	2.7	33.6
Drowning			
Male	98.0		36.5
Female	25.2	3.9	42.4
Fire and Flames			
Male	81.5		34.9
Female	39.9	2.0	35.5
Poisonings			
Male	47.2		27.2
Female	18.7	2.5	26.1
Falls			
Male	59.4		23.4
Female	8.3	7.1	14.7

* Male Rate/ Female Rate

injury morbidity and mortality(*3*). Increased governmental and private support of the activities of the various groups involved in injury prevention should be emphasized.

References

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(*3*) Premature Mortality due to Unintentional Injuries - United States, 1983. *MMWR* 35:353-6,1986.

(*Source*: Leonard MacWilliam and Louise Fortier. First published in *Chronic Diseases in Canada*, Vol. 8, No. 1, June 1987.)

Life Expectancy by Sex, Age, and Income Level

The purpose of this article is to present an updated overview of the variations in life expectancy by income level in Canada. Mortality data for 1984 were retrieved from the Canadian Mortality Database of the Vital Statistics Division of Statistics Canada. Income categories were determined using the quintile of the median household income of the census tracts of Canada's census metropolitan areas. The relative risks of death by age and sex for each income level, in reference to the highest income group, were those derived in the initial study by Wigle and Mao(*1*). Age-sex specific mortality rates for 1984 by income level were calculated by applying the 1984 mortality rate and the relative risk of death to the Bayesian formula(*2*) and then used to construct life tables following a method developed by Chiang(*3*).

Life expectancy is a hypothetical measure and indicator of current health and mortality conditions(*4*). The life expectancy according to income level can be used to study the association between income and the risk of death due to all causes. The study showed that life expectancy increased monotonically with income level. The difference in life expectancy by income level was greater for males than females at all ages. The difference for each sex was greatest at birth, relatively constant up to age 35 and declined rapidly after age 45. For females over 55 and males over 75, this difference was less than one year.

The relationship between income level and life expectancy must be carefully interpreted; an association should not be confused as a causal relation. Income level is correlated with factors such as education, occupation and lifestyle which can independently contribute to the risk of disease. Chronic disease and disability may cause a decline in income level due to loss of employment or a decline in job status and pay; thus, a relatively low income at the time of death can be a result of disease as opposed to a cause(*1*). The correlation observed from the life table does not imply that income per se directly influences life expectancy. Income should be considered as a socioeconomic status indicator. The results indicate that the residents of high socioeconomic status areas live longer than those of the low socioeconomic status areas.

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(*Source*: Anne-Marie Ugnat and Elen Mark. Adapted from an article first published in *Chronic Diseases in Canada*, Vol. 8, No. 1, June 1987.)

Diseases Subject to the International Health Regulations

Total cholera, yellow fever, and plague cases and deaths reported in the Region of the Americas as of 31 December 1987

Country and administrative subdivision	Cholera cases	Yellow fever		Plague cases
		Cases	Deaths	
BOLIVIA	–	*15*	*11*	*2*
La Paz	–	15	11	–
Santa Cruz	–	–	–	2
BRAZIL	–	*7*	*6*	*3*
Amazonas	–	1	1	–
Bahía	–	–	–	3
Goiás	–	6	5	–
COLOMBIA	–	*4*	*2*	–
Antioquia	–	2	–	–
Santander	–	2	2	–
PERU	–	*156*	*149*	–
Ayacucho	–	15	15	–
Cuzco	–	19	19	–
Huánuco	–	35	35	–
Junín	–	32	29	–
Loreto	–	1	1	
Madre de Dios	–	22	22	–
Pasco	–	1	1	–
San Martín	–	27	23	–
Ucayali	–	4	4	–
UNITED STATES OF AMERICA	*5*	–	–	*12*
Arizona	–	–	–	2
Colorado	–	–	–	2
Guam (West Pacific)	1[a]	–	–	–
Idaho	–	–	–	1
Louisiana	4	–	–	–
Montana	–	–	–	1
New Mexico	–	–	–	5[b]
Oregon	–	–	–	1

[a] Imported case.
[b] Includes two suspected cases.

AIDS Drug Treatment

While no cure has been found for AIDS, progress is being made in developing antiviral, immune modulating, and biological agents to treat AIDS.

