HEALTH CONDITIONS IN THE AMERICAS

1961-1964

PAN AMERICAN HEALTH ORGANIZATION
Pan American Sanitary Bureau - Regional Office of the
WORLD HEALTH ORGANIZATION

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PREPARED FOR

THE XVII PAN AMERICAN SANITARY CONFERENCE

August 1966

Scientific Publication No. 138 (2nd printing, October 1967)

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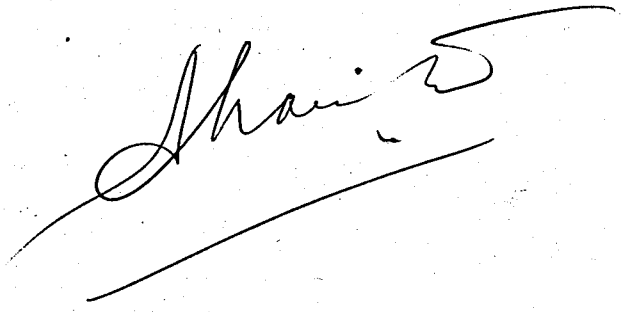
PREFACE

In the Americas the doctrine has become established to consider health a social service, a component of general development and progress. The Governments of the Americas have agreed to fulfill within the decade beginning in 1962 a series of objectives to prevent disease, to provide timely treatment and rehabilitation for the sick and to promote well being. They have recognized planning as the tool for establishing priorities among the health problems and for allocating resources accordingly so as to benefit the largest number of people. They have stressed that vital and health statistics are essential in all phases of program planning and of evaluating the activities carried out by the health services and the social effects achieved. Progress may be measured by a reduction in mortality and morbidity, an increase in the quantity of human and material resources and an improvement of the quality of such resources.

It has been the desire of the Governments that the Pan American Sanitary Bureau, because of its continuity, should be the depository of the natural history of health conditions in the Americas. They have therefore entrusted the Bureau with the task of collecting from all of them information on vital and health statistics, as well as statistics on resources and on services; of analyzing these statistics, of presenting them in a systematic form, of making the comparisons indicated and of drawing attention to the progress or lack of progress revealed by the language of numbers. This mandate is the reason for the present publication, the fifth in a series initiated in 1950.

In its organization the present report is similar to the previous ones which makes it possible to show in a few chapters the trend of certain phenomena. Nevertheless this report includes new material on activities that by virtue of having acquired a certain importance have given rise to valuable information which should be recorded. It suffices to mention those related to medical care and to life expectancy, two questions that have acquired particular importance in this continent in recent years.

The statistical data presented in the following pages reveal progress when compared with previous reports. However the data are still deficient in quantity and quality; they are far from reflecting reality with respect to the majority of health problems. Nevertheless they are of considerable value for identifying those problems that have priority, for assessing the availability of resources and the possibilities of planning. Also, the report makes it possible to form a judgment as to the health conditions in the Americas, their recent past and immediate future. As the data are further improved — and the extensive statistical program of the Organization is contributing to this goal — it will become possible to formulate programs, allocate resources and invest funds on a more rational basis; in short, to accelerate progress.



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INTRODUCTION

The present report is the fifth in a series[1, 2, 3, 4] on health conditions in the Americas covering the period from 1950 to 1964. The first three were prepared for the XIV, XV and XVI Pan American Sanitary Conferences, and the fourth, a two-year report, for the XV Meeting of the Directing Council. Data for this series of reports were collected through special questionnaires completed in the countries and other areas of the Region. The same questionnaires have also been the source of information for the Reports on the World Health Situation[5, 6, 7, 8] prepared for the XI, XV, XVII and XIX World Health Assemblies.

During the past four years the World Health Organization and the Pan American Health Organization have also collaborated in a joint annual request to countries for data on mortality by cause and age, on vaccinations, on hospitals and health personnel, and the responses received are used in publications of both Organizations. The recent questionnaire for the Third Report on the World Health Situation was less extensive than the preceding ones since information in many fields was being provided through the annual questionnaires.

In addition publications of the countries and official reports from the countries to the Pan American Health Organization, the World Health Organization and the United Nations have served as source documents for this and previous reports. When data from different sources were not in agreement, effort was made to determine the most reliable or consistent figure. Coordination within the country to produce official figures is essential to avoid arbitrary decisions.

This report follows the plan of the previous reports with chapters on general vital statistics, child mortality, communicable diseases, health services, hospitals, environmental sanitation and health personnel. Whenever comparable data are available, trends in mortality, morbidity and on the availability of facilities and personnel are shown, either over the quadrennium or the decade 1955 to 1964.

In the chapter on vital statistics special attention is directed to natality and to life expectancy. For the first time in this series of reports age adjusted death rates from all causes are presented and also mortality from chronic diseases and accidents. Information on the diagnoses of patients attending outpatient clinics and health centers is provided for a few countries in the chapter on health services. Hospital morbidity and patient days of care according to diagnosis are given for several countries in the chapter on hospital services. The morbidity of clinic and hospital patients provides valuable data for defining health problems.

Improvement in statistical data in the health field is evident over the period of these reports. Registration of vital events has been improving as well as reporting of the major communicable diseases. Information on health resources, both establishments for providing health and medical care and health personnel, is becoming more extensive.

Further progress is needed in improving the collection of these data on a regular basis but new approaches must also be developed to supplement the conventional and established methods and to extend the amount of information available in the health field. Statistical sampling methodology and the use of computers offer great possibilities to examine in greater depth the health conditions in the Region and to analyze the findings more promptly and thoroughly than in the past.

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CHAPTER I

GENERAL VITAL STATISTICS

At present vital statistics offer the most reliable and complete indices for measuring the health conditions of populations, for planning health programs and for evaluating their effects. The availability of statistics on population, births and deaths over a period of years makes it possible to determine the trend in health and to plan for the future. In some areas serious deficiencies are still observed in the basic statistical data, both in its quality and completeness. Even under these circumstances many of the indices have value in defining the health situation.

The need for vital statistics has been recognized in the Charter of Punta del Este. In several goals of the Charter they have been included, such as the reduction of child mortality, the increase in life expectancy and the improvement of the collection and study of vital and health statistics as a basis for the formulation of national health programs.

POPULATION

Information on the population of a country, its distribution, characteristics and structure is a requisite for measuring health conditions and planning for health services. Between 1960 and 1964 population censuses were taken in all but three countries of the Americas — Bolivia, Cuba and Haiti. In the 21 countries with recent censuses the annual growth rate of the population in the latest intercensal period ranged from 1.3 to 4.1 per cent. Four countries — Argentina, Jamaica, United States and Uruguay — were growing at rates less than 2 per cent per year and eight at rates greater than 3 per cent. The highest rates of increase occurred in Costa Rica and Venezuela (4.1 and 4.0 per cent respectively). For the 25 other areas of the region, ranging in size from an island of 2,000 to one with 2,350,000 inhabitants, growth rates were more variable than for the countries. In three the population decreased and in three others the annual increase was less than one per cent. Two-thirds were growing at rates less than 2 per cent per year. However, in one area the annual growth reached almost to 5 per cent.

The populations in the two most recent censuses and the intercensal growth rates are shown in Table A (at the end of the chapter) and a summary distribution of the rates of growth in Latin American countries is given in Table 1. Over 65 per cent of the population in 1961 was living in countries with annual growth rates of at least 3 per cent. The annual growth rate for the three regions, Northern, Middle and South America were 1.8, 2.8 and 2.7 per cent respectively.

The estimated midyear populations by country from 1955-1965 which were used for calculating the various rates and ratios in this Report appear in Table B. Except when indicated, these estimates are those published by the United Nations. Populations for the three regions of the Americas, divisions also used by the United Nations, in the same eleven years are given in Table 2. Northern America includes Canada, United States, Bermuda and St. Pierre and Miquelon. Middle America consists of the five countries of Central America, Mexico, Panama, British Honduras and the islands of the Caribbean. South America refers to the southern continent and the Falkland Islands.

Table 1. Distribution of Countries and Other Areas of Latin America and Their Population According to Rate of Growth in Recent Period*

Annual rate of growth	Number of areas	Total		Countries			Other areas		
		1961 population		Number	1961 population		Number	1961 population	
		Number (thousands)	Per cent		Number	Per cent		Number	Per cent
Total	45	217 029	100	22	211 955	100	23	5 074	100
Decreasing	3	58	0.0	-	-	-	3	58	1.1
Increasing									
Under one per cent	2	2 418	1.1	-	-	-	2	2 418	47.7
1 - 1.4	5	5 468	2.5	2	5 136	2.4	3	332	6.5
1.5 - 1.9	9	30 905	14.2	3	30 525	14.4	6	380	7.5
2.0 - 2.4	3	14 575	6.7	2	14 569	6.9	1	6	0.1
2.5 - 2.9	10	20 951	9.7	7	20 051	9.5	3	900	17.7
3.0 - 3.4	8	130 261	60.0	5	129 692	61.2	3	569	11.2
3.5 and over	5	12 393	5.7	3	11 982	5.7	2	411	8.1

* For three countries without a recent census, growth rates were estimated.

Urban-rural Distribution

The urban-rural distribution of the population in the Americas by country is highly variable and rapidly changing. In countries for which data are available over 50 per cent of the population lives in rural areas, either in communities of less than 2,000 inhabitants or outside of community groups (Figure 1). This proportion reaches to almost 70 per cent in several countries. On the other hand, many countries have one or more very large cities or, as is the case with small countries, have a high percentage of their population living in the capital city.

Ten cities of Latin America had over one million inhabitants in their metropolitan areas at the time of these last censuses. This represents 12 per cent of the population of Latin America. In Northern America there were six cities of over 1 million accounting for 10 per cent of the population. To a large extent urbanization in Latin America involves a concentration of population in the principal city of the country. Using as a measure of urbanization the concentration of population in cities of 100,000 or more inhabitants the Latin American countries are similar to each other and to the United States. However, measuring urbanization as the percentage of population in localities of 20,000 or more the range is large, from 11.6 per cent in Honduras to 57.5 in Argentina.

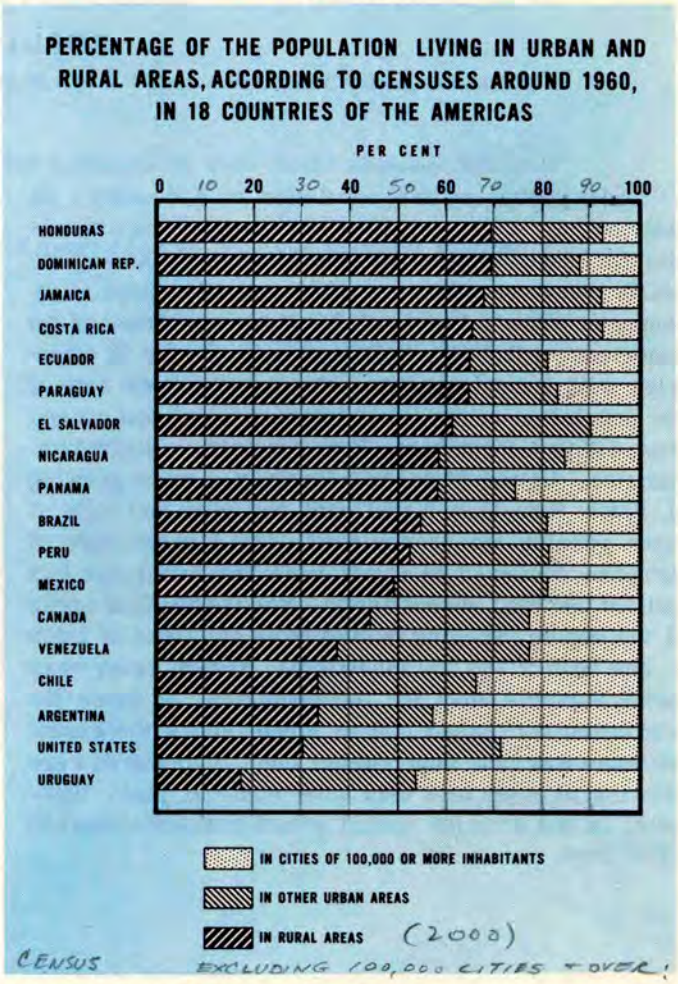
The growth of population in cities is much more rapid than that of the rest of Latin America. In cities with 20,000 or more inhabitants the annual growth rate in the intercensal decade 1950-1960 was 5 per cent.

Table 2. Estimated Midyear Population (in Thousands) in the Three Regions of the Americas, 1955-1965

Year	Total	Northern America	Middle America	South America
1955	364 906	180 850	58 480	125 576
1956	373 414	184 257	60 105	129 052
1957	382 322	187 911	61 801	132 610
1958	391 160	191 317	63 574	136 269
1959	400 124	194 705	65 410	140 009
1960	409 065	197 950	67 286	143 829
1961	418 405	201 376	69 219	147 810
1962	427 703	204 541	71 228	151 934
1963	437 258	207 635	73 413	156 210
1964	446 954	210 695	75 658	160 601
1965	456 257	213 475	77 849	164 933

The highest rates were 9 per cent in cities in the Dominican Republic and 8 per cent in those in Honduras and Venezuela (Table 3). A large part of the increase in urban populations has been due to migration from rural areas. However, migration to large

Figure 1



1960. BARBADOS 59.7
1964 COLOMBIA 71.5
1964 GUATEMALA 86.6

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cities did not offset the growth in the remainder of the countries for the annual growth rate in these latter areas was over 2 per cent in 8 of 14 countries with data available.

Table 3. Annual Growth Rate in Cities of Over 20,000 Population and in Remainder of Countries

Country	Period	Annual Percentage Growth Rate		
		Total	Urban	Rural
Argentina	1947-1960	1.8	3.2	0.3
Brazil	1950-1960	3.1	6.5	2.1
Canada	1951-1961	2.7	...	...
Chile	1952-1960	2.8	5.9	-0.2
Colombia	1951-1964	3.2	...	...
Costa Rica	1950-1963	4.0	4.5	3.8
Dominican Republic	1950-1960	3.5	9.0	2.6
Ecuador	1950-1962	3.0	6.6	2.0
El Salvador	1950-1961	2.8	5.8	2.3
Guatemala	1950-1964	3.1	...	...
Honduras	1950-1961	3.0	8.1	2.5
Jamaica	1943-1960	1.5	4.0	0.9
Mexico	1950-1960	3.1	5.2	2.3
Nicaragua	1950-1963	2.6	5.9	1.9
Panama	1950-1960	2.9	5.1	2.0
Paraguay	1950-1962	2.6	...	...
Peru	1940-1961	2.2	5.7	1.3
Trinidad and Tobago	1946-1960	2.9	...	...
United States	1950-1960	1.7	...	...
Uruguay	1908-1963	1.7	...	...
Venezuela	1950-1961	4.0	8.1	1.4

Source: Patterns of Urbanization in Latin America. J. D. Durand and C. A. Pelaez, Milbank Memorial Fund Quarterly, Vol. XLIII, No. 4, 1965

Age Distribution

Eighteen of the 24 countries of the Americas have over 40 per cent of their population under 15 years of age, and the percentage reaches 48 in three countries. In all but one of these same 18 countries the per cent of the population 65 years of age or older was under 4. In the remaining six countries the percentage under 15 years ranged from 28 in Uruguay to 39 in Chile. With intermediate values were Argentina (30), United States (31), Canada (34) and Cuba (36). Also these six countries had higher proportions in the age group of 65 years and over, with a range from 4.3 per cent in Chile to 9.2 per cent in the United States. In over two-thirds of the other areas of the Americas the percentage of the population under 15 years is over 40 per cent. For the most part the percentage over 65 years of age is higher than those observed for the Latin American countries.

The high proportions under 15 years of age in the region point to the population groups to which health programs should be directed, that is the infants and young children. These high percentages also indicate the large numbers dependent on that part of the population which makes up the labor force.

Differences in age distributions of the populations in the countries in the region should be taken into account and adjustments made whenever total death rates or death rates from specific causes are being compared.

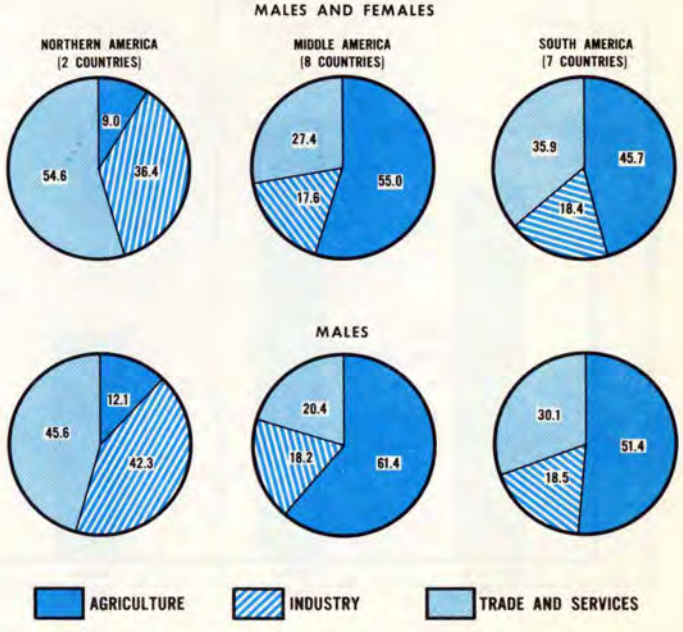
By country the numbers and the percentage distributions of the population by age are given in Table C and Table D and are summarized for the three regions of the Americas.

Labor Force

From census data the economically active population is usually divided into three groups: 1) those employed in agriculture or mining, 2) those in industry or construction, and 3) those in trade and services. The differences between the three regions of the Americas with respect to this division have been great for many years. In 1960 in Northern America only 9 per cent are employed in agriculture or mining as compared to 55 and 46 per cent in Middle and South America respectively. Approximately twice as large a percentage is employed in industry and construction

Figure 2

PERCENTAGE DISTRIBUTION OF ECONOMICALLY ACTIVE POPULATION INTO THREE SECTORS IN THE THREE REGIONS OF THE AMERICAS, 1960



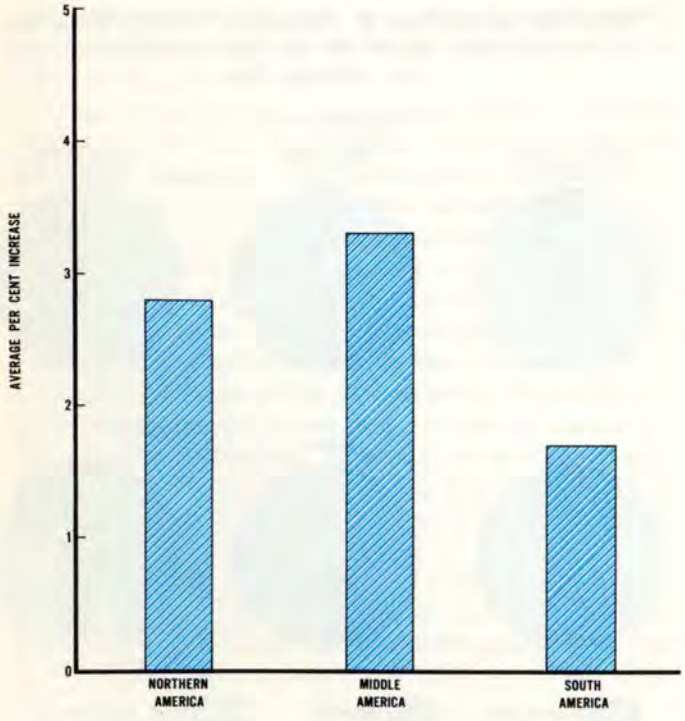
in Northern as in Middle and South America (36.4 per cent as compared to 17.6 and 18.4). By far the greatest proportion (54.6 per cent) in Northern America is engaged in trade and services. In contrast, in Middle and South America the proportions are 27.4 and 35.9 per cent (Figure 2).