The Food and Drug Administration (FDA) designates all anti-AIDS investigational new drugs (INDs) and new drug applications (NDAs) "1-AA," giving them top priority review to ensure evaluation of the application within 180 days of FDA review time.

Zidovudine

Zidovudine (formerly known as azidothymidine or AZT) is the first drug therapy approved for the treatment of patients with AIDS. FDA's review and approval of this product took less than four months —one of the shortest approval actions on record. The Agency is giving it top priority and working closely with the manufacturer from the early IND phase made this speedy review possible.

A thymidine analog, zidovudine is an inhibitor of the *in vitro* replication of some retroviruses, including HIV.

Marketed as Retrovir by Burroughs Wellcome, the drug is approved for the management of certain adult patients with symptomatic HIV infection (AIDS and advanced ARC) who have a history of cytologically confirmed *Pneumocystis carinii* pneumonia (PCP) or an absolute CD_4 (T4 helper/inducer) lymphocyte count of less than 200/mm³ in the peripheral blood before therapy is begun.

Specifically, this indication includes HIV-infected patients with one or more of the following disease manifestations:

(1) history of cytologically confirmed PCP regardless of CD_4 count;

(2) history of another AIDS-defining opportunistic infection and a CD_4 count less than 200/mm³;

(3) advanced ARC characterized by multiple signs and symptoms of HIV infection including otherwise unexplained weight loss (greater than 15 lbs or greater than 10% of prior body weight) and/or recurrent oral candidiasis *and* a CD_4 count of less than 200/mm³. The efficacy and safety of zidovudine have not been adequately studied in patients with AIDS-related malignancies such as KS and lymphomas, in patients with AIDS-dementia complex and/or other neurologic manifestations, or in patients with earlier manifestations of HIV-infection. However, controlled studies of zidovudine are currently under way in all these categories.

Warning

The labeling of the drug begins with a boxed warning stating that therapy with zidovudine is often associated with hematologic toxicity, including granulocytopenia and severe anemia requiring transfusions. The boxed warning further points out that patients treated with zidovudine may continue to develop OIs and other complications of AIDS or ARC and thus should be under close clinical observation by physicians experienced in diseases associated with HIV.

The Adverse Reactions of the labeling discusses the occurrence of significant anemia, which in the clinical trial most commonly occurred after four to six weeks of therapy and which in many cases required dose adjustment, discontinuation of therapy, and/or blood transfusions.

In the placebo-controlled trial, although severe headaches were reported more commonly in patients receiving zidovudine than in those on placebo, frank adverse neurologic events were rare. However, in one published report, a patient with advanced AIDS (extensive KS plus multiple opportunistic infections, including PCP, MZV, retinitis, disseminated MAI, and esophageal candidiasis) developed severe headache, unresponsiveness, and focal seizures 48 hours after beginning zidovudine therapy. No structural or metabolic abnormalities were found to explain his condition. Following discontinuation of therapy, he recovered neurologically. Because of the possibility that multiple drug interactions at the initiation of therapy contributed to the presumed zidovudine toxicity, the drug was reinstituted. Seventy-two hours after rechallenge, the patient developed headache and confusion leading to focal status epilepticus unresponsive to anticonvulsants, and he died (*3*).

Although two double-blind, placebo-controlled trials are generally required for the approval of a drug, the approval of zidovudine was based primarily on the results of one randomized, double-blind, placebo-controlled trial conducted at 12 U.S. medical centers. The study involved 281 patients with AIDS or advanced ARC who were treated for an average of 4-1/2 months. A second study was not required because AIDS is a fatal illness with no

other therapy and the results of the first study made it unethical to withhold treatment.

Designed for a treatment period of 24 weeks, the trial was stopped early at the advice of a data safety monitoring board due to a significant reduction in mortality in the zidovudine-treated group. Additional data were collected on about 80% of these patients who received zidovudine in an open-label extension of the trial for an average of five more months. Opportunistic infections and deaths continued to occur in both groups; however, the efficacy of zidovudine in prolonging survival for most patients continued during the additional five months of treatment.

In addition to reducing mortality, results of the controlled trial showed that zidovudine also significantly reduced the risk of acquiring an AIDS-defining opportunistic infection (OI), such as PCP, after the first four to six weeks of treatment. Zidovudine-treated patients generally did better than the placebo group in terms of Kanofsky performance level (ability to perform tasks of daily living), neuropsychiatric function, maintenance of body weight, and the number and severity of symptoms associated with HIV infection. A summary of the data upon which the approval was based has been published recently(*1*,*2*).

Drug Interactions

Co-administration of zidovudine with other drugs metabolized by glucuronidation should be avoided because the combination may potentiate toxicity of either drug. During the controlled clinical trial, zidovudine recipients who also took acetaminophen had an increased incidence of granulocytopenia that appeared to be related to the duration of acetaminophen use.

The interaction of other drugs with zidovudine has not been studied in a systematic manner. Co-administration of zidovudine with drugs that are nephrotoxic, cytotoxic, or that interfere with the red blood cell/white blood cell (RBC/WBC) number or function may increase the risk of toxicity. Some experimental nucleoside analogs being evaluated in AIDS and ARC patients may affect RBC/WBC number or function and may increase the potential for hematologic toxicity of zidovudine.

In addition, *in vitro* experiments indicate that ribavirin decreases the activity of zidovudine in inhibiting replication of the AIDS virus when infected cells are exposed to the two drugs simultaneously(*4*). Also, there is a published report of neurotoxicity associated with concomitant use of zidovudine and acyclovir(*5*).

Patient Information

The labeling contains a section of information that should be communicated to patients. This includes the importance of taking zidovudine exactly as prescribed—every four hours, round-the-clock—even though it may interrupt normal sleep. Physicians are also advised to tell patients that the long-term effects of zidovudine are unknown at this time, and that zidovudine therapy has not been shown to reduce the risk of transmission of HIV to others.

FDA is cooperating with the manufacturer in monitoring a special post-marketing program to compile and analyze extensive data on patients receiving zidovudine on a chronic basis.

Investigational Agents

Several potential AIDS therapies are in clinical research. It is important to note that these treatments have not been approved by FDA. However, sponsors have shown that they are sufficiently safe for use in clinical studies.

Information about therapies currently under consideration at FDA is regarded as a trade secret and is therefore confidential and not releasable without consent of the drug sponsor. However, because information about the following therapies has previously been released by the sponsors themselves, FDA can pass this information on to practitioners. Requests for additional information about any of these therapies should be directed to the appropriate sponsor.

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(*5*) Bach, M.C. Possible drug interaction during therapy with azidothymidine and acyclovir for AIDS (letter). *N Engl J Med* 316(9):547, 1987.

Potential Immuno-modulating Agents

Experimental treatment	*Sponsor*
Alpha Interferon	Hoffmann-La Roche, Inc. Nutley, NJ
Ampligen	HEM Research Rockville, MD
Anti-alpha interferon serum	Advanced Biotherapy Concepts, Inc. Los Angeles, CA
AS-101	Scientific Testing, Inc. New Brunswick, NJ
Gamma interferon	Genentech, Inc. San Francisco, CA
Immune globulin IG-IV	Sandoz Pharmaceuticals Corp. East Hanover, NJ
	Alpha Therapeutics Los Angeles, CA
Imreg-1	IMREG Inc. San Francisco, CA
Interleukin-II	Hoffmann-La Roche, Inc. Nutley, NJ
Isoprinosine	Newport Pharmaceuticals Newport Beach, CA
Methionine-enkephalin	National Jewish Hospital Denver, CO
Thymopentin	Ortho Pharmaceuticals Raritan, NJ
Thymostimuline	Serano Laboratories, Inc. Braintree, MA

Potential Antiviral Agents

Experimental treatment	*Sponsors*
AL 721	Matrix Laboratories New York, NY
Ansamycin	Adria Laboratories Dublin, OH
DDC (Dideoxycytidine)	National Cancer Institute Bethesda, MD
Foscarnet	National Institute of Allergy and Infectious Diseases Bethesda, MD
HPA-23	Rhône-Poulenc Monmouth Junction, NJ
Ribavirin	Viratek/ICN Pharmaceuticals Costa Mesa, CA
UA001	Ueno Fine Chemicals Industry, Ltd. New York, NY

(*Source*: *FDA Drug Bulletin*, Vol.17(2):19-21, 1987. Food and Drug Administration. Public Health Service, Department of Health and Human Services, U.S.A.)