The changes between the censuses of 1950 and 1960 are large for Latin America since in the earlier period 63 and 53 per cent of the workers were in agriculture, as compared to 55 and 46 per cent in 1960. This reflects the migration of population from rural to urban areas and the growing industrialization in some areas of both Middle and South America.

The differences between the three regions become more marked when the distributions of the economically active population of males are compared. Sixty-one per cent of males in Middle America and 51 per cent in South America work in agriculture or in mining; only 12 per cent in Northern America are in these fields. However, in Northern America 42 per cent are in industry as compared to 18 per cent in both Middle and South America. In all three regions the greatest percentages of the women employed are in trade and services (73.4 per cent, 57.5 and 60.3 per cent, respectively, in Northern, Middle and South America). Approximately one-fourth of the employed females in Latin America work in agriculture, but only 3 per cent of those in Northern America are classified in this group.

Figure 3

AVERAGE ANNUAL PERCENTAGE INCREASE IN REAL PER CAPITA INCOME IN THE THREE REGIONS OF THE AMERICAS, 1960-1964



Per Capita Income

Closely related to the structure of the labor force is the average per capita income in the Americas. Per capita income has been exceedingly low in the Latin American countries and one of the goals of the Charter of Punta del Este is that "... the rate of economic growth in any country of Latin America should not be less than 2.5 per cent per capita per year...". Data on per capita income, derived from the gross national product and adjusted for fluctuation in market prices and exchange rates, showed between 1960 and 1964 an annual per capita growth rate for Latin America close to the goal of 2.5 per cent (Figure 3).

Table 4. Per Capita National Income by Country, 1964

Country	Unit	Per capita national income	
		In national currency	In U. S. dollars
Northern America			2 614
Canada	Dollar	1 816	1 691
United States	Dollar	2 707	2 707
Middle America			a) 409
Costa Rica	Colon	2 246	338
Cuba	Peso	570	570
Dominican Republic	Peso	193	193
El Salvador (b)	Colon	587	235
Guatemala (b)	Quetzal	248	248
Honduras	Lempira	385	192
Jamaica	Pound	142	397
Mexico	Peso	5 120	410
Nicaragua (c)	Cordoba	2 111	299
Panama	Balboa	405	405
Trinidad and Tobago	Dollar	854	498
South America			d) 309
Argentina (c)	Peso	103 500	686
Bolivia	Peso	1 540	130
Brazil (b, c)	Cruzeiro	123 700	200
Chile	Escudo	1 469	451
Colombia	Peso	2 530	197
Ecuador	Sucre	3 220	174
Paraguay (b)	Guarani	22 040	175
Peru (b)	Sol	4 980	186
Uruguay (b)	Peso	7 460	455
Venezuela	Bolivar	3 140	699

(a) Excluding Nicaragua with data only for gross domestic product. (b) 1963. (c) Gross domestic product. (d) Excluding Argentina and Brazil with data only for gross domestic product.

In 1964 by regions the per capita national income was $2,614 for Northern America, $409 for Middle America and $309 for South America. For the countries in Latin America with information available the range was from $130 to $699. For the remaining countries information was available only on gross domestic product. By country the figures on national income are shown in Table 4.

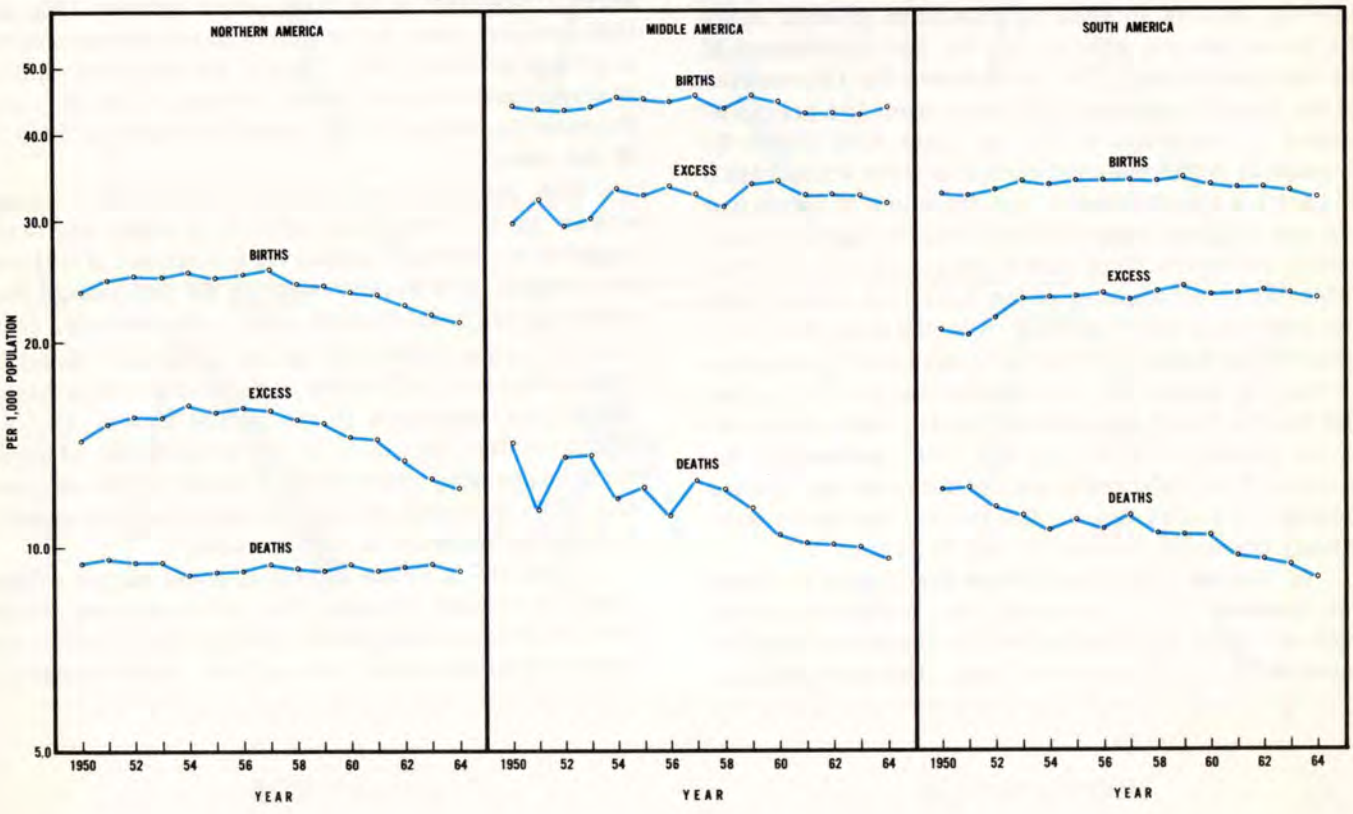
BIRTHS

Analysis of statistics on births has been given increasing importance in health programs in recent years for several reasons. One is, of course, the attention being directed to the high birth rates and the rapid population growth in many parts of the Americas and a second is related to the need in the Americas and other parts of the world to reduce perinatal losses and child mortality and to prevent nutritional deficiencies and other disabling conditions in those infants who survive. Information on births is, of course, also needed to plan and evaluate health services and activities as well as for the basis of planning in fields other than health, such as education.

Registered birth rates in the Americas showed no discernible upward or downward trend in the decade from 1950 to 1960 in the three regions of the Americas. Rates in Northern America were around 25 per 1,000 population, in Middle America they were close to 45 and in South America around 34. However, in Northern America and South America (exclusive of Brazil for which there are no data shown except for Sao Paulo) decreases have been observed almost every year since 1957 and 1959 (Figure 4). From 1961 to 1964 rates in Middle America average slightly lower than the average in the preceding decade. In approximately half of the countries of the region there appears to be a decrease in birth rates in the five years 1960-1964.

Figure 4

BIRTHS, DEATHS AND EXCESS OF BIRTHS OVER DEATHS PER 1,000 POPULATION IN THE THREE REGIONS OF THE AMERICAS, 1950-1964



Completeness of birth registration varies widely among countries of the region. Estimates of underregistration in a few countries reach as high as 50 per cent of total births. Underregistration which was probably greater in the earlier years for which data are shown may in part obscure decreases which may be occurring in some countries. There is no doubt that registration of births has improved in the past decade, complicating the interpretation of these changes.

In Table E registered birth rates are shown for the period 1960-1964 for all areas of the Americas except Haiti and Brazil. Data for the State of Sao Paulo which has a population of over 14 million have been entered in the table for Brazil. They are shown not as representative of the country but as statistics for a large population group. In 1964 birth rates in the 24 countries ranged from 48.1 per 1,000 population in Honduras to 21.0 per 1,000 in the United States. Ten countries, of which eight were in Middle America, had rates over 40 per 1,000 population. For five, rates were under 25 per 1,000 and in one of these, Boliva, the low birth rate is due to underregistration. The 25 other areas of the region showed similar variations but rates were over 40 per 1,000 populaton for a smaller number of areas.

Fertility rates, the number of live births in relation to the number of women of child bearing ages (15 to 44 years) are more useful than crude birth rates in studying factors influencing population growth, since the rates are not affected by the age distribution of the total population. The rates shown for 13 countries of the Americas around 1960 vary from 104 per 1,000 women in Argentina to 243 in Costa Rica (Table 5). In general differences between countries which result in part from variations in age structure of population are not as great when fertility rates by age are compared. In Figure 5 are shown the age specific fertility rates for nine countries of the Americas around 1950 and 1960, that is the number of births to mothers in a specific age group in relation to the female population in that age group. In all countries but two (Argentina and Puerto Rico), age specific fertility rates increased in the decade between 1950 and 1960, and usually the increase was observed in each of the 5 year age groups between 15 and 44 years. The largest increases were usually observed between 20 and 35 years.

In Canada and United States the largest increase was between 20 and 24 years but in other countries such as Chile and Panama the increase was greatest between 25 and 29 years of age. The consistent increases in fertility in all age groups in the former two countries did not produce a higher birth rate in the second period since the proportions of women in the child bearing ages and in particular the age groups in which fertility is highest was smaller in the later period. However in the three years between 1960 and 1963 fertility rates in the United States have decreased in all age groups. Over 30 years the rates are similar in magnitude to those in 1950. Between 20 and 30 years the rates in 1963 are still higher than those in 1950 by 18 per cent.

Table 5. Number of Live Births and Fertility Rates per 1,000 Women 15-44 Years of Age, by Country, Around 1960

Country	Year	Female population 15-44 years (a)	Live births	General fertility rates per 1,000
Argentina	1961	4 553 347	471 511	103.6
Canada	1961	3 721 651	475 700	127.8
Chile	1961	1 617 309	277 184	171.4
Costa Rica	1963	261 963	63 798	243.5
Dominican Republic	1960	643 049	110 102	171.2
El Salvador	1961	537 670	124 871	232.2
Honduras	1961	386 700	85 842	222.0
Mexico	1960	7 338 628	1 608 174	219.1
Panama	1960	222 760	41 544	186.5
Trinidad and Tobago	1960	170 812	32 858	192.4
United States	1960	36 143 000	4 257 850	117.8
Venezuela	1961	1 524 550	324 132	212.6
Puerto Rico	1960	481 694	76 314	158.4

(a) From recent population census.

The increase in fertility, particularly among women in the older age groups in some countries suggests an increase in the average number of children per woman. For seven countries the percentage distributions of births by birth order in two periods, from 5 to 13 years apart, are given in Table 6. In all but Puerto Rico the proportion of births of fourth or higher order has increased in the period shown. In some countries this increase in the proportions of higher birth order may result from changes in the distribution of the female population by age and not necessarily indicate an increase in size of family.

Fertility in urban and rural areas varies widely. Data for several countries for which data are available are used as examples. Two groups of states are compared in Mexico in 1950 and 1960, three essentially

urban with 70 per cent of the population in cities or towns and three mainly rural with 70 per cent of the population living in rural areas. Fertility rates increased in all areas during the decade but were higher in rural areas. The average number of children born per woman (excluding the childless) ranges from 3.8 to 4.6 in 1950 in the three urban areas while the average in the rural areas ranged from 4.6 to 5.1. By 1960 the range of these ratios was 4.5 to 5.1 in urban areas and 5.2 to 5.8 in rural areas.

For El Salvador fertility rates by age for women in the Department of San Salvador are compared with

Figure 5

FERTILITY RATES PER 1,000 WOMEN, BY AGE, IN NINE COUNTRIES AROUND 1950 AND 1960

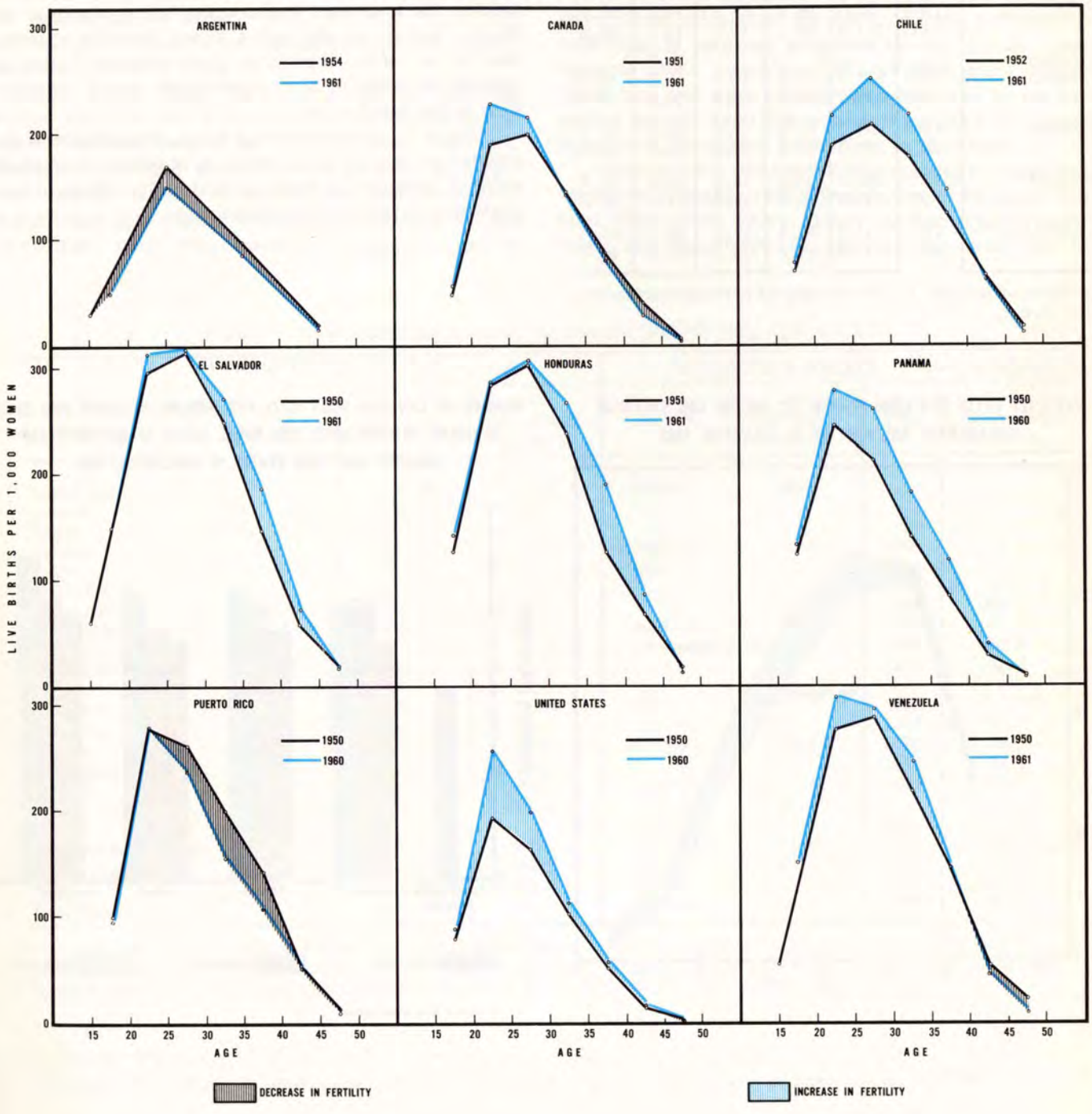


Table 6. Proportion of Live Births According to Birth Order in Seven Countries

Country	Year	Birth order				
		Total	First	Second	Third	Fourth and over
Canada	1951	100.0	28.4	25.4	17.2	29.1
	1963	100.0	26.4	23.2	17.9	32.6
Chile	1951	100.0	29.0	20.4	14.8	35.5
	1964	100.0	23.6	18.2	14.3	43.9
Costa Rica	1953	100.0	18.1	15.6	14.2	52.1
	1963	100.0	16.1	14.3	13.0	56.6
Dominican Republic	1953	100.0	22.2	18.6	15.2	44.0
	1958	100.0	20.8	15.5	16.1	47.6
Ecuador	1958	100.0	18.0	17.0	15.6	49.4
	1964	100.0	20.6	15.8	14.3	49.3
Panama	a)1952	100.0	21.6	18.6	15.4	44.4
	1962	100.0	20.4	17.8	14.6	47.2
Puerto Rico	1950	100.0	20.4	17.0	15.1	47.5
	1963	100.0	23.4	20.0	15.7	40.9

(a) Birth order based in the number of previous births and still births.

those for women in the rest of the country for 1961. At all ages fertility is higher in the rural areas and the differences are greatest from 25 to 40 years of age (Figure 6).

As another example (Figure 7) the number of children born alive per woman, 15 years of age and over (excluding the childless) are compared for 4 States and Metropolitan Caracas in Venezuela. Each of the 4 States is divided into three groups, urban, intermediate and rural areas. Fertility is lower in Metropolitan Caracas than in the urban areas of any of the States, but in all the urban areas fertility is lower than in any of the remaining parts of these States. In general fertility in the intermediate areas is lower than in the rural areas.

Since in some countries large proportions of the population live in rural areas it is essential to study natality patterns in depth as well as the effect of migration to large metropolitan areas.

Figure 6

FERTILITY RATES PER 1,000 WOMEN, BY AGE, IN SAN SALVADOR DEPARTMENT AND REST OF EL SALVADOR, 1961

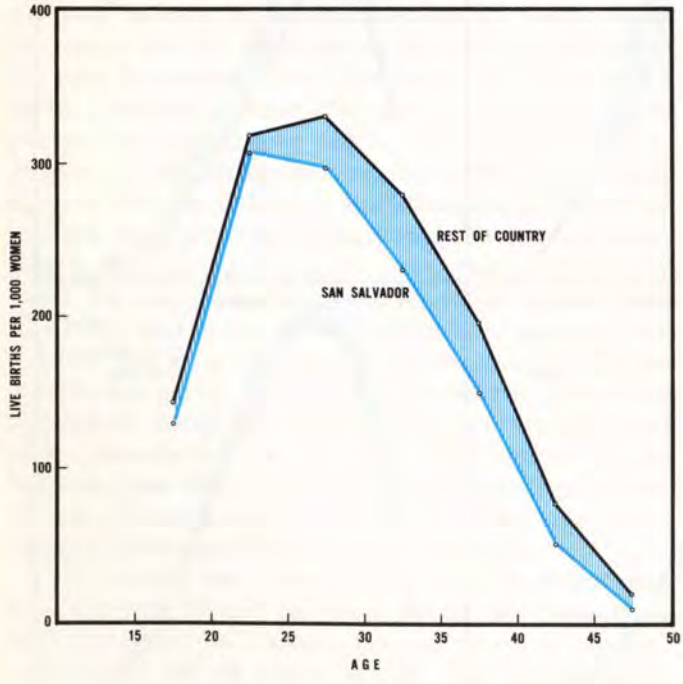
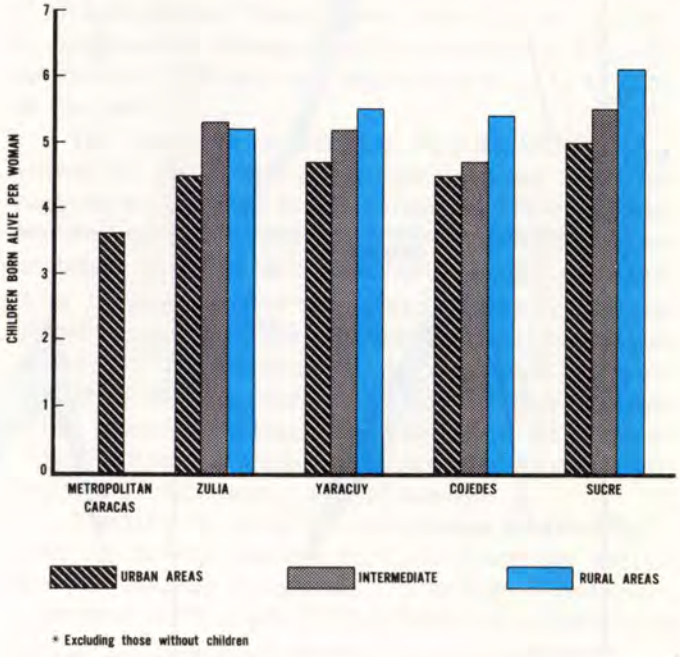


Figure 7

NUMBER OF CHILDREN BORN ALIVE PER WOMAN* 15 YEARS AND OVER IN URBAN, INTERMEDIATE, AND RURAL AREAS OF METROPOLITAN CARACAS AND FOUR STATES IN VENEZUELA, 1961



* Excluding those without children

LIFE EXPECTANCY

Life expectancy is frequently used as a basic index for measuring the health status of a population and the effects of changes in health conditions. A long-term goal stated in the Charter of Punta del Este was to increase life expectancy at birth in Latin America by five years in the decade from 1961-1971.

Data on life expectancy at birth have been published for only a few countries of the Americas for the census period around 1960. For the remainder life tables are needed as a basis for evaluating progress in the health field.

Life tables have been calculated for periods around the 1950 and 1960 censuses for countries for which mortality data by age are available. The same simplified abridged method(1) was used for all countries and has in most instances given results similar to published data when available for comparisons. No corrections have been made for incompleteness of registration of deaths and thus the results obtained are based only on registered rates. If deaths are underregistered, the values for life expectancy as presented here will be exaggerated. Census periods were chosen for comparison in order to have as accurate data as possible on the age distribution of the population as a basis for the age specific death rates.

In addition estimates of life expectancy at birth have been calculated for 1963 or 1964 for several countries to measure progress in this decade. For several other countries 1963 or 1964 were census years and thus were already included. For the earlier period around 1950 life expectancies for a few countries have been taken from other publications.

Around 1950 life expectancy at birth in American countries probably varied from a low of 33 years to a high close to 69 years (Table 7). For several countries life expectancy is clearly overstated due to

Table 7. Life Expectancy at Birth, by Country, Around 1950, 1960 and 1964

Country	Around 1950		Around 1960		1963 or 1964	
	Period	Life expectancy in years	Period	Life expectancy in years	Year	Life expectancy in years
Argentina	1946-48	60.6	1959-61	65.5	...	...
Bolivia	1949-51	a) 49.7	...	...	...	...
Brazil	1940-50	a,b) 39.3	...	...	...	...
Canada	1950-52	68.6	1960-62	71.4	1964	72.0
Chile	1951-53	c) 54.0	1959-61	57.2	1964	58.8
Colombia	1950-52	52.2	...	...	1964	d) 60.2
Costa Rica	1949-51	56.5	*		1963	65.3
Dominican Republic	1949-51	62.1	1959-61	e) 63.6	...	...
El Salvador	1949-51	51.4	1960-62	59.4	1963	60.5
Guatemala	1949-51	43.6	*		1964	49.4
Haiti	1950	a,b) 32.6	...	...	...	...
Honduras	1949-51	57.8	1961	60.9	...	...
Jamaica	1952-54	59.1	1961	68.3	1964	69.7
Mexico	1949-1951	48.8	1959-61	58.9	1963	59.8
Nicaragua	1949-51	59.9	...	...	1964	69.4
Panama	1950	62.2	1959-61	65.8	1964	67.0
Peru - Total	1949-1951	57.4	1960-61	59.8	...	...
(f)			1961	64.7	1963	64.2
Trinidad and Tobago	1945-1947	54.1	1959-61	64.2	1963	66.4
United States	1949-51	68.3	1959-61	70.1	1964	70.5
Uruguay	1949-51	68.8	*		1963	68.7
Venezuela	1950-51	58.0	1960-62	66.1	1964	65.8

* Census was taken in 1963 or 1964. (a) Other published source. (b) Estimate based on age distributions in two censuses. (c) Differs from published figure of 51.9. (d) Subject to revision when recent census distribution by age become available. (e) Differs from published figure of 57.9. (f) Districts with medical certification.

1/ *A Skeleton Life Table*, C. R. Doering and A. Forbes, Proceedings of the National Academy of Science, Vol. 24, 1938.

underregistration of deaths. The two lowest entries in the Table, 33 years for Haiti and 40 for Brazil, are for countries for which mortality data are not available. Other methods were used for these two estimates which were taken from other publications. The highest entry is for Uruguay where there was no census in the 1950 period and thus no reliable information about the age distribution of the population.

The range of life expectancy at birth for countries with data for a later period also was between 43.6 and 68.8. By 1960 or by 1964 life expectancy had increased in almost all these countries and varied from 49 to 71 years.

Life expectancies for thirteen countries are shown in Figure 8, usually for three periods. As in the period around 1950, the results in the two later years in several countries are also not reliable due to excessively low death rates resulting from underregistration and the lack of information on which to base correction factors.

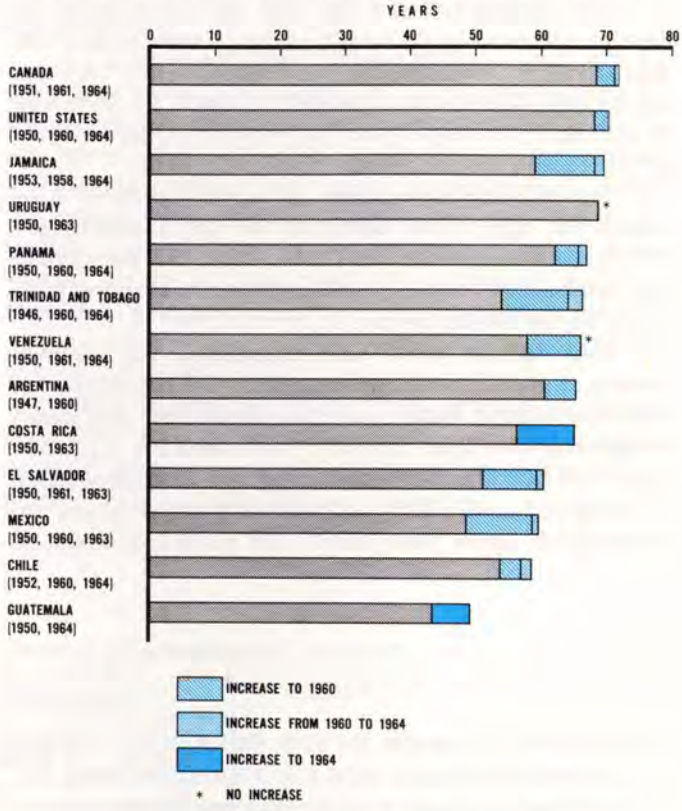
However, comparing the same country in two periods, the effects of underregistration may affect the interpretation of the findings to a lesser degree. Moreover, improvement in registration would act to diminish the increase between the periods. This may be the situation in Venezuela where the life expectancy was 66.1 in 1961 and 65.8 in 1964. In that country during the past few years emphasis has been placed on registration procedures and completeness of registration.

All countries but Uruguay have shown an increase. Death rates in the oldest age groups in Uruguay increased sharply between the two years and diminished the effects of reduction in mortality in the younger groups.

Excluding Canada, the United States and Uruguay, the average gain per year in life expectancy varied from 0.3 year to almost one year. The increase in six countries averaged over 0.5 year per annum. For some of the countries not shown in the Figure, increases were also registered during the decade. However, in several of these, age specific mortality rates appeared to be unreliable or recent distributions of population by age were not available on which to base mortality rates.

Figure 8

RECENT INCREASES IN LIFE EXPECTANCY AT BIRTH, BY COUNTRY



In most of the Latin American countries infant mortality and mortality in the age group 1-4 years of age are still high. Over 40 per cent of deaths are among infants and young children. By preventing deaths at these ages, it should be possible to add considerably to the life expectancy at birth. Thus the opportunity still exists in Latin American countries to continue the increase in life expectancy.

The data shown for life expectancy combined with the data presented later in the Chapter on age specific mortality emphasizes the need in several of the countries to improve registration of both births and deaths. Some indices of health status which are useful in health planning and evaluation lose their meaning as a result of poor registration of vital events.

DEATHS

Crude death rates expressing the total number of deaths registered in relation to the population were very similar in the three regions of the Americas in 1964 when they were 9.2 per 1,000 population in Northern America, 9.6 in Middle America and 9.2 in South America, excluding Brazil.

Several factors should be considered in interpreting these rates. The first is the completeness of registration of deaths. In several countries in Latin America registration is incomplete and in others where data are available, registration may be incomplete in rural areas. Thus in many countries of Latin America the true death rates are probably higher than those shown. The United Nations has estimated mortality in Latin America in the period 1958-1963 to be around 14 per 1,000 population, a rate considerably in excess of those registered.

A second important factor to be taken into account with respect to crude death rates is the age distribution of the population. A population may have a low crude death rate because a large proportion is concentrated in the age groups in which the risk of death is low. In making population projections for Middle and South America for the end of the twentieth century, United Nations has estimated that death rates in Middle and South America may reach as low as 6.2 per 1,000 population but in Northern America the estimate for the end of the century is 7.9 per 1,000 population. The lower projections for Latin American populations would be possible in view of the young age structure of the Latin American population. In this chapter age specific and age adjusted death rates will be presented, as well as the crude total death rate, in order to show comparable mortality rates for the countries.

As can be seen in Figure 4 death rates in Northern America display only a slight downward trend between 1950 and 1964. Each year the proportion of the population increases in the oldest age groups when the risk of death is greatest; and from these age groups comes a larger proportion of the total deaths each year. In Middle and South America a decrease of approximately 25 per cent in the 14-year period is evident. On the same Figure is shown the related upward trend in the natural increase of the population resulting from the excess of births over deaths.

In Table F are given the numbers of deaths and death rates per 1,000 population for the countries and other areas of the Americas with the exception of Haiti and Brazil. Since information on mortality is not available for the entire country of Brazil, mortality data for the State of Sao Paulo with a population of over 14 millions has been substituted. In 1960 death rates by country ranged from 17.3 per 1,000 population in Guatemala to a low of 6.3 in Cuba. Eight countries had registered death rates over 10 per 1,000. By 1964 the death rates varied between 15.8 and 6.2 with only six countries over 10 per 1,000. Approximately half of the countries showed a reasonably consistent decrease in the period. Death rates in other areas of the Americas ranged from 2.9 per 1,000 in the Canal Zone to 11.1 in French Guiana, the only rate over 10 per 1,000.

Death Rates by Age

To illustrate the effects on the total death rates of differing age structure of population, crude and age adjusted death rates are presented for eighteen of the countries of the region in Table 8 and in Figure 9. Adjustment was made by the direct method to a

Figure 9

CRUDE AND AGE ADJUSTED DEATH RATES PER 1,000 POPULATION, BY COUNTRY IN RECENT YEAR IN CENSUS PERIOD

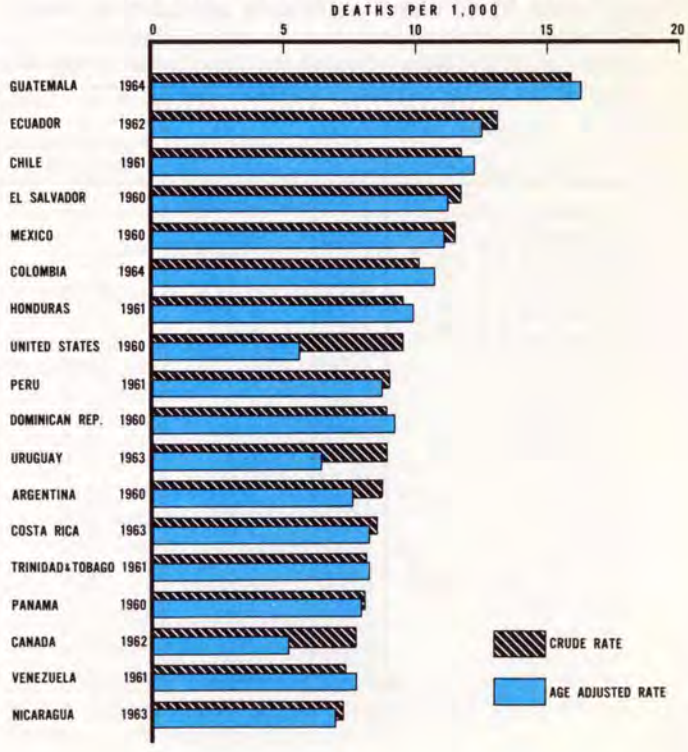


Table 8. Crude and Age-Adjusted Death Rates per 1,000 Population, in Recent Census Years

Country	Year	Crude death rate	Age adjusted death rate
Argentina	1960	8.7	7.6
Canada	1962	7.7	5.1
Chile	1961	11.7	12.2
Colombia	1964	10.1	10.7
Costa Rica	1963	8.5	8.2
Dominican Republic	1960	8.9	9.2
Ecuador	1962	13.1	12.5
El Salvador	1960	11.7	11.2
Guatemala	1964	15.9	16.3
Honduras	1961	9.5	9.9
Mexico	1960	11.5	11.1
Nicaragua	1963	7.2	6.9
Panama	1960	8.0	7.9
Perú (a)	1961	9.0	8.7
Trinidad and Tobago	1961	8.1	8.2
United States	1960	9.5	5.6
Uruguay	1963	8.9	6.4
Venezuela	1961	7.3	7.7

(a) Data for districts with medical certification of deaths.

standard population derived from the age distribution of the population in Latin American countries. Thus the adjustment was made to a young population. The age adjusted rate for each country represents the mortality rate which would be expected if the age specific mortality rates experienced in the country prevail but the population distribution by age is that of the standard. These age adjusted rates in most Latin American countries are very similar to the crude death rates which measured mortality in young populations resembling the standard. In contrast, age adjusted death rates in the countries with larger proportions in the older age groups differ markedly from their crude death rates. The age adjusted rates for the United States were lower than crude rates by 40 per cent, for Canada by 34 per cent and for Uruguay by 28 per cent. When age adjusted rates are compared, the three lowest countries with respect to mortality are Canada, United States and Uruguay, and the level of their age adjusted rates is considerably below that for other countries. In contrast, for 11 of the 17 other countries, crude death rates were as low or lower than for the United States.

Similar conclusions can be drawn from comparison of the age specific death rates in countries of the Americas as given in Table 9. For eight countries the curves of mortality by age appear in Figure 10. The general shape of the curves is similar for all. Mortality in most Latin American countries has remained high in early childhood, which has often been emphasized, but an excessive mortality is also evident in adult life when comparison is made with the United States and Canada. Only in the oldest age groups does mortality for some countries fall below that of the United States and Canada. The reason for this is not clear. Underregistration of deaths or inaccuracy of information on age may lead to a distortion of rates.