United Nations: A Resolution on Prevention and Control of Acquired Immune Deficiency Syndrome (AIDS)

On 26 October 1987, at its forty-second session, the General Assembly of the United Nations approved the following resolution:

The General Assembly

Deeply concerned that acquired immune deficiency syndrome (AIDS), caused by one or more naturally occurring retroviruses of undetermined origin, has assumed pandemic proportions affecting all regions of the world and represents a threat to the attainment of health for all,

Having considered World Health Assembly resolution WHA40.26 of 15 May 1987 on the Global Strategy for the prevention and control of AIDS and Economic and Social Council resolution 1987/75 of 8 July 1987 on prevention and control of AIDS,

Recognizing the established leadership and the essential global directing and coordinating role of the World Health Organization in AIDS prevention, control and education, and related research and public information and, in this context, the vital importance of the World Health Organization Special Program on AIDS,

1. *Commends* the World Health Organization for its efforts towards global AIDS prevention and control and, in particular, for its support for national AIDS programs and regional activities, including the meeting of Ministers of Asian and Pacific Governments at Sydney, and the forthcoming World Summit of Ministers of Health on Programs for AIDS prevention to be held in London;
2. *Confirms* that the World Health Organization should continue to direct and coordinate the urgent global battle against AIDS;
3. *Commends* those Governments which have initiated action to establish national programs for the prevention and control of AIDS in line with the Global Strategy of the World Health Organization, and urges other Governments to take similar action;
4. *Calls upon* all States, in addressing the AIDS problem, to take into account the legitimate

concerns of other countries and the interests of inter-State relations;

5. *Invites* the World Health Organization to facilitate the exchange of information on and promotion of national and international research for the prevention and control of AIDS through the further development of Collaborating Centers of the World Health Organization and similar existing mechanisms;

6. *Requests* the Secretary-General, in view of all aspects of the problem, to ensure, in close cooperation with the Director-General of the World Health Organization and through the appropriate existing mechanisms, a coordinated response by the United Nations system to the AIDS pandemic, and urges all appropriate organizations of the United Nations system, including the specialized agencies, bilateral and multilateral agencies and non-government and voluntary organizations, in conformity with the Global Strategy, to support the worldwide struggle against AIDS;

7. *Invites* the Director-General of the World Health Organization to report to the General Assembly at its forty-third session, through the Economic and Social Council, on new developments in the global AIDS pandemic, and requests the Economic and Social Council to consider the report in accordance with its mandate.

Publications

AIDS: Epidemiological and Clinical Studies. *The New England Journal of Medicine* (ISBN 0-910133-19-0). 350 pages, illustrated. Paper Bond. Price US$28.50.

This book contains fifty-three original articles and special reports which trace the search for the cause, epidemiology, clinical characteristics, treatment, and public health implications of Acquired Immunodeficiency Syndrome from the first accounts published in 1981 through February 1987. This collection also features a Preface by Arnold S. Relman, M.D., Editor of the NEJM, as well as an index. Groundbreaking articles include studies such as:

- the link between AIDS and blood transfusion
- the isolation of HTLV-III from cerebrospinal fluid
- the role of cytomegalovirus in AIDS.

Finally, the Letters to the Editor offer an important and timely forum for the exchange of information.

This book can be ordered from: The New England Journal of Medicine, Box 9130, Waltham, MA 02254-1930, U.S.A.