Mortality by Cause

A list of 58 causes of death or groups of causes have been used in previous publications to study the

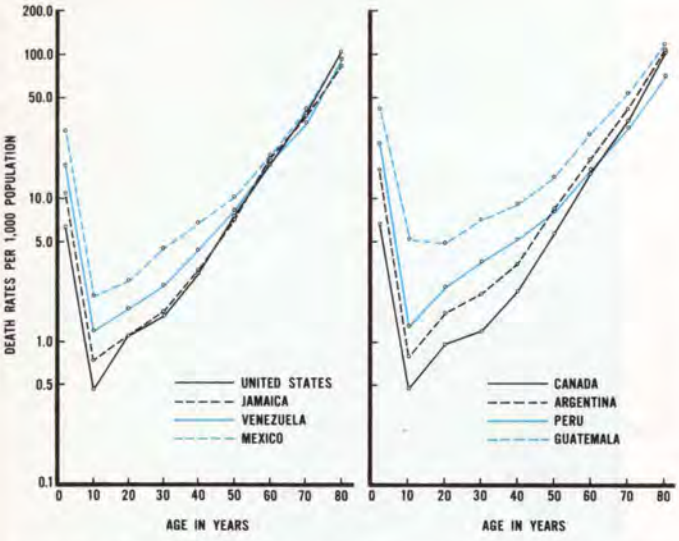
Table 9. Crude, Age-Adjusted and Age-Specific Death Rates, per 1,000 Population, by Country, in Recent Census Years

Country	Year	Total		Age groups								
		Crude death rate	Age-Adjusted death rate	Under 5 years	5-14	15-24	25-34	35-44	45-54	55-64	65-74	75 and over
Argentina	1960	8.7	7.6	15.8	0.8	1.6	2.2	3.5	8.3	18.4	42.1	106.8
Canada	1962	7.7	5.1	6.6	0.5	1.0	1.2	2.3	5.8	14.8	35.1	102.7
Chile	1961	11.7	12.2	34.7	1.3	2.3	4.1	6.5	11.4	23.1	— 71.0 —	
Colombia	1964	10.1	10.7	29.4	3.5	2.0	3.1	5.1	8.5	19.6	40.1	100.0
Costa Rica	1963	8.5	8.2	23.1	1.1	1.3	2.1	3.5	6.5	14.9	37.4	97.0
Dominican Republic	1960	8.9	9.2	31.9	1.7	1.5	2.9	3.5	6.2	13.1	27.4	72.0
Ecuador	1962	13.1	12.5	40.8	2.6	2.8	4.2	5.7	8.0	15.9	— 61.7 —	
El Salvador	1960	11.7	11.2	32.1	2.5	2.9	4.5	5.9	9.7	19.4	38.1	86.9
Guatemala	1964	15.9	16.3	42.7	5.2	4.9	7.1	9.2	14.1	28.0	54.2	120.9
Honduras	1961	9.5	9.9	22.1	3.0	3.2	5.3	6.7	9.2	17.9	36.3	88.9
Jamaica	1964	7.8	6.1	10.9	0.7	1.1	1.6	3.1	7.1	18.7	37.3	82.2
Mexico	1960	11.5	11.1	29.4	2.1	2.7	4.5	6.7	10.3	19.3	41.1	104.8
Nicaragua	1963	7.2	6.9	14.5	1.3	2.2	3.4	4.7	7.4	16.0	34.7	54.5
Panama	1960	8.0	7.9	19.8	1.6	1.9	2.8	3.8	6.6	14.6	35.6	86.6
Peru (a)	1961	9.0	8.7	24.1	1.3	2.4	3.6	5.3	8.2	15.8	31.5	70.3
Trinidad and Tobago	1961	8.1	8.2	14.3	0.6	1.3	2.2	4.1	10.4	23.0	51.5	123.5
United States	1960	9.5	5.6	6.3	0.5	1.1	1.5	3.0	7.6	17.4	38.2	106.0
Uruguay	1963	8.9	6.4	11.5	0.4	1.1	1.6	3.1	7.1	17.1	37.3	107.5
Venezuela	1961	7.3	7.7	17.1	1.2	1.7	2.5	4.3	8.3	18.4	34.5	93.1

(a) Districts with medical certification of deaths.

Figure 10

DEATH RATES PER 1,000 POPULATION BY AGE IN EIGHT COUNTRIES, AROUND RECENT CENSUS YEAR



causes of mortality in the Americas. The list is an expansion of the B List of the *International Classification of Diseases;* but almost all groups can be obtained from the A List which is now used by most countries to transmit mortality data to the Pan American Health Organization and the World Health Organization. In Table G at the end of the chapter are given the numbers of deaths from these causes for 21 countries of the region and for 19 other areas for 1963 or 1964 and for the State of Sao Paulo, Brazil for 1962. The main sources of data, in addition to the annual questionnaires completed by the countries for the Pan American Health Organization and the World Health Organization, were the questionnaires returned for the Third Report on the World Health Situation and statistical publications of the countries. The rates per 100,000 population by cause are shown in Table H. The extent and quality of medical certification varies in the region depending on the availability of physicians and of medical care; nevertheless the data on mortality by cause furnish useful indices for analyzing health conditions and evaluating trends.

In Table I, as in previous reports of this series, the five principal causes of deaths have been designated for each country. Residual groups of diseases and the group, senility, ill defined and unknown causes have been omitted from consideration as principal causes. In general, mortality in the countries can be described by a few patterns. Argentina, Canada, United States, Uruguay and Puerto Rico have the same five principal causes of death, sometimes placed in different order. These causes include diseases of the heart, malignant neoplasms, vascular lesions affecting the central nervous system, accidents and certain diseases of early infancy. For five other countries — Chile, Cuba, Jamaica, Trinidad and Tobago, and Venezuela — four of the same causes appear but usually either influenza and pneumonia or gastritis, enteritis, etc., replaces accidents. In Venezuela vascular lesions affecting the central nervous system is replaced by gastritis, enteritis, etc. For all other countries both gastritis, enteritis, etc. and influenza and pneumonia are listed among the principal causes. Only five other causes were included among the five principal causes — bronchitis in four countries, whooping cough in two and measles, tuberculosis and tetanus in one each (Table 10). Changes from the distribution by principal causes in 1960 were slight representing only minor shifts from the infectious diseases, including in that division gastroenteritis and influenza and pneumonia, to diseases of the heart and malignant neoplasms. By 1964 malaria did not appear among the five leading causes in any country for which data are available.

There are wide differences among the countries in the per cent of total deaths covered by the five principal causes. For example, in Canada 75 per cent of deaths were assigned to the first five causes, in Chile only 54 per cent and in El Salvador only 25 per cent. In part the lower percentages in Latin American countries reflect the greater role of the infectious diseases and the broader dispersion of deaths throughout the life span. Deaths over 65 years of age comprise 60 per cent of the deaths in Canada and the United States. The majority of deaths at these ages are classified as due to malignant neoplasms and the chronic degenerative diseases such as diseases of the heart and vascular lesions affecting the central nerv-

Table 10. Five Principal Causes of Death by Rank Order in 24 Countries, 1964

Cause of death	Total	Order				
		1	2	3	4	5
Certain diseases of early infancy (760-776)	24	4	9	4	3	4
Diseases of the heart (410-443)	18	9	3	1	4	1
Malignant neoplasms (140-205)	16	1	5	6	4	-
Gastritis, enteritis, etc. (543, 571, 572)	15	6	3	2	3	1
Influenza and pneumonia (480-493)	15	4	-	5	1	5
Accidents (E800-962)	12	-	1	-	5	6
Vascular lesions affecting central nervous system (330-334)	11	-	2	5	2	2
Bronchitis (500-502)	4	-	1	-	1	2
Whooping cough (056)	2	-	-	-	-	2
Tetanus (061)	1	-	-	1	-	-
Measles (085)	1	-	-	-	1	-
Tuberculosis (001-019)	1	-	-	-	-	1

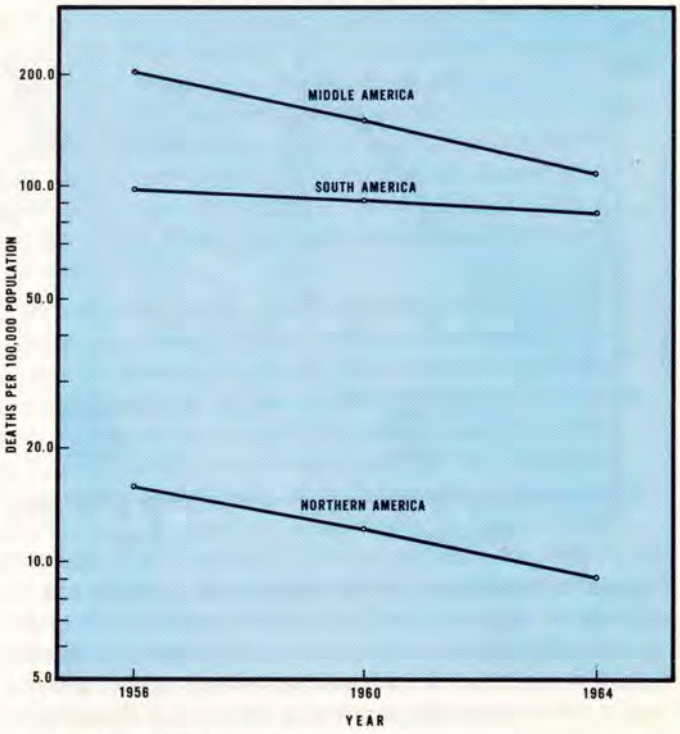
a) For two countries includes entire category of accidents and violence; for one homicides only.

ous system. Also in Latin America larger proportions of the deaths are assigned to the group of ill-defined or unknown causes.

As a result of the method employed to designate leading causes of death, the individual infectious diseases do not often appear among the first five principal causes. However, the group of infectious and parasitic diseases causes appreciable morbidity and mortality in many countries of Latin America. Considerable progress has been made in recent years in their control and prevention and statistics on these diseases are often used as indices of health conditions. In Table 11 are shown the changes in death rates from infectious and parasitic diseases (Categories 001-138 of the *International Classification of Diseases)*, between 1956 and 1964 in the countries of the region and in the three regional divisions. In Middle America with the highest rates in 1956 the decrease has been almost 50 per cent. However, mortality in 1964 was over 100 per 100,000 population and has remained higher than that for the other two regions. In South America the rate has decreased from 99 in 1956 to 85 per 100,000 in 1964 or by only 14 per cent. In Northern America deaths assigned to infectious diseases have continued to decrease from 16 per 100,000 in 1956 to 9 in 1964. These trends are shown in Figure 11. The trends of death rates from specific infectious diseases are included in Chapter 3 of this Report.

Figure 11

DEATHS FROM INFECTIOUS AND PARASITIC DISEASES PER 100,000 POPULATION IN THE THREE REGIONS OF THE AMERICAS, 1956, 1960 AND 1964



NOTE: Excluding Bolivia, Brazil and Haiti

Table 11. Number and Per cent of Deaths From Infective and Parasitic Diseases with Rates per 100,000 Population by Country, 1956, 1960 and 1964

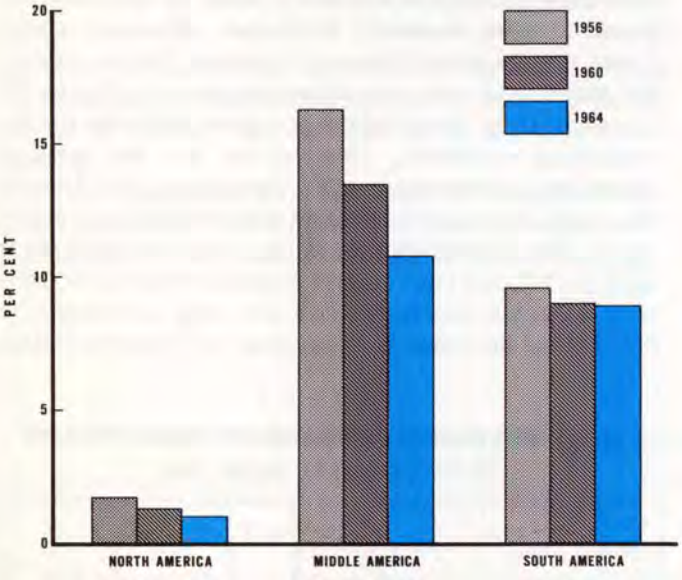
Country	Number			Rate			Per cent		
	1956	1960	1964	1956	1960	1964	1956	1960	1964
Argentina (a)	6 695	6 131	6 216	34.7	29.7	31.9	4.3	3.6	3.7
Canada	2 310	1 703	1 246	14.3	9.5	6.5	1.8	1.2	0.9
Chile	6 137	8 186	8 925	88.1	106.5	106.4	7.3	8.7	9.5
Colombia	20 715	b) 19 316	18 653	152.4	129.3	106.7	12.0	10.9	10.6
Costa Rica	1 175	1 204	1 106	118.9	102.8	79.7	12.3	12.0	9.0
Cuba	b) 2 267	2 244	2 165	33.9	32.9	29.1	5.2	5.3	4.7
Dominican Republic	c) 4 258	b) 3 173	1 295	167.4	108.4	37.1	18.6	10.5	5.9
Ecuador	d) 12 259	11 348	10 080	301.6	262.7	206.5	20.1	18.6	17.1
El Salvador	c) 3 758	2 852	e) 3 228	176.0	116.2	118.6	12.1	9.9	10.9
Guatemala	c) 21 621	b) 18 398	e) 17 979	660.8	497.8	430.5	32.2	29.2	25.2
Honduras	b) 3 486	f) 1 662	1 743	195.8	84.8	83.3	19.6	8.9	8.5
Jamaica	1 220	g) 676	492	83.6	41.3	28.5	8.3	4.8	3.7
Mexico	c) 62 510	53 012	39 427	208.3	151.5	99.5	15.3	12.9	9.7
Nicaragua	2 090	2 321	1 723	166.5	164.5	107.9	21.3	19.4	14.8
Panama	1 226	1 166	988	128.7	109.8	83.4	14.8	13.8	11.7
Paraguay (h)	779	885	e) 804	48.7	98.1	81.5	10.7	9.3	8.1
Peru (i)	b) 5 323	f) 5 781	6 750	149.5	131.7	137.5	15.5	15.1	15.1
Trinidad and Tobago	409	288	e) 224	55.0	34.3	24.3	5.7	4.4	3.4
United States	c) 26 695	b) 22 465	18 512	16.2	12.7	9.7	1.7	1.4	1.0
Uruguay	c) 1 113	b) 1 108	e) 816	47.1	44.3	30.8	5.4	4.7	3.5
Venezuela	4 360	3 985	4 716	68.2	54.1	56.0	7.3	7.2	7.7
North America	29 005	24 168	19 758	16.0	12.4	9.4	1.7	1.3	1.0
Middle America	104 020	86 996	70 370	204.6	147.5	106.0	16.3	15.3	10.6
South America	57 381	56 740	56 960	99.3	90.4	84.8	9.6	9.0	8.9

Note: Footnotes in numbers apply also to rates and percentages. (a) Excluding Cordoba Province in latest year presented (1962). (b) 1959. (c) 1955. (d) 1958. (e) 1963. (f) 1962. (g) 1961. (h) Area of information only. (i) Districts with medical certification.

In two countries, Ecuador and Guatemala, death rates from infectious and parasitic diseases are over 200 per 100,000 population and to these diseases 17 and 25 per cent of deaths in these two countries are assigned. This group of diseases accounts for 11 and 9 per cent of deaths in Middle and South America but only one per cent in Northern America. The smaller contribution of these diseases to the total deaths in recent years is evident particularly in Middle America in Figure 12.

Figure 12

PER CENT OF DEATHS FROM INFECTIOUS AND PARASITIC DISEASES IN THE THREE REGIONS OF THE AMERICAS, 1956, 1960 AND 1964



Deaths from diarrheal diseases of unknown or unspecified etiology are not assigned to the section of the Classification on infectious diseases but instead to gastritis, enteritis, etc. in the section for diseases of the digestive system. In Latin America many of these deaths are of infectious origin and have been a large contributor to total mortality. These death rates also serve as indices of health conditions particularly through their relationship to environmental conditions.

Death rates in Middle and South America from gastritis, enteritis, etc. are 25 and 16 times greater than in Northern America. Between 1959 and 1964 considerable improvement was observed in Middle America where the death rate decreased by almost 30 per cent from 138.7 per 100,000 in 1959 to 101.3 in 1964. In South America the progress was less with a reduction of only 10 per cent, from 73.0 to 65.5 per 100,000. In 1964 death rates from gastritis, enteritis, etc. by country varied from 229.0 per 100,000 population to 3.9. Deaths from these diseases represented almost 16 per cent of deaths in Costa Rica and the Dominican Republic but only 0.5 per cent in Canada and the United States. The overall percentages for Middle and South America were 10 and 7 per cent, respectively.

Table 12. Number of Deaths from Gastritis, Enteritis, etc., with Rates per 100,000 Population, by Country, 1959 and 1964

Country	Number		Rate		Per cent of deaths from all causes	
	1959	1964	1959	1964	1959	1964
Argentina	5078	a)4807	24.6	24.8	3.0	2.9
Canada	995	750	5.7	3.9	0.7	0.5
Chile	6386	5743	85.1	68.4	6.8	6.1
Colombia	18373	18427	123.0	105.4	10.4	10.5
Costa Rica	1384	1898	122.9	136.8	13.6	15.5
Cuba	2887	2088	43.1	28.1	6.6	4.5
Dominican Republic	5862	3442	200.3	98.5	19.4	15.8
Ecuador	5517	5876	135.7	120.4	9.1	10.0
El Salvador	2370	b)1642	99.3	60.3	7.9	5.5
Guatemala	8518	b)9561	230.5	229.0	13.5	13.4
Honduras	468	1504	26.3	71.9	2.6	7.3
Jamaica	1195	829	73.1	48.0	8.4	6.2
Mexico	54239	44064	159.9	111.2	13.6	10.8
Nicaragua	1458	1400	106.4	87.7	12.2	12.0
Panama	752	537	72.8	45.3	8.4	6.4
Paraguay (c)	536	b) 818	63.1	83.0	5.9	8.2
Peru (d)	3685	3992	103.5	81.3	10.7	8.9
Trinidad and Tobago	475	b) 302	56.5	32.8	7.2	4.5
United States	7780	8178	4.4	4.3	0.5	0.5
Uruguay	517	b) 339	20.7	12.8	2.2	1.4
Venezuela	4585	4028	64.4	47.8	8.0	6.6
Northern America	8775	8928	4.5	4.2	0.5	0.5
Middle America (e)	79608	67267	138.7	101.3	12.6	10.3
South America (f)	44677	44030	73.0	65.5	7.1	6.9

(a) 1962 excluding Cordoba. (b) 1963. (c) Area of information only. (d) Districts with medical certification only. (e) Excludes Haiti. (f) Excludes Bolivia and Brazil.

In areas with low ratios of physicians and hospital beds in relation to the population it may be anticipated that large numbers of deaths are not medically certified. Consequently, the per cent of deaths in the group, ill defined or unknown causes, is a useful index for measuring the availability of medical care. As can be seen in Table 13, progress in reducing the number of deaths classified in this group has been achieved in almost half of the countries for which data are available. The increases in some countries may result from changes in procedures or criteria for assigning causes to this group. By country the variation in the percentage of deaths for which the cause is poorly defined or unknown is wide. In 1964 in the Dominican Republic and Honduras almost 50 per cent of death certificates

Table 13. Deaths from Ill-Defined and Unknown Causes per 100,000 Population with Percentages of Total Deaths by Country, Around 1956, 1960 and 1964

Country	Deaths per 100,000 population			Percentage of total deaths		
	1956	1960	1964	1956	1960	1964
Argentina	139.9	230.1	a)166.9	17.1	27.9	20.2
Canada	11.0	7.6	5.7	1.3	1.0	0.8
Chile	131.2	106.3	75.8	10.9	8.7	6.8
Colombia	304.2	b)237.8	142.0	24.0	20.1	14.2
Costa Rica	168.5	121.3	96.0	17.5	14.1	10.9
Cuba	b) 26.1	26.5	5.6	4.0	3.9	0.9
Dominican Republic	c) 203.1	d)262.7	297.6	22.6	25.4	47.6
Ecuador	e) 373.9	353.7	273.0	24.9	25.0	22.6
El Salvador	c) 470.5	330.8	f) 378.2	32.2	28.2	34.7
Guatemala	c) 310.7	d)237.4	f) 269.1	15.2	13.9	15.7
Honduras	d) 329.7	g)381.3	458.2	32.9	40.1	46.7
Jamaica	38.3	h)178.8	126.7	3.8	20.6	16.6
Mexico	c) 133.9	130.1	181.0	9.9	11.1	17.6
Nicaragua	153.2	198.2	218.4	19.6	23.4	30.0
Panama	198.7	159.2	138.0	22.9	20.1	19.3
Paraguay (i)	...	372.6	f) 353.0	37.7	35.5	35.0
Peru (j)	d) 34.2	g) 26.1	21.2	3.5	2.6	2.3
Trinidad and Tobago	64.5	42.0	f) 49.6	6.7	5.3	6.9
United States	c) 12.1	d) 10.8	13.2	1.3	1.1	1.4
Uruguay	c) 72.3	d) 71.5	f) 59.2	7.9	7.6	6.7
Venezuela	350.5	226.5	199.1	37.7	30.3	27.4

Note: Footnotes for rates also apply to percentages.
(a) Excluding Cordoba; 1962. (b) 1959. (c) 1955. (d) 1959. (e) 1958. (f) 1963. (g) 1962. (h) 1961. (i) Area of information only. (j) Districts with medical certification.

contained inadequate information on cause of death, while in Canada and Cuba the percentage was under one. In eight of the 21 countries with data available over 20 per cent of deaths are placed in this group due to insufficient information.