AIDS Surveillance in the Americas

Cumulative number of cases and deaths

Subregion Country	Cases [a]	Deaths	First report	Last report
REGIONAL TOTAL	57,394	31,336		
LATIN AMERICA [b]	5,465	2,209		
ANDEAN GROUP	334	176		
Bolivia	6	3	31 Dec 85	31 Dec 87
Colombia	153	53	31 Dec 86	30 Sep 87
Ecuador	30	17	31 Dec 85	31 Dec 87
Peru	44	29	30 Jun 82	30 Sep 87
Venezuela	101	74	31 Dec 84	30 Sep 87
SOUTHERN CONE	198	96		
Argentina	120	59	31 Dec 83	30 Sep 87
Chile	56	23	31 Dec 84	30 Sep 87
Paraguay	6	4	31 Dec 86	30 Sep 87
Uruguay	16	10	31 Dec 83	31 Dec 87
BRAZIL	2,458	1,319	30 Jun 82	31 Dec 87
CENTRAL AMERICAN ISTHMUS	183	105		
Belize	4	4	31 Dec 86	30 Sep 87
Costa Rica	39	21	31 Dec 83	30 Sep 87
El Salvador	12	6	31 Dec 85	30 Jun 87
Guatemala	30	28	30 Sep 86	30 Sep 87
Honduras	71	27	30 Jun 85	31 Dec 87
Nicaragua	-	-	30 Sep 87	30 Sep 87
Panama	27	19	31 Dec 84	31 Dec 87
MEXICO	779	231	30 Jun 81	30 Sep 87
LATIN CARIBBEAN [c]	1,513	282		
Cuba	6	3	31 Dec 86	30 Sep 87
Dominican Republic	352	38	31 Dec 85	30 Sep 87
Haiti	1,155	241	31 Dec 83	30 Sep 87
CARIBBEAN	659	406		
Anguilla	2	-	31 Mar 87	30 Sep 87
Antigua	3	3	31 Dec 85	30 Sep 87
Bahamas	126	56	31 Dec 85	30 Sep 87
Barbados	52	30	31 Dec 84	30 Sep 87
Cayman Islands	2	2	31 Dec 85	31 Mar 87
Dominica	5	3	31 Mar 87	30 Sep 87
French Guiana	93	70	31 Dec 86	30 Sep 87
Grenada	7	5	31 Dec 84	30 Sep 87
Guadeloupe	61	35	31 Dec 86	30 Sep 87
Guyana	5	2	30 Sep 86	30 Sep 87
Jamaica	30	20	30 Jun 86	30 Sep 87
Martinique	27	17	31 Dec 86	30 Jun 87
Montserrat	-	-	30 Jun 87	30 Sep 87
Netherlands Antilles	18	10	31 Mar 87	30 Jun 87
Saint Lucia	6	3	31 Dec 84	30 Sep 87
St. Christopher-Nevis	1	-	31 Dec 85	30 Sep 87
St. Vincent and the Grenadines	5	2	30 Jun 85	30 Sep 87
Suriname	6	5	30 Jun 84	30 Sep 87
Trinidad and Tobago	199	141	30 Jun 83	30 Sep 87
Turks and Caicos Islands	4	2	31 Dec 86	30 Jun 87
Virgin Islands (UK)	-	-	31 Mar 87	30 Sep 87
Virgin Islands (US)	7	-	31 Mar 87	30 Sep 87
NORTH AMERICA	51,270	28,721		
Bermuda	70	50	31 Dec 84	30 Sep 87
Canada	1,464	762	31 Dec 79	31 Dec 87
United States of America [c]	49,736	27,909	30 Jun 81	31 Dec 87

a) Differences or changes in case-definitions may lead to discrepancies with other published data.

b) French Guiana, Guyana, and Suriname included in Caribbean.

c) Puerto Rico included in USA.

National Center for Health Statistics Joins CDC

Since the first week of June, the National Center for Health Statistics (NCHS), formerly under the Office of the Assistant Secretary of Health, has been transferred to CDC. NCHS will continue its national role in data collection, analysis, and research in statistical and survey methodology.

To meet its legislative mandate to provide data to a variety of users, NCHS maintains over a dozen survey and data systems. NCHS relies on four primary mechanisms: accessing state vital registration systems, personal interview surveys, health-examination surveys, and surveys of health-care providers. NCHS' two largest surveys of the general population are the National Health Interview Survey and the National Health and Nutrition Examination Survey. Other data collection efforts, such as the National Survey of Family Growth, the National Maternal and Infant Health Survey, and special supplements to general population surveys are conducted to address specific health topics for population subgroups. NCHS also serves as the World Health Organization's Collaborating Center for Classification of Diseases for North America, conducts research activities with other countries, and serves as focal point for international conferences and other cooperative endeavors.

(*Source*: Morbidity and Mortality Weekly Report, Vol. 36(24):390-391, Centers for Disease Control, Atlanta, Ga. U.S.A.)

To Our Readers

We wish to announce that starting with Volume 9, 1988, the *Epidemiological Bulletin* will be published four times a year.

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