Death rates due to complications of pregnancy, childbirth and the puerperium (Categories 640-689 of the *International Classification of Diseases)* have remained high in Latin America. In addition there is evidence that errors in certification of cause of death result in an understatement of the number of maternal deaths in many countries. Information on the pregnancy or delivery may not be available to the medical personnel certifying the cause of death. In Table J maternal deaths per 1,000 live births from 1960-1964 are given for the countries and other areas of the Americas. Rates in a few countries of Latin America are as much as ten times higher than those in the United States and Canada. For most countries rates are at least one per 1,000 live births or 150 per cent greater than the rates of 0.4 per 1,000 observed in the United States and Canada. In the other smaller areas of the region maternal death rates are also high.

During the past decade a definite shift from the infectious diseases as principal causes of death toward the chronic diseases and accidents has been apparent. By 1964 diseases of the heart were among the first five principal causes of death in 18 countries, malignant neoplasms in 16 countries and accidents in 12 countries. Diseases of the heart were in first place in nine countries.

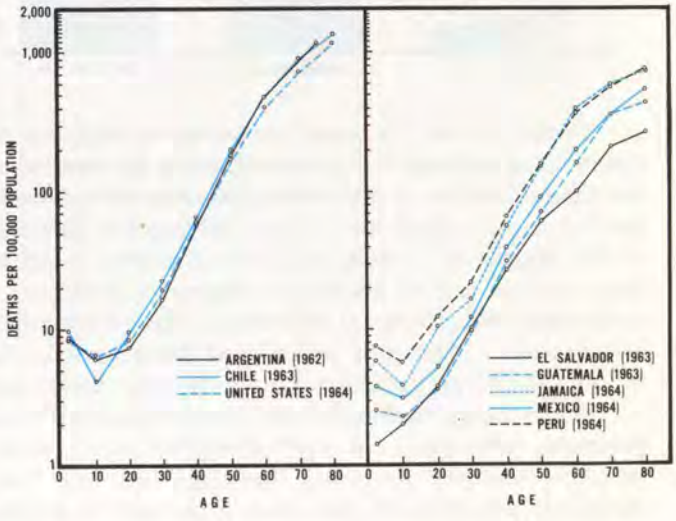
Since these diseases and accidents involve the adult groups in a population to a greater extent than children and since the age structure of most Latin American countries is a young one, the number of deaths and crude rates have been low in the past. As greater proportions survive to adult life and the infectious diseases are prevented and controlled, diseases of the heart and the malignant neoplasms begin to acquire greater significance.

In Table 14 and Figure 13 the patterns of mortality from malignant neoplasms may be seen for countries in the Region. The curves of mortality by age from all forms of cancer are remarkably similar for several countries geographically distributed in all three regions. These include Argentina, Canada, Chile, Costa Rica, United States and Uruguay. The age curves for three countries are shown together in Figure 13.

Mortality rates by age are more variable for the remaining countries. The curves are the same in shape but at different levels. The widest variations in the rates by country occur at the youngest and oldest ages. The interpretation of the lower rates at older ages is difficult but rates in several countries of Central America and in Mexico are only one-fourth to one-half of the rates in Argentina, Chile and the United

Figure 13

DEATHS FROM MALIGNANT NEOPLASMS PER 100,000 POPULATION IN EIGHT COUNTRIES, RECENT YEAR



States. The availability of medical care, the quality of diagnosis and medical certification of death undoubtedly have some part in these differences at both the very young and the old ages.

To eliminate the effects of differing age structure of populations in the countries, death rates from cancer were adjusted to the age distribution of the Latin American population in 1960. As a result, the crude and age adjusted rates for most Latin American countries do not differ widely, but large differences exist between the two rates for countries such as Canada and the United States. In the latter the age adjusted rate is only 50 per cent of the crude rate. The highest age adjusted death rates from malignant neoplasms are observed for Uruguay, Chile, Argentina and Costa Rica, from 14 to 25 per cent above those for the United States and Canada. The range of the adjusted death rates is large, from 103.0 in Uruguay to 16.8 in the Dominican Republic. The death rates of cancer by site also show wide variations in the region. Even for countries with similar mortality rates from all forms of cancer, the distribution by site may differ greatly.

Age adjustment of death rates for diseases of the heart produces different results than the adjustment for malignant neoplasms (Table 15). By far the highest rates are observed in the United States (170.7 per 100,000 population) and Canada (148.9). For a Latin American country the highest rate is that for Uruguay (101.3) followed by Venezuela (85.7). The death rate from heart diseases goes as low as 14.1 per 100,000 in El Salvador.

Age curves for death rates from diseases of the heart also show more dissimilarities. At the younger ages, under 25 years, rates are higher for many Latin American countries than for the United States and Canada. At the oldest ages the rates for Latin American countries are usually far lower than for the United States and Canada. By type of heart disease large differences exist between Northern and Latin America (Tables G and H).

External causes — accidents, homicide and suicide — are another important and increasing cause of death in many areas of the Americas. There is considerable variation by age in death rates from accidents (excluding homicides and suicides). In some countries such as the United States motor vehicle accidents are responsible for 45 per cent of accidental deaths. In this country motor vehicle accident rates are highest among young age groups particularly from 15 to 35 years and thus results in high total accident

Table 14. Total Deaths from Malignant Neoplasms and Crude, Age-Adjusted and Age-Specific Death Rates per 100,000 Population, by Country, Recent Years

Country	Year	Total deaths	Crude rate	Age-adjusted rate	Under 5 years	5-14	15-24	25-34	35-44	45-54	55-64	65-74	75 and over
Argentina (a)	1962	25 531	131.2	95.3	8.8	6.2	7.3	16.5	57.8	185.1	489.4	1 162.7	
Canada	1964	25 637	133.0	80.8	9.7	6.4	8.1	16.8	54.5	156.2	395.8	772.0	1 336.8
Chile	1963	8 382	102.0	94.0	9.8	4.2	9.7	22.9	66.0	199.8	483.4	917.7	1 333.6
Colombia	1963	8056	47.6	55.3	4.3	3.9	5.7	14.7	49.1	128.4	286.9	484.0	721.3
Costa Rica	1963	1040	77.4	92.1	6.3	6.9	7.7	23.3	70.5	209.2	396.2	925.9	1 426.7
Dominican Republic	1964	470	13.5	16.8	3.7	1.6	2.1	7.1	15.6	38.8	86.0	148.5	
Ecuador	1964	1593	32.6	37.2	3.1	1.8	2.9	10.6	28.5	91.0	164.0	422.6	
El Salvador	1963	578	21.2	23.8	1.4	2.0	3.8	10.3	27.2	61.1	100.0	201.8	271.9
Guatemala	1963	1137	27.2	34.6	2.5	2.3	3.6	9.6	31.7	72.1	161.5	366.7	441.7
Jamaica	1964	1309	75.8	68.1	5.8	3.8	10.4	16.4	56.5	152.9	401.1	604.4	740.0
Mexico	1964	14933	37.7	41.6	3.8	3.1	5.3	12.1	39.4	91.6	200.6	368.2	553.9
Nicaragua	1964	266	16.7	20.8	2.4	1.0	2.5	7.1	26.4	57.0	106.7	171.4	147.4
Panama	1964	557	47.0	51.2	4.9	3.5	5.0	14.8	35.8	106.0	239.2	455.6	885.7
Paraguay (b)	1963	548	55.6	58.6	7.8	4.3	6.0	15.4	51.7	153.1	304.9	456.0	726.7
Peru (c)	1964	3274	66.7	70.0	7.5	5.7	12.2	22.2	67.7	157.1	366.9	594.3	763.3
United States	1964	289 577	151.3	80.4	8.5	6.6	8.4	19.4	60.9	178.0	401.0	737.2	1144.4
Uruguay	1963	4789	180.8	103.0	9.3	5.6	8.8	15.9	70.0	195.0	508.4	1015.3	1807.2
Venezuela	1964	4621	54.8	66.4	6.2	4.5	6.9	15.2	58.7	146.9	346.6	582.2	912.3

(a) Argentina, excluding Province of Cordoba; revised data differing from Tables G and H. (b) Area of information only. (c) Data for districts with medical certification of deaths.

rates at those ages which are followed by lower rates at middle ages and then by the highest rates in the oldest age groups. In some other countries rates increase consistently with age (with the exception of the age group under 5 years in which rates tend to be high). The age adjusted death rates, while less variable by country than either those for malignant neoplasms or diseases of the heart, cover nevertheless a wide range from 16.4 in the Dominican Republic to 76.2 in Chile (Table 16). For eight of eighteen countries for which data were available death rates were between 40 and 60 per 100,000 population.

Table 15. Total Deaths from Diseases of the Heart and Crude, Age-Adjusted and Age-Specific Death Rates per 100,000 Population, by Country, Recent Years

Country	Year	Total deaths	Crude rate	Age-adjusted rate	Under 5 years	5-14	15-24	25-34	35-44	45-54	55-64	65-74	75 and over
Argentina (a)	1962	21 968	112.9	82.4	12.2	2.7	5.9	11.5	36.9	111.1	316.5	1 289.4	
Canada	1964	52 618	273.0	148.9	1.5	0.6	2.3	9.5	51.2	211.0	605.9	1 508.2	4 408.2
Chile	1963	6 598	80.3	73.7	3.1	3.4	9.2	17.3	37.4	119.8	311.6	758.2	1 597.4
Colombia	1963	11 823	69.8	81.6	6.5	5.4	10.4	19.4	44.1	125.9	361.6	788.9	1 752.1
Costa Rica	1963	892	66.4	78.1	7.4	4.4	11.5	23.3	33.6	81.6	301.9	766.7	2 040.0
Dominican Republic	1964	588	16.8	20.9	8.3	2.0	3.3	5.6	15.3	37.4	98.3	221.8	
Ecuador	1964	1 702	34.8	37.5	10.1	3.4	8.2	13.7	25.3	52.0	121.7	497.5	
El Salvador	1963	344	12.6	14.1	1.2	1.6	3.2	3.7	12.9	31.1	56.8	112.7	234.4
Guatemala	1963	1 092	26.1	33.8	2.5	3.1	7.1	10.1	26.6	45.2	111.2	372.7	683.3
Jamaica	1964	1 642	95.0	83.0	4.8	9.0	7.3	17.3	37.0	117.4	369.9	833.3	1 856.7
Mexico	1964	15 657	39.5	43.2	1.9	2.6	8.0	15.2	32.2	68.5	174.9	402.5	864.2
Nicaragua	1964	536	33.6	41.0	8.9	1.7	7.5	12.1	29.7	52.7	193.3	460.7	605.3
Panama	1964	596	50.3	55.1	1.5	1.9	3.2	13.5	21.7	49.4	209.8	555.6	1 657.1
Paraguay (b)	1963	460	46.6	46.7	0.7	1.8	3.3	7.7	19.1	59.4	234.1	420.0	1 193.3
Peru (c)	1964	3 030	61.7	62.1	0.5	3.2	6.9	22.2	39.1	85.9	242.1	567.6	1 537.6
United States	1964	699 861	365.8	170.7	3.0	0.9	3.3	14.1	74.1	260.1	710.8	1 710.2	4 744.5
Uruguay	1964	4 980	188.0	101.3	3.7	0.8	6.9	10.9	36.6	130.5	368.6	959.9	3 187.0
Venezuela	1964	5 717	67.8	85.7	2.5	1.6	5.3	12.4	46.1	131.9	391.0	817.8	2 098.8

(a) Excluding Province of Cordoba; revised data differing from Tables G and H. (b) Area of registration only.
(c) Data for districts with medical certification of deaths.

Table 16. Total Deaths from Accidents with Crude, Age-Adjusted and Age-Specific Death Rates, per 100,000 Population, by Country, Recent Years

Country	Year	Total deaths	Crude rate	Age-adjusted rate	Under 5 years	5-14	15-24	25-34	35-44	45-54	55-64	65-74	75 and over
Argentina (a,b)	1962	11 387	58.5	51.1	22.9	18.7	57.6	59.1	63.3	68.0	86.8	171.0	
Canada	1964	10 564	54.9	50.0	52.7	25.6	63.1	48.3	47.0	49.3	63.7	79.6	252.1
Chile	1963	6 258	76.2	74.0	69.1	24.6	64.9	88.2	106.6	113.9	139.5	153.2	191.4
Colombia	1963	7 389	43.6	44.7	47.8	29.6	35.6	45.6	45.1	49.7	71.8	91.0	194.1
Costa Rica	1963	467	34.7	35.9	31.3	16.9	32.3	39.9	45.1	44.8	48.1	77.8	220.0
Dominican Republic	1964	549	15.7	16.4	15.6	8.1	16.3	21.2	18.6	16.0	26.4	41.6	
Ecuador	1964	2 307	47.3	48.5	42.7	23.4	42.4	55.0	57.6	69.0	70.9	154.7	
El Salvador	1963	854	31.4	31.2	15.8	22.2	33.5	39.7	26.1	48.0	44.1	61.8	128.1
Guatemala	1963	1 424	34.1	34.9	13.1	16.4	32.1	49.2	54.9	43.5	62.7	87.9	144.4
Jamaica	1964	475	27.5	26.4	26.0	16.8	27.0	21.4	19.6	30.3	48.4	57.8	153.3
Mexico	1964	18 931	47.8	48.6	46.3	23.6	40.7	56.4	62.8	61.0	79.5	106.5	174.6
Nicaragua	1964	526	32.9	35.1	12.0	12.3	38.1	50.5	43.9	64.5	63.3	78.6	115.8
Panama	1964	473	39.9	40.5	31.5	17.5	38.5	49.7	44.2	66.3	56.9	92.6	200.0
Paraguay (c)	1963	299	30.3	31.5	31.9	15.1	31.7	32.5	31.5	40.6	43.9	60.0	166.7
Peru (d)	1964	3 096	63.1	61.4	55.3	29.0	63.2	78.6	76.1	78.6	95.2	101.4	145.0
United States	1964	103 843	54.3	42.5	41.6	18.9	59.2	48.4	45.2	52.1	63.1	90.2	259.1
Uruguay	1963	990	37.4	30.3	20.0	13.2	31.1	33.0	39.4	37.6	47.8	65.0	208.7
Venezuela	1964	3 878	46.0	48.0	36.1	26.1	48.1	61.3	59.2	56.6	67.3	69.1	212.3

(a) Excludes Cordoba Province. (b) Includes suicide and homicides; revised data, differing from Tables G and H.
(c) Area of information only. (d) Districts with medical certification.

TABLE A. POPULATION FROM CENSUSES AROUND 1950 AND 1960 AND ANNUAL GROWTH RATE IN THE INTERCENSAL PERIOD

Area	Date	Population	Date	Population	Annual growth rate (per cent)
Argentina	10 V 1947	15 893 827	30 IX 1960	* 20 005 691	1.7
Bolivia	5 IX 1950	2 704 165	-		a) 1.4
Brazil	1 VII 1950	51 976 357	1 IX 1960	70 967 185	3.1
Canada	1 VI 1951	14 009 429	1 VI 1961	18 238 247	2.7
Chile	24 IV 1952	5 932 995	29 XI 1960	7 374 115	2.6
Colombia	9 V 1951	11 548 172	15 VII 1964	* 17 482 420	3.2
Costa Rica	22 V 1950	800 875	1 IV 1963	1 336 274	4.1
Cuba	28 I 1953	5 829 029	-		a) 1.8
Dominican Republic	6 VIII 1950	2 135 872	7 VIII 1960	* 3 013 525	3.5
Ecuador	29 XI 1950	3 202 757	25 XI 1962	* 4 476 007	2.8
El Salvador	13 VI 1950	1 855 917	2 V 1961	2 510 984	2.8
Guatemala	18 IV 1950	2 790 868	18 IV 1964	* 4 284 473	3.1
Haiti	7 VIII 1950	3 097 304	-		a) 2.3
Honduras	18 VI 1950	1 368 605	17 IV 1961	1 884 765	3.0
Jamaica	X-XI 1953	1 486 723	7 IV 1960	* 1 613 880	1.3
Mexico	6 VI 1950	25 791 017	8 VI 1960	34 923 129	3.1
Nicaragua	31 V 1950	1 057 023	25 IV 1963	1 535 588	2.9
Panama	10 XII 1950	805 285	11 XII 1960	1 075 541	2.9
Paraguay	28 X 1950	1 341 333	14 X 1962	* 1 816 890	2.6
Peru	9 VI 1940	6 207 967	2 VII 1961	9 906 746	2.2
Trinidad and Tobago	9 IV 1946	557 970	7 IV 1960	827 957	2.9
United States	1 IV 1950	151 325 798	1 IV 1960	179 323 175	1.7
Uruguay	12 X 1908	1 042 686	16 X 1963	2 592 563	1.7
Venezuela	26 XI 1950	5 034 838	26 II 1961	7 523 999	4.0
Antigua	9 IV 1946	41 757	7 IV 1960	54 304	1.9
Bahama Islands	6 XII 1953	84 841	15 XI 1963	136 368	4.9
Barbados	9 IV 1946	192 800	7 IV 1960	232 327	1.3
Bermuda	22 X 1950	37 403	23 X 1960	42 640	1.3
British Guiana	9 IV 1946	375 701	7 IV 1960	560 330	2.9
British Honduras	9 IV 1946	59 220	7 IV 1960	90 121	3.0
Canal Zone	1 IV 1950	52 822	1 IV 1960	42 122	- 2.3
Cayman Islands	IV-VI 1954	7 503	7 IV 1960	7 622	0.3
Dominica	9 IV 1946	47 624	7 IV 1960	59 916	1.7
Falkland Islands	28 III 1953	2 230	18 III 1962	2 172	- 0.3
French Guiana	1 VII 1954	27 863	9 X 1961	33 535	2.6
Grenada	9 IV 1946	72 387	7 IV 1960	88 677	1.4
Guadeloupe	1 VII 1954	229 120	9 X 1961	283 223	3.0
Martinique	1 VII 1954	239 130	9 X 1961	290 679	2.7
Montserrat	9 IV 1946	14 333	7 IV 1960	12 108	- 1.2
Netherlands Antilles	31 XII 1930	76 304	31 XII 1960	188 914	3.1
Puerto Rico	1 IV 1950	2 210 703	1 IV 1960	2 349 544	0.6
St. Kitts-Nevis and Anguilla	9 IV 1946	46 243	7 IV 1960	56 591	1.5
St. Lucia	9 IV 1946	70 113	7 IV 1960	86 108	1.5
St. Pierre and Miquelon	14 V 1951	4 606	20 IV 1962	4 990	0.7
St. Vincent	9 IV 1946	61 647	7 IV 1960	79 948	1.9
Surinam	31 X 1950	183 681	31 III 1964	* 324 000	4.3
Turks and Caicos Islands	IV-VI 1954	5 052	7 IV 1960	5 716	2.1
Virgin Islands (UK)	9 IV 1950	6 505	7 IV 1960	7 340	1.2
Virgin Islands (US)	1 IV 1950	26 665	1 IV 1960	32 099	1.9

* Provisional. (a) Estimated, no recent census.

TABLE B. MIDYEAR POPULATION ESTIMATES (IN THOUSANDS) FOR COUNTRIES IN THE AMERICAS, 1955-1965

Area	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965
Argentina	a) 18 885	19 250	19 615	19 980	20 325	20 669	21 012	21 351	21 688	22 022	22 352
Bolivia	3 225	3 269	3 314	3 360	3 406	3 453	3 501	3 549	3 597	3 647	3 697
Brazil	60 183	61 981	63 833	65 740	67 704	69 730	71 868	74 096	76 409	78 809	81 301
Canada	15 736	16 123	16 677	17 120	17 522	17 909	18 269	18 600	18 925	19 271	19 604
Chile	6 791	6 962	7 137	7 316	7 500	7 689	7 858	8 029	8 217	8 391	8 567
Colombia	a) 13 172	13 593	14 028	14 476	14 938	15 416	15 908	16 417	16 941	17 482	17 787
Costa Rica	951	988	1 033	1 076	1 126	1 171	1 225	1 274	1 344	1 387	1 433
Cuba	6 148	6 280	6 414	6 548	6 693	6 826	6 939	7 068	7 236	7 434	7 631
Dominican Republic	a) 2 543	2 633	2 727	2 826	2 927	3 033	3 145	3 255	3 372	3 494	3 619
Ecuador	3 710	3 825	3 943	4 065	4 191	4 320	4 454	4 591	4 734	4 881	5 084
El Salvador	2 135	2 195	2 257	2 321	2 386	2 454	2 526	2 627	2 721	2 824	2 928
Guatemala (b)	3 272	3 373	3 478	3 585	3 696	3 811	3 929	4 051	4 176	4 305	a) 4 435
Haiti	3 736	3 814	3 895	3 979	4 065	4 156	4 249	4 346	4 448	4 551	4 660
Honduras	1 577	1 625	1 674	1 726	1 780	1 837	1 896	1 959	2 024	2 092	2 163
Jamaica	a) 1 420	a) 1 460	a) 1 500	1 542	1 584	1 616	1 635	1 642	1 687	1 728	1 773
Mexico	30 015	30 942	31 902	32 895	33 924	34 988	36 091	37 233	38 416	39 643	40 913
Nicaragua	1 218	1 255	1 292	1 330	1 370	1 411	1 453	1 496	1 541	1 597	1 655
Panama	926	952	978	1 006	1 033	1 062	1 092	1 122	1 153	1 185	1 246
Paraguay	1 565	1 613	1 648	1 687	1 728	1 751	1 801	1 854	1 910	1 968	2 030
Peru (c)	a) 8 790	9 004	9 235	9 483	9 746	10 025	10 320	10 632	10 958	11 298	11 650
Trinidad and Tobago	721	743	765	789	817	840	867	894	922	949	a) 976
United States (d)	165 069	168 088	171 187	174 149	177 135	179 992	183 057	185 890	188 658	191 371	193 818
Uruguay	a) 2 364	2 397	2 430	2 464	2 500	2 536	2 574	2 612	2 649	2 682	2 715
Venezuela (c)	6 150	6 393	6 636	6 879	7 122	7 364	7 612	7 872	8 144	8 427	8 722
Antigua	50	51	52	53	54	55	56	58	a) 59	60	a) 61
Bahama Islands (b)	92	96	101	106	111	116	122	128	134	141	148
Barbados	a) 225	226	226	228	231	234	234	236	239	242	a) 245
Bermuda	40	41	42	43	43	44	45	46	47	48	48
British Guiana	486	500	515	532	550	564	577	594	612	629	647
British Honduras	78	81	83	86	88	91	94	97	100	103	106
Canal Zone	55	53	52	43	42	42	43	45	50	54	54
Cayman Islands	7	7	7	8	8	8	9	9	9	9	a) 9
Dominica	55	56	57	58	59	60	60	61	63	64	a) 65
Falkland Islands	2	2	2	2	2	2	2	2	2	2	2
French Guiana	b) 29	b) 29	b) 30	b) 31	b) 32	33	34	34	35	36	37
Grenada	83	84	85	86	88	89	90	91	92	93	a) 94
Guadeloupe	b) 236	b) 243	b) 250	b) 258	b) 265	b) 273	281	289	297	306	a) 316
Martinique	b) 246	b) 252	b) 259	b) 266	b) 274	b) 281	289	294	302	310	a) 318
Montserrat	14	14	14	14	15	12	13	13	13	13	14
Netherlands Antilles	180	182	185	187	188	190	194	198	202	205	a) 209
Puerto Rico	2 250	2 249	2 260	2 299	2 322	2 362	2 409	2 459	2 520	2 578	2 633
St. Kitts-Nevis and Anguilla	53	54	54	55	56	57	59	60	61	59	...
St. Lucia	80	81	83	84	85	86	89	92	94	92	...
St. Pierre and Miquelon	5	5	5	5	5	5	5	5	5	5	5
St. Vincent	73	75	76	77	79	80	82	82	84	85	a) 87
Surinam (b, e)	224	234	244	254	265	277	289	301	314	327	342
Turks and Caicos Islands	6	6	6	6	6	6	6	6	6	6	a) 6
Virgin Islands (UK)	7	7	7	7	7	7	8	8	8	8	9
Virgin Islands (US)	28	28	29	30	31	32	34	35	40	41	43

(a) PAHO estimate. (b) Series estimated on the basis of the intercensal growth between the last two censuses. (c) Excludes Indian Jungle population. (d) Total resident population, excluding the Armed Forces abroad. (e) Excluding Indian and Negro population living in tribes.

Sources: United Nations, Monthly Bulletin of Statistics, April 1966; Demographic Yearbook, 1963; United Nations, Population and Vital Statistics Reports, Statistical Papers, Series A, Vol. XVII, No. 1, January 1966.

TABLE C. AGE DISTRIBUTION OF POPULATION ACCORDING TO RECENT CENSUSES IN THE AMERICAS

Area	Census Year	Total	Age									
			Under 5 years	5-14	15-24	25-34	35-44	45-54	55-64	65-74	75 and over	Not stated
Argentina (a)	1960	19 971 342	4 214 021	3 610 054	3 039 593	3 009 380	2 385 669	1 877 449	←1 785 645→			49 531
Bolivia (E)	1960	3 453 000	543 000	824 000	657 000	496 000	361 000	243 000	180 000	91 000	58 000	-
Brazil	1960	70 119 071	11 196 313	18 735 168	13 303 185	←13 713 826→		5 959 858	3 786 394	2 185 327	1 239 000	
Canada	1961	18 238 247	2 256 401	3 935 521	2 616 205	2 481 107	2 389 885	1 878 504	1 289 470	889 277	501 877	-
Chile	1960	7 374 115	1 104 720	1 817 798	1 323 206	1 034 157	779 292	602 810	395 387	212 675	104 070	-
Colombia (E)	1960	15 416 000	2 595 000	4 025 000	3 094 000	1 989 000	1 579 000	1 037 000	610 000	316 000	171 000	-
Costa Rica	1963	1 336 274	248 947	387 718	233 350	161 926	121 119	86 679	52 185	27 045	15 205	2 100
Cuba (E)	1960	6 797 000	904 000	1 543 000	←2 658 000→		←1 393 000→			←299 000→		-
Dominican Republic	1960	3 013 525	530 380	813 652	620 786	388 745	289 298	177 798	105 473	51 230	36 163	-
Ecuador (a)	1962	4 514 833	766 800	1 269 900	811 167	601 833	431 866	298 934	187 100	92 466	54 767	-
El Salvador	1961	2 510 984	431 658	692 858	457 077	323 233	250 818	165 750	108 988	50 625	29 197	780
Guatemala (a)	1964	4 209 820	742 280	1 196 500	760 180	547 860	417 800	260 820	167 660	80 180	36 540	-
Haiti (E)	1964	4 550 000	768 986	1 153 215	856 777	635 660	470 750	331 920	204 255	97 770	30 667	-
Honduras	1961	1 884 765	357 850	542 889	341 940	241 128	169 841	112 315	71 707	31 181	14 888	1 026
Jamaica (a)	1960	1 609 814	267 891	394 617	269 678	204 975	171 628	144 486	86 868	41 923	27 748	-
Mexico	1960	34 923 129	5 776 747	9 675 360	6 482 337	4 556 527	3 282 004	2 296 967	1 544 609	747 535	447 500	113 543
Nicaragua (a)	1963	1 536 240	280 065	462 710	268 310	191 945	143 070	88 840	57 400	26 540	17 360	-
Panama	1960	1 075 541	181 939	285 445	197 895	141 155	109 417	75 958	45 838	25 019	12 875	-
Paraguay	1962	1 816 890	b) 587 820	b) 229 818	336 324	215 372	164 281	118 298	75 146	70 557		19 274
Peru	1961	9 906 746	1 671 526	2 618 558	1 821 906	1 361 283	960 284	656 496	436 424	226 821	148 459	4 989
Trinidad and Tobago	1960	827 957	131 627	219 424	146 140	102 001	88 590	67 473	39 011	23 398	10 293	-
United States	1960	179 323 175	20 320 901	35 465 272	24 020 004	22 818 310	24 081 352	20 485 439	15 572 317	10 996 842	5 562 738	
Uruguay	1963	2 592 600	254 200	467 300	399 300	387 900	356 400	290 700	219 300	134 400	66 800	16 300
Venezuela	1961	7 523 999	1 340 899	2 029 825	1 327 950	1 061 650	737 350	511 575	306 725	135 775	72 250	-
Antigua (a)	1960	54 060	8 333	14 821	9 399	6 205	5 360	4 767	2 766	1 442	967	-
Bahama Islands (E)	1960	116 000	19 000	24 000	21 000	17 000	15 000	9 000	5 000	4 000	2 000	-
Barbados	1960	232 327	32 464	56 418	38 019	25 737	24 880	23 681	16 261	9 490	5 377	-
Bermuda	1960	42 640	5 282	8 948	6 523	6 693	5 244	4 448	2 985	1 573	848	96
British Guiana	1960	560 330	98 177	161 051	94 041	68 417	52 770	40 789	26 275	12 978	5 832	-
British Honduras (a)	1960	90 505	16 587	23 782	14 681	11 582	8 352	7 089	4 631	2 550	1 251	-
Canal Zone	1960	42 122	4 680	9 674	8 136	5 886	6 716	4 399	1 766	526	339	-
Cayman Islands (a)	1960	8 511	1 191	1 829	1 382	1 218	915	774	557	384	261	-
Dominica	1960	59 916	11 200	15 602	9 809	6 381	5 409	4 869	3 346	2 034	1 266	-
Falkland Islands	1962	2 172	231	337	532	335	267	238	144	88		
French Guiana	1961	33 535	4 666	7 692	4 211	4 179	4 140	3 309	2 310	1 450	709	869
Grenada	1960	88 677	17 595	24 673	14 051	9 290	7 131	6 709	4 620	2 817	1 791	
Guadeloupe	1961	280 344	46 517	71 249	48 367	36 324	29 102	22 336	14 036	12 413		
Martinique	1961	290 679	44 827	77 513	45 885	35 806	30 433	24 325	15 865	8 950	5 126	1 949
Montserrat (a)	1960	12 167	1 772	3 426	2 040	911	995	1 115	911	578	419	
Netherlands Antilles	1960	188 914	29 087	49 078	31 056	24 173	20 356	16 768	10 163	5 314	2 908	11
Puerto Rico	1960	2 349 544	354 402	648 736	418 525	262 919	238 017	180 796	123 942	79 608	42 599	-
St. Kitts-Nevis and Anguilla (a)	1960	56 693	10 786	15 134	8 469	5 610	5 299	5 301	3 264	1 718	1 112	-
St. Lucia	1960	86 108	15 376	22 733	15 076	9 681	8 365	6 499	4 256	2 506	1 616	-
St. Pierre and Miquelon	1962	4 990	476	1 152	828	662	594	540	385	227	126	-
St. Vincent	1960	79 948	16 211	23 094	13 322	8 343	6 602	5 357	3 642	2 041	1 336	-
Surinam (E)	1960	277 000	45 000	69 000	50 000	34 000	27 000	23 000	17 000	9 000	3 000	-
Turks and Caicos Islands (a)	1960	5 668	946	1 611	785	594	596	497	310	180	149	-
Virgin Islands (UK)(a)	1960	7 921	1 450	2 343	1 258	783	696	549	389	290	163	-
Virgin Islands (US)	1960	32 099	4 934	7 834	5 149	3 862	3 499	2 760	1 854	1 403	804	-
Northern America		197 609 052	22 583 060	39 410 893	26 643 560	25 306 772	26 477 075	22 368 931	16 865 157	11 887 919	6 065 589	96
Middle America (c)		61 279 908	10 309 211	16 846 689	11 292 512	7 931 136	5 902 956	4 114 261	2 687 534	1 328 278	747 920	119 411
South America (c)		141 742 571	21 700 138	35 898 092	26 208 924	20 042 254	15 198 423	10 882 039	6 776 819	3 333 845	1 630 348	71 689

E - Estimate. (a) Total does not agree with Appendix Table A. (b) Age groupings: under 10 years and 10-14 years. (c) Excludes Cuba and and Guadeloupe in Middle America and Falkland Islands and Paraguay in South America, countries for which age groupings varied.

TABLE D. PERCENTAGE DISTRIBUTION OF POPULATION BY AGE, BY COUNTRY, ACCORDING TO THE RECENT CENSUS

Area	Year	Total	Age								
			Under 5 Years	5-14	15-24	25-34	35-44	45-54	55-64	65-74	75 and over
Argentina	1960	100	21.15	18.12	15.26	15.11	11.98	9.42	8.96		
Bolivia (E)	1960	100	15.74	23.86	19.02	14.35	10.47	7.04	5.22	2.63	1.68
Brazil	1960	100	15.97	26.72	18.97	19.56	8.50	5.40	3.12	1.77	
Canada	1961	100	12.37	21.58	14.34	13.60	13.10	10.30	7.07	4.88	2.75
Chile	1960	100	14.98	24.65	17.94	14.02	10.57	8.17	5.36	2.88	1.41
Colombia (E)	1960	100	16.83	26.10	20.07	12.91	10.24	6.73	3.96	2.05	1.11
Costa Rica	1963	100	18.66	29.06	17.49	12.14	9.08	6.50	3.91	2.03	1.14
Cuba (E)	1960	100	13.30	22.70	39.11			20.49		4.40	
Dominican Republic	1960	100	17.60	27.00	20.60	12.90	9.60	5.90	3.50	1.70	1.20
Ecuador	1962	100	16.98	28.13	17.97	13.33	9.57	6.62	4.14	2.05	1.21
El Salvador	1961	100	17.19	27.61	18.21	12.88	9.99	6.60	4.34	3.18	
Guatemala	1964	100	17.63	28.42	18.06	13.01	9.92	6.20	3.98	1.90	0.87
Haiti (E)	1964	100	16.90	25.35	18.83	13.97	10.35	7.29	4.49	2.15	0.67
Honduras	1961	100	19.00	28.82	18.15	12.80	9.02	5.96	3.81	1.66	0.79
Jamaica	1960	100	16.64	24.51	16.75	12.73	10.66	8.98	5.40	2.60	1.72
Mexico	1960	100	16.60	27.80	18.62	13.09	9.43	6.60	4.44	2.15	1.29
Nicaragua	1963	100	18.23	30.12	17.47	12.49	9.31	5.78	3.74	1.73	1.13
Panama	1960	100	16.92	26.54	18.40	13.12	10.17	7.06	4.26	2.33	1.20
Paraguay	1962	100	a)32.70	a)12.78	18.71	11.98	9.14	6.58	4.18	3.93	
Peru	1961	100	16.88	26.45	18.40	13.75	9.70	6.63	4.41	2.29	1.50
Trinidad and Tobago	1960	100	15.90	26.50	17.65	12.32	10.70	8.15	4.71	2.83	1.24
United States	1960	100	11.33	19.78	13.39	12.72	13.43	11.42	8.68	6.13	3.10
Uruguay	1963	100	9.87	18.14	15.50	15.06	13.83	11.28	8.51	5.22	2.59
Venezuela	1961	100	17.82	26.98	17.65	14.11	9.80	6.80	4.08	1.80	0.96
Antigua	1960	100	15.41	27.42	17.39	11.48	9.91	8.82	5.12	2.67	1.79
Bahama Islands (E)	1963	100	16.38	20.69	18.10	14.66	12.93	7.76	4.31	3.45	1.72
Barbados	1960	100	13.97	24.28	16.36	11.08	10.71	10.19	7.00	4.08	2.31
Bermuda	1960	100	12.42	21.03	15.33	15.73	12.33	10.46	7.02	3.70	1.99
British Guiana	1960	100	17.52	28.74	16.78	12.21	9.42	7.28	4.69	2.32	1.04
British Honduras	1960	100	18.33	26.28	16.22	12.80	9.23	7.83	5.12	2.82	1.38
Canal Zone	1960	100	11.11	22.97	19.32	13.97	15.94	10.44	4.19	1.25	0.80
Cayman Islands	1960	100	13.99	21.49	16.24	14.31	10.75	9.09	6.54	4.51	3.07
Dominica	1960	100	18.69	26.04	16.37	10.65	9.03	8.13	5.58	3.39	2.11
Falkland Islands	1962	100	10.64	15.52	24.49	15.42	12.29	10.96	6.63	4.05	
French Guiana	1961	100	14.28	23.55	12.89	12.79	12.67	10.13	7.07	4.44	2.17
Grenada	1960	100	19.84	27.82	15.85	10.48	8.04	7.57	5.21	3.18	2.02
Guadeloupe (E)	1961	100	16.59	25.41	17.25	12.96	10.38	7.97	5.01	4.43	
Martinique	1961	100	15.53	26.85	15.89	12.40	10.54	8.42	5.49	3.10	1.78
Montserrat	1960	100	14.56	28.16	16.77	7.49	8.18	9.16	7.49	4.75	3.44
Netherlands Antilles	1960	100	15.40	25.98	16.44	12.80	10.78	8.88	5.38	2.81	1.54
Puerto Rico	1960	100	15.08	27.61	17.81	11.19	10.13	7.69	5.28	3.39	1.81
St. Kitts-Nevis and Anguilla	1960	100	19.03	26.69	14.94	9.90	9.35	9.35	5.76	3.03	1.96
St. Lucia	1960	100	17.86	26.40	17.51	11.24	9.71	7.55	4.94	2.91	1.88
St. Pierre and Miquelon	1962	100	9.54	23.08	16.59	13.27	11.90	10.82	7.71	4.55	2.53
St. Vincent	1960	100	20.28	28.89	16.66	10.44	8.26	6.70	4.56	2.55	1.67
Surinam (E)	1960	100	16.25	24.91	18.05	12.27	9.75	8.30	6.14	3.25	1.08
Turks and Caicos Islands	1960	100	16.69	28.42	13.85	10.48	10.52	8.77	5.47	3.18	2.63
Virgin Islands (UK)	1960	100	18.31	29.58	15.88	9.89	8.79	6.93	4.91	3.66	2.06
Virgin Islands (US)	1960	100	15.37	24.41	16.04	12.03	10.90	8.60	5.78	4.37	2.50
Northern America		100	11.43	19.94	13.48	12.81	13.40	11.32	8.53	6.02	3.07
Middle America		100	16.86	27.55	18.46	12.97	9.65	6.73	4.39	2.17	1.22
South America		100	15.32	25.34	18.50	14.15	10.73	7.68	4.78	2.35	1.15

(E) Estimate. (a) Age groupings: 0-9 years and 10-14 years.

TABLE E. NUMBER OF LIVE BIRTHS WITH RATES PER 1,000 POPULATION, BY COUNTRY, 1960-1964

Area	Source (a)	Number					Rate per 1,000 population				
		1960	1961	1962	1963	1964	1960	1961	1962	1963	1964
Argentina	C	473 038	471 511	476 953	472 750	474 914	22.9	22.4	22.3	21.8	21.6
Bolivia	A	98 625	93 984	106 415	96 252	82 555	28.6	26.8	30.0	26.8	22.6
Brazil (São Paulo)	B	437 129	447 179	457 642	479 806	...	33.9	33.2	32.9	33.5	...
Canada	A	478 551	475 700	469 693	465 767	452 915	26.7	26.0	25.3	24.6	23.5
Chile	A	269 508	277 184	289 758	294 175	298 980	35.1	35.3	36.1	35.8	35.6
Colombia	A	598 530	626 801	650 561	664 400	666 823	38.8	39.4	39.6	39.2	38.1
Costa Rica	A	58 785	61 666	62 624	63 798	64 972	50.2	50.3	49.2	47.5	46.8
Cuba	A	214 900	225 800	236 600	240 300	244 300	31.5	32.5	33.5	33.2	32.9
Dominican Republic	A	110 102	102 585	106 695	113 141	...	36.3	32.6	32.8	33.6	...
Ecuador	A	206 178	208 455	215 980	225 099	229 144	47.7	46.8	47.0	47.5	46.9
El Salvador	A	121 403	124 871	127 154	133 163	132 709	49.5	49.4	48.4	48.9	47.0
Guatemala	A	186 476	193 833	191 420	197 671	D) *191 125	48.9	49.3	47.3	47.3	44.4
Haiti		...	...	...	...	...		...	...	...	...
Honduras	A	82 167	85 842	92 128	93 649	100 531	44.7	45.3	47.0	46.3	48.1
Jamaica	A	69 192	C) 66 945	66 948	66 806	69 266	42.8	40.9	40.8	39.6	40.1
Mexico	A	1 608 174	1 647 006	1 705 481	1 756 624	1 849 408	46.0	45.6	45.8	45.7	46.7
Nicaragua	A	60 235	59 582	60 020	62 762	66 867	42.7	41.0	40.1	40.7	41.9
Panama	A	41 544	43 200	45 228	45 847	47 580	39.1	39.6	40.3	39.8	40.2
Paraguay	A	...	49 405	46 925	49 551	50 859	...	27.4	25.3	25.9	25.8
Peru	B	376 356	358 318	377 520	381 921	D) *361 877	37.5	34.7	35.5	34.9	32.0
Trinidad and Tobago	A	32 858	32 991	34 111	32 896	...	39.1	38.1	38.2	35.7	...
United States	A	4 257 850	4 268 326	4 167 362	4 098 020	4 027 490	23.7	23.3	22.4	21.7	21.0
Uruguay	C	60 611	63 830	65 450	63 068	...	23.9	24.8	25.1	23.8	...
Venezuela	A	324 132	340 433	337 279	353 537	*356 549	44.0	44.7	42.8	43.4	42.3
Antigua	A	1 878	1 768	1 787	1 833	1 887	34.1	31.6	30.8	31.1	31.5
Bahama Islands	C	3 359	3 734	3 468	4 158	D) 4 694	29.0	30.6	27.1	31.0	33.3
Barbados	A	7 833	6 805	6 881	6 883	6 506	33.5	29.1	29.2	28.8	26.9
Bermuda	C	1 208	1 183	1 185	1 221	D) 1 173	27.5	26.3	25.8	26.0	24.4
British Guiana	A	23 252	23 797	24 269	24 545	D) * 25 015	41.2	41.2	40.9	40.1	39.8
British Honduras	A	4 091	4 244	4 461	4 783	4 568	45.0	45.1	46.0	47.8	44.3
Canal Zone	A	769	781	735	645	694	18.3	18.2	16.3	12.9	12.9
Cayman Islands	A	264	277	290	303	270	33.0	30.8	32.2	33.7	30.0
Dominica	C	2 815	2 655	2 566	2 523	D) * 2 611	46.9	44.2	42.1	40.0	40.8
Falkland Islands	A	54	48	49	44	42	27.0	24.0	24.5	22.0	21.0
French Guiana	C	1 026	1 066	1 041	1 118	* 1 100	31.1	31.4	30.6	31 9	30.6
Grenada	A	4 016	3 691	3 419	3 445	3 374	45.1	41.0	37.6	37.4	36.3
Guadeloupe	C	10 479	10 007	10 890	10 712	10 413	38.4	35.6	37.7	36.1	34.0
Martinique	C	10 661	10 573	10 663	10 217	*10 500	37.9	36.6	36.3	33.8	33.9
Montserrat	A	359	335	324	341	364	29.9	25.8	24.9	26.2	28.0
Netherlands Antilles	C	6 628	6 472	6 529	6 237	5 991	34.9	33.4	33.0	30.9	29.2
Puerto Rico	B	76 314	75 418	76 596	77 440	77 999	32.3	31.3	31.1	30.7	30.3
St. Kitts-Nevis-Anguilla	C	2 426	2 038	2 112	2 025	D) 1 907	42.6	34.5	35.2	33.2	32.2
St. Lucia	A	4 240	4 011	3 935	3 981	...	49.3	45.1	42.8	42.4	...
St. Pierre and Miquelon	C	110	99	124	A) 116	128	22.0	19.8	24.8	23.2	25.6
St. Vincent	C	3 985	3 968	3 727	3 637	D) 3 678	49.8	48.4	45.5	43.3	43.3
Surinam	C	...	12 606	...	...	...	...	43.6	...	...	...
Turks and Caicos Is.	C	252	247	252	238	...	42.0	41.2	42.0	39.7	...
Virgin Islands (UK)	C	279	257	277	*259	D) 225	39.9	32.1	34.6	32.4	28.1
Virgin Islands (US)	A	1 180	1 193	1 375	1 513	1 762	36.9	35.1	39.3	37.8	43.0
Northern America		4 737 719	4 745 308	4 638 364	4 565 124	4 481 706	23.9	23.6	22.7	22.0	21.3
Middle America		2 512 764	2 782 795	2 868 696	2 947 830	2 904 201	46.1	42.8	43.0	42.7	43.6
South America		2 868 439	2 974 617	3 049 842	3 106 266	2 547 858	33.7	33.3	33.4	33.1	32.3

* Provisional.

(a) A - Questionnaire for Third Report on World Health Situation except for 1960; B - Country publication; C - U. N. Demographic Yearbook; D - U. N. Population and Vital Statistics Report.

TABLE F. NUMBER OF DEATHS WITH RATES PER 1,000 POPULATION BY COUNTRY, 1960-1964

Area	Source	Number					Rate				
		1960	1961	1962	1963	1964	1960	1961	1962	1963	1964
Argentina	C	179 266	*174 017	*177 235	*175 373	*176 542	8.7	8.3	8.3	8.1	8.0
Bolivia	A	...	38 128	44 988	38 649	33 363	...	10.9	12.7	10.7	9.1
Brazil (São Paulo State)	B	115 466	118 450	123 596	129 593	...	8.9	8.8	8.9	9.0	...
Canada	A	139 693	140 985	143 699	147 367	145 850	7.8	7.7	7.7	7.8	7.6
Chile	A	93 625	91 551	94 569	98 901	94 111	12.2	11.7	11.8	12.0	11.2
Colombia	A	183 102	175 612	177 208	176 898	175 948	11.9	11.0	10.8	10.4	10.1
Costa Rica	A	10 063	9 726	10 861	11 376	B) 12 269	8.6	7.9	8.5	8.5	8.8
Cuba	A	C) 43 164	45 227	49 578	49 188	48 048	6.3	6.5	7.0	6.8	6.5
Dominican Republic	A	27 025	26 018	22 359	22 026	22 649	8.9	8.3	6.9	6.5	6.5
Ecuador	A	61 054	58 166	60 082	61 129	58 989	14.1	13.1	13.1	12.9	12.1
El Salvador	A	B) 28 786	28 491	30 342	29 636	29 510	11.7	11.3	11.6	10.9	10.4
Guatemala	A	65 805	63 287	69 287	71 449	D) *68 098	17.3	16.1	17.1	17.1	15.8
Haiti	...	...	...	...	...	...	...	...	...	...	...
Honduras	A	18 005	18 045	18 650	19 510	B) 20 546	9.8	9.5	9.5	9.6	9.8
Jamaica *	A	14 321	14 193	14 844	15 288	13 476	8.9	8.7	9.0	9.1	7.8
Mexico	A	402 545	388 857	403 046	412 834	408 275	11.5	10.8	10.8	10.7	10.3
Nicaragua	A	11 935	11 381	10 729	11 128	11 628	8.5	7.8	7.2	7.2	7.3
Panama	A	8 490	8 529	7 947	9 004	8 727	8.0	7.8	7.1	7.8	7.4
Paraguay (a)	A	9 467	9 285	9 311	9 958	9 478	10.5	10.1	10.2	10.1	8.6
Peru	B	114 605	110 613	*106 634	*110 088	D)*100 353	11.4	10.7	10.0	10.0	8.9
Trinidad and Tobago	A	6 608	6 999	6 465	6 660	C) 5 840	7.9	8.1	7.2	7.2	6.2
United States	A	1 711 982	1 701 522	1 756 720	1 813 549	*1 798 051	9.5	9.3	9.5	9.6	9.4
Uruguay	C	* 21 575	*22 750	* 22 833	23 524	24 118	8.5	8.8	8.7	8.9	9.0
Venezuela	A	55 019	55 466	54 938	58 269	61 281	7.5	7.3	7.0	7.2	7.3
Antigua	A	538	503	405	574	468	9.8	9.0	7.0	9.7	7.8
Bahama Islands	C	805	1 024	821	1 030	816	6.9	8.4	6.4	7.7	5.8
Barbados	A	2 127	2 410	2 116	2 090	2 127	9.1	10.3	9.0	8.7	8.8
Bermuda	C	365	306	333	333	366	8.3	6.8	7.2	7.1	7.6
British Guiana	A	5 167	5 083	4 650	4 573	D) * 5 069	9.2	8.8	7.8	7.5	8.1
British Honduras	A	717	708	853	712	729	7.9	7.5	8.8	7.1	7.1
Canal Zone	A	130	122	126	130	155	3.1	2.8	2.8	2.6	2.9
Cayman Islands	C	54	68	51	61	A) 73	6.8	7.6	5.7	6.8	8.1
Dominica	C	922	* 799	658	826	D) 605	15.4	13.3	10.8	13.1	9.5
Falkland Islands	A	32	26	24	24	13	16.0	13.0	12.0	12.0	6.5
French Guiana	C	451	487	...	446	*400	13.7	14.3	...	12.7	11.1
Grenada	A	1 032	1 022	840	827	805	11.6	11.4	9.2	9.0	8.7
Guadeloupe	C	2 657	2 367	2 348	2 400	2 321	9.7	8.4	8.1	8.1	7.6
Martinique	C	2 678	2 289	2 546	2 514	2 500	9.5	7.9	8.7	8.3	8.1
Montserrat	A	141	136	128	117	107	11.8	10.5	9.8	9.0	8.2
Netherlands Antilles	C	1 039	969	935	1 008	979	5.5	5.0	4.7	5.0	4.8
Puerto Rico	A	15 791	16 361	16 575	17 386	18 566	6.7	6.8	6.7	6.9	7.2
St. Kitts-Nevis and Anguilla	C	764	711	587	569	A) 545	13.4	12.1	9.8	9.3	9.6
St. Lucia	A	1 281	1 228	1 186	1 069	...	14.9	13.8	12.9	11.4	...
St. Pierre and Miquelon	C	44	53	67	...	44	8.8	10.6	13.4	...	8.8
St. Vincent	C	1 210	1 024	957	1 006	D) 821	15.1	12.5	11.7	12.0	9.7
Surinam	A	2 200	2 310	2 412	2 406	2 292	7.9	8.0	8.0	7.7	7.0
Turks and Caicos Islands	C	60	65	72	74	...	10.0	10.8	12.0	12.3	...
Virgin Islands (UK)	C	67	79	70	* 67	D) 75	9.6	9.9	8.8	8.4	9.4
Virgin Islands (US)	A	332	326	321	383	343	10.4	9.6	9.2	9.6	8.4
North America		1 852 084	1 842 866	1 900 819	1 961 249	1 944 311	9.4	9.2	9.3	9.4	9.2
Middle America		669 092	652 964	675 703	690 942	681 101	10.6	10.1	10.1	10.0	9.6
South America		841 029	861 944	878 480	889 831	741 957	10.2	9.7	9.7	9.5	9.2

* Provisional. (a) Area of information only.

Sources: A - Third Report on World Health Situation except for 1960. B - Country publication. C - U. N. Demographic Yearbook. D - U. N. Population and Vital Statistics Report.

TABLE G. NUMBER OF DEATHS FROM SPECIFIC CAUSES BY COUNTRY, RECENT YEARS

Cause		Argentina 1962 (a)	Brazil (State of São Paulo) 1963	Canada 1964	Chile 1964	Colombia 1964	Costa Rica 1964	Cuba 1964	Dominican Republic 1964	Ecuador 1964	El Salvador 1963	Guatemala 1963
Total deaths		a) 160 591	129 593	145 850	94 111	b) 175398	12 269	*46 488	c) 21 839	58 989	29 636	71 449
Tuberculosis, all forms	001-019	2 844	2 849	670	3 853	3 840	169	1 133	266	1 153	417	1 291
Syphilis and its sequelae	020-029	302	281	91	149	199	18	118	39	31	22	4
Typhoid fever	040	76	33	2	172	530	12	...	42	131	169	351
Paratyphoid fever and other Salmonella infections	041, 042		d) ...	13	16	68	5	...	8		4	7
Dysentery, all forms	045-048	89	603	15	71	924	30	34	25	244	130	1 673
Scarlet fever and streptococcal sore throat	050, 051	5	10	9	19	20	-	3	1	4	-	13
Diphtheria	055	156	189	5	181	287	30	17	71	85	63	30
Whooping cough	056	196	158	26	297	2 754	94	6	43	3 122	483	3 209
Meningococcal infections	057	51	72	38	35	16	3	3	2	5	-	5
Plague	058	-	-	-	-	...	-	-	-	9	-	-
Leprosy	060	d) ...	330	-	-	97	3	...	4	8	-	-
Tetanus	061	d) ...	1 422	9	49	2 056	205	...	587	1 728	535	308
Yaws	073	-	...	-	-	...	-	...	...	-	-	-
Acute poliomyelitis	080	85	153	5	64	83	10	-	8	31	6	6
Smallpox	084	5	13	-	-	3	-	-	-	-	-	-
Measles	085	284	832	58	3 264	1 769	205	14	25	2 070	518	3 280
Yellow fever	091	-	-	-	-	7	-	-	-	-	-	-
Rabies	094	j) ...	26	1	5	40	-	-	3	20	5	4
Typhus and other rickettsiae	100-108	11	3	1	-	596	-	-	-	10	-	-
Malaria	110-117	19	14	1	-	1 107	7	3	50	275	371	137
All other infective and parasitic diseases	Residual	1 505	2 334	302	750	4 257	315	824	121	1 154	505	7 661
Malignant neoplasms, etc.	140-205	24 347	10 099	25 637	8 560	8 553	1 062	7 287	470	1 593	578	1 137
Benign and unspecified neoplasms	210-239	1 721	371	321	220	1 390	48	146	107	151	80	181
Non-toxic goitre and thyrotoxicosis	250-252	e) ...	e) ...	39	6	83	2	e) ...	2	15	1	7
Diabetes mellitus	260	2 373	1 581	2 488	493	882	116	905	77	150	84	146
Avitaminoses and other deficiency states		e) ...	e) ...	76	249	4 134	134	e) ...	335	316	375	1 102
Anemias	290-293	404	253	316	205	3 083	126	273	230	1 060	384	1 772
Vascular lesions affecting central nervous system	330-334	12 584	7 911	15 030	4 773	5 182	381	4 243	321	839	296	311
Non-meningococcal meningitis	340	1 238	695	179	670	1 650	109	192	113	300	44	161
Rheumatic fever	400-402	85	248	42	89	184	13	91	3	19	10	17
Chronic rheumatic heart disease	410-416	602	1 076	1 323	474	527	58	296	22	61	10	34
Arteriosclerotic and degenerative heart disease	420-422	12 690	10 159	46 378	5 588	4 914	588	5 000	307	414	140	603
Other diseases of the heart	430-434	7 184	6 097	2 219	632	5 118	266	1 842	205	967	174	379
Hypertension with heart disease	440-443	3 305	3 560	2 656	597	1 279	50	2 648	51	241	10	59
Hypertension without mention of heart	444-447		1 296	806	472	747	46		146		15	167
Arteriosclerosis	450	e) ...	e) ...	2 536	879	1 731	63	e) ...	103	e) ...	119	186
Other diseases of the circulatory system	451-468	e) ...	c) ...	1 838	297		49	e) ...		e) ...		61
Influenza	480-483	337	990	300	1 355	1 465	96	259	15	1 593	457	4 860
Pneumonia	490-493	5 425	8 182	4 962	14 030	11 616	843	2 196	457	3 053	825	6 042
Bronchitis	500-502	961	1 051	1 017	635	8 592	316	501	409	5 654	1 034	1 268
Other diseases of respiratory system	470-475, 510-527	e) ...	e) ...	1 774	587	1 616	112	e) ...	107	e) ...	292	198
Ulcer of stomach and duodenum	540, 541	491	529	992	336	977	35	305	30	114	49	65
Appendicitis	550-553	163	73	162	109	176	10	44	7	34	9	33
Intestinal obstruction and hernia	560, 561, 570	1 307	840	917	560	870	89	502	44	460	80	167
Gastritis, enteritis, etc.	543, 571, 572	4 807	9 892	750	5 743	18 427	1 898	2 088	3 442	5 876	1 642	9 561
Cirrhosis of the liver	581	1 818	1 547	1 228	3 126	784	92	721	194	182	153	339
Other diseases of digestive system	Residual	e) ...	e) ...	1 462	1 568	4 592	165	e) ...	180	e) ...	3 375	900
Nephritis and nephrosis	590-594	1 586	1 534	1 279	788	2 144	123	897	117	408	55	258
Other diseases of the genitourinary system	600-637	e) ...	e) ...	1 554	538	918	86	e) ...	36	e) ...	56	94
Complications of pregnancy, childbirth and puerperium	640-689	547	657	137	866	1 717	82	256	126	519	157	406
Congenital malformations	750-759	1 352	1 854	2 589	1 007	1 518	207	1 029	126	249	101	208
Certain diseases of early infancy	760-776	9 950	13 217	6 539	13 419	19 392	1 516	3 830	1 405	5 543	2 509	7 954
Senility, ill-defined, and unknown	780-795	32 509	20 347	1 101	6 359	24 827	1 331	418	10 397	13 323	10 290	11 236
All other diseases	Residual	16 540	8 597	3 561	2 514	4 799	419	5 096	245	3 182	1 015	1 547
Motor vehicle accidents	E810-E835	10 637	2 183	4 862	1 282	2 019	108	699	117	442	229	433
All other accidents	E800-E802, E840-E962		3 363	5 702	5 122	5 564	434	1 304	432	1 865	625	991
Suicide	E963, E970-E979		1 272	1 586	582	835	41	798	40	32	259	114
Homicide and injury resulting from operations of war	E964-E965, E980-E999		797	246	456	4 440	49	467	126	254	876	473

* Provisional. (a) Excludes Córdoba; provisional data. (b) 175,948 deaths registered. (c) 22,649 deaths registered. (d) Included in residual category for infective and parasitic diseases. (e) Included in residual category.

TABLE G. NUMBER OF DEATHS FROM SPECIFIC CAUSES BY COUNTRY, RECENT YEARS (Continued)

Cause		Hondu-ras 1964	Jamaica 1964	Mexico 1964	Nica-ragua 1964	Panama 1964	Para-guay 1963 (a)	Peru 1964 (b)	Trini-dad and Tobago 1963	United States 1964	Uru-guay 1963	Vene-zuela 1964
Total deaths		20546	c)13267	408275	11628	d)8454	9958	44778	6660	1798051	23524	61281
Tuberculosis, all forms	001-019	191	92	9535	92	285	232	3246	74	8303	455	1236
Syphilis and its sequelæ	020-029	5	100	487	-	15	31	48	40	2619	71	136
Typhoid fever	040	82	13	1870	79	1	3	174	3	14	3	20
Paratyphoid fever and other Salmonella infections	041,042	-	2	1071	279	1	11	80	-	67	4	7
Dysentery, all forms	045-048	81	8	3980	31	15	107	132	8	283	2	967
Scarlet fever and streptococcal sore throat	050,051	1	1	93	-	-	2	10	-	95	2	12
Diphtheria	055	10	3	323	1	18	19	48	3	42	8	28
Whooping cough	056	288	11	6627	115	94	32	336	1	93	64	392
Meningococcal infections	057	-	3	113	-	4	3	10	1	750	5	9
Plague	058	-	-	-	-	-	-	-	-	-	-	-
Leprosy	060	8	1	69	-	-	6	4	10	5	5	19
Tetanus	061	126	97	2361	345	224	196	356	48	179	18	437
Yaws	073	...	...	-	-	...	...	...	...	...	...	-
Acute poliomyelitis	080	17	2	232	-	1	14	110	4	17	1	27
Smallpox	084	-	-	-	-	-	-	20	-	-	-	-
Measles	085	390	1	7908	156	65	13	1594	8	421	8	380
Yellow fever	091	-	-	-	-	1	-	20	-	-	-	2
Rabies	094	7	-	90	2	-	-	14	-	1	-	19
Typhus and other rickettsiæ	100-108	-	-	70	-	-	-	-	-	24	-	-
Malaria	110-117	151	3	27	388	39	-	4	-	3	-	-
All other infective and parasitic diseases	Residual	386	155	4571	235	225	135	544	24	5596	170	1025
Malignant neoplasms, etc.	140-205	443	1309	14933	266	557	548	3274	577	289577	4789	4621
Benign and unspecified neoplasms	210-239	2	46	1058	65	49	36	118	5	4930	106	164
Non-toxic goitre and thyrotoxicosis	250-252	1	3	63	4	-	3	28	3	507	15	11
Diabetes mellitus	260	41	356	3868	67	88	49	364	144	32279	474	529
Avitaminoses and other deficiency states	280-286	187	412	4147	29	59	48	1088	41	1566	18	484
Anemias	290-293	306	101	3465	106	161	94	176	50	3516	49	256
Vascular lesions affecting central nervous system	330-334	390	1410	9102	318	529	466	1436	840	198209	2634	2109
Non-meningococcal meningitis	340	50	64	1874	51	39	84	448	25	2464	56	358
Rheumatic fever	400-402	-	32	317	-	3	13	46	8	509	14	29
Chronic rheumatic heart disease	410-416	2	56	1647	3	20	26	144	41	15414	126	233
Arteriosclerotic and degenerative heart disease	420-422	24	699	6780	98	397	197	2166	720	598754	4008	3779
Other diseases of the heart	430-434	383	498	5650	420	138	188	326	167	27741	328	919
Hypertension with heart disease	440-443	1	357	1263	15	38	36	348	308	57443	504	757
Hypertension without mention of heart	444-447	42	284	892	17	84	43	248	82	12191	281	253
Arteriosclerosis	450	4	182	1028	12	186	93	544	108	37176	586	252
Other diseases of the circulatory system	451-468	65		3505	47	64	39			25745		220
Influenza	480-483	189	20	4214	28	7	119	380	1	1687	337	874
Pneumonia	490-493	802	597	49246	384	401	506	6040	436	57764	593	2251
Bronchitis	500-502	237	205	11233	38	262	124	1254	100	5410	192	486
Other diseases of respiratory system	470-475,510-527	41	104	4326	86	98	101	514	88	29014	266	483
Ulcer of stomach and duodenum	540,541	25	104	1893	28	28	12	134	41	10969	113	157
Appendicitis	550-553	20	12	497	16	10	14	72	6	1783	26	75
Intestinal obstruction and hernia	560,561,570	49	77	2543	38	51	123	460	44	9944	176	307
Gastritis, enteritis, etc.	543,571,572	1504	829	44064	1400	537	818	3992	302	8178	339	4028
Cirrhosis of the liver	581	37	118	7550	82	32	61	662	120	23164	241	585
Other diseases of digestive system	Residual	1676	97	12977	459	210	175	1042	63	16952	343	473
Nephritis and nephrosis	590-594	15	181	3510	20	94	72	542	83	12414	214	693
Other diseases of the genitourinary system	600-637	44	180	1437	64	72	74	228	151	18914	180	306
Complications of pregnancy, childbirth and puerperium	640-689	188	121	3259	84	74	119	288	39	1343	51	361
Congenital malformations	750-759	2	143	3473	6	81	73	540	94	20288	272	835
Certain diseases of early infancy	760-776	414	1024	49819	933	581	627	5606	784	60322	1488	6386
Senility, ill-defined, and unknown	780-795	9586	2190	71743	3488	1635	3481	1042	457	25259	1567	16775
All other diseases	Residual	677	436	9020	276	265	209	1152	232	33837	941	1274
Motor vehicle accidents	E810-E835	1356	135	2752	133	124	61	910	74	46930	183	1661
All other accidents	E800-E802, E840-E962		340	16179	393	349	238	2186	146	56913	807	2217
Suicide	E963,E970-E979		32	740	19	60	32	84	15	20588	272	487
Homicide and injury resulting from operations of war	E964-E965, E980-E999		21	8781	412	83	152	146	41	9845	119	877

(a) Area of information only; approximately half of population of country. (b) Districts with medical certification. (c) 13,476 deaths registered. (d) 8,727 deaths registered.

TABLE G. NUMBER OF DEATHS FROM SPECIFIC CAUSES BY COUNTRY, RECENT YEARS (Continued)

Cause		Antigua 1964	Bahama Islands 1964	Barbados 1964	Bermuda 1964	British Guiana 1963	British Honduras 1964	Canal Zone 1964	Cayman Islands 1963	Dominica 1963	Falkland Islands 1964
Total deaths		468	816	2127	366	4573	729	155	61	a) 807	13
Tuberculosis, all forms	001-019	4	8	14	2	50	12	2	-	28	-
Syphilis and its sequelae	020-029	9	6	24	2	1	2	2	-	6	-
Typhoid fever	040	-	-	2	1			-	-	5	-
Paratyphoid fever and other Salmonella infections	041, 042	-	-	-	-	10	1	-	-	-	-
Dysentery, all forms	045-048	-	2	1	-	39	5	-	-	26	-
Scarlet fever and streptococcal sore throat	050, 051	-	-	-	-	-	-	-	-	-	-
Diphtheria	055	-	-	2	-	3	-	-	-	-	-
Whooping cough	056	-	-	1	-	18	-	-	-	57	-
Meningococcal infections	057	-	-	1	-	-	-	-	-	5	-
Plague	058	-	-	-	-	-	-	-	-	-	-
Leprosy	060	1	-	-	-	-	-	-	-	-	-
Tetanus	061	3	13	18	-	15	8	-	-	8	-
Yaws	073	...	...	...	-	-	-	-	-	...	-
Acute poliomyelitis	080	-	2	-	-	16	-	-	-	-	-
Smallpox	084	-	-	-	-	-	-	-	-	-	-
Measles	085	-	-	-	-	20	-	-	-	4	-
Yellow fever	091	-	-	-	-	-	-	-	-	-	-
Rabies	094	-	-	-	-	-	-	-	-	-	-
Typhus and other rickettsiae	100-108	-	-	-	-	-	-	-	-	-	-
Malaria	110-117	-	-	-	-	-	-	-	-	-	-
All other infective and parasitic diseases	Residual	5	8	17	-	-	6	3	-	6	-
Malignant neoplasms, etc.	140-205	47	53	255	57	-	53	19	6	52	-
Benign and unspecified neoplasms	210-239	-	7	3	-	-	4	1	-	4	-
Non-toxic goitre and thyrotoxicosis	250-252	1	-	-	-	-	1	-	-	-	-
Diabetes mellitus	260	9	4	80	9	150	7	-	-	13	-
Avitaminoses and other deficiency states	280-286	27	1	30	-	10	13	-	-	105	-
Anemias	290-293	3	9	9	-	-	8	2	-	8	-
Vascular lesions affecting central nervous system	330-334	46	47	331	43	289	52	19	7	43	1
Non-meningococcal meningitis	340	1	7	7	2	23	2	1	-	-	-
Rheumatic fever	400-402	-	-	2	-	6	-	1		-	-
Chronic rheumatic heart disease	410-416	7	-	9	-	13	1	1		-	-
Arteriosclerotic and degenerative heart disease	420-422	11	34	206	87	-	17	21	19	54	5
Other diseases of the heart	430-434	10	13	104	2	100	40	4		4	-
Hypertension with heart disease	440-443	32	15	53	18					6	-
Hypertension without mention of heart	444-447	11	14	33	3	357	6	3		5	-
Arteriosclerosis	450		6		5	b) ...	b) ...	b) ...	-		-
Other diseases of the circulatory system	451-468	5	14	89	8	b) ...	b) ...	b) ...	-	4	-
Influenza	480-483	-	-	-	-	2	-	-		8	-
Pneumonia	490-493	24	100	109	7	452	43	22		48	-
Bronchitis	500-502	-	8	15	2	172	5	-	10	5	2
Other diseases of respiratory system	470-475, 510-527	1	7	22	1	b) ...	b) ...	b) ...		9	-
Ulcer of stomach and duodenum	540, 541	2	1	11	1	-	5	-	-	1	-
Appendicitis	550-553	2	1	2	1	-	-	-	-	-	-
Intestinal obstruction and hernia	560, 561, 570	2	5	21	5	38	3	1	-	2	-
Gastritis, enteritis, etc.	543, 571, 572	49	53	57	3	38	147	-	4	114	-
Cirrhosis of the liver	581	12	27	11	5	48	2	-	-	4	-
Other diseases of digestive system	Residual	-	12	16	1	b) ...	b) ...	b) ...	-	1	-
Nephritis and nephrosis	590-594	8	7	40	6	104	5	3	1	3	-
Other diseases of the genitourinary system	600-637	9	6	11	3	b) ...	b) ...	b) ...	-	5	-
Complications of pregnancy, childbirth and puerperium	640-689	6	5	9	1	-	-	-	1	7	1
Congenital malformations	750-759	3	10	24	6	22	6	2		13	1
Certain diseases of early infancy	760-776	33	209	206	30	809	10	3	-	51	-
Senility, ill-defined, and unknown	780-795	55	14	154	25	1583	193	3	11	67	2
All other diseases	Residual	16	21	63	5	-	54	16	-	12	-
Motor vehicle accidents	E810-E835	5	18	18	1	11	2	7		5	-
All other accidents	E800-E802, E840-E962	9	30	32	18	99	14	8	2	9	1
Suicide	E963, E970-E979	-	3	5	5	66	1	2		-	-
Homicide and injury resulting from operations of war	E964-E965, E980-E999	-	16	10	1	9	1	9		-	-

(a) 826 deaths in Table F. (b) Included in residual category.

TABLE G. NUMBER OF DEATHS FROM SPECIFIC CAUSES BY COUNTRY, RECENT YEARS (Continued)

Cause		Grenada 1963	Guadeloupe 1964	Montserrat 1964	Puerto Rico 1964	St. Kitts, Nevis Anguilla 1963	St. Lucia 1963	St. Pierre and Miquelon 1964	Surinam 1964	Virgin Islands (US) 1963
Total deaths		827	a) 2 292	107	18 566	569	1 069	b) 43	c) 2 289	383
Tuberculosis, all forms	001-019	5	42	3	498	8	9	1	18	1
Syphilis and its sequelae	020-029	5	2	-	38	-	5	-	10	3
Typhoid fever	040	2	1	3	1	-	6	-	2	-
Paratyphoid fever and other Salmonella infections	041, 042		-		5	-		-	-	-
Dysentery, all forms	045-048	10	1	-	4	-	1	-	1	-
Scarlet fever and streptococcal sore throat	050, 051	-	-	-	-	-	-	-	-	-
Diphtheria	055	-	-	-	1	-	2	-	-	-
Whooping cough	056	1	1	-	19	-	-	-	-	-
Meningococcal infections	057	-	-	-	11	-	1	-	-	-
Plague	058	-	-	-	-	-	-	-	-	-
Leprosy	060	-	3	-	-	1	-	-	-	1
Tetanus	061	-	11	-	65	1	12	-	26	1
Yaws	073	-	...	-	...	-	-	-	...	-
Acute poliomyelitis	080	-	-	-	2	-	-	-	-	-
Smallpox	084	-	-	-	-	-	-	-	-	-
Measles	085	1	-	-	42	-	11	-	-	-
Yellow fever	091	-	-	-	-	-	-	-	-	-
Rabies	094	-	-	-	-	-	-	-	-	-
Typhus and other rickettsiae	100-108	-	-	-	-	-	-	-	-	-
Malaria	110-117	-	-	-	-	-	12	-	-	-
All other infective and parasitic diseases	Residual	13	44	1	171	5	6	-	25	4
Malignant neoplasms, etc.	140-205	88	118	13	2 122	45	47	11	146	44
Benign and unspecified neoplasms	210-239	1	1	-	93	1	1	-	8	3
Non-toxic goitre and thyrotoxicosis	250-252	-	-	-	2	-	-	-	-	1
Diabetes mellitus	260	24	19	3	384	7	8	-	25	12
Avitaminoses and other deficiency states	280-286	-	7	-	129	22	75	-	36	-
Anemias	290-293	4	23	-	140	2	17	-	14	1
Vascular lesions affecting central nervous system	330-334	70	223	35	1 316	71	47	5	145	31
Non-meningococcal meningitis	340	-	7	3	118	2	8	-	13	2
Rheumatic fever	400-402	1	2	-	11	1	-	-	2	-
Chronic rheumatic heart disease	410-416	3	-	-	91	-	1	1	20	-
Arteriosclerotic and degenerative heart disease	420-422	24	-	8	2 577	51	20	2	154	69
Other diseases of the heart	430-434	25	292	4	439	16	33	2	64	7
Hypertension with heart disease	440-443	38	-	-	301	9	-	-	11	25
Hypertension without mention of heart	444-447		38	-	116	9	-	-	12	6
Arteriosclerosis	450	d) ...	1	-	468	—	d) ...	-	19	16
Other diseases of the circulatory system	451-468	d) ...	28	-	174	6	d) ...	1	5	3
Influenza	480-483	6	1	-	41	3	19	-	13	1
Pneumonia	490-493	39	23	7	907	53	99	-	88	8
Bronchitis	500-502	7	15	-	74	2	18	-	89	-
Other diseases of respiratory system	470-475, 510-527	d) ...	2	-	242	8	d) ...	-	12	5
Ulcer of stomach and duodenum	540, 541	2	1	2	88	1	2	-	10	1
Appendicitis	550-553	-	1	-	11	-	2	-	2	-
Intestinal obstruction and hernia	560, 561, 570	4	10	1	100	5	5	-	12	2
Gastritis, enteritis, etc.	543, 571, 572	119	92	4	1040	52	99	1	87	2
Cirrhosis of the liver	581	6	28	1	388	1	5	2	29	11
Other diseases of digestive system	Residual	d) ...	27	-	164	8	d) ...	2	13	6
Nephritis and nephrosis	590-594	11	43	2	159	3	5	-	55	5
Other diseases of the genitourinary system	600-637	d) ...	5	-	128	5	d) ...	-	13	4
Complications of pregnancy, childbirth and puerperium	640-689	14	2	1	41	3	3	-	15	1
Congenital malformations	750-759	5	20	2	407	6	2	1	63	9
Certain diseases of early infancy	760-776	68	225	9	2019	70	124	6	181	30
Senility, ill-defined, and unknown	780-795	129	690	4	1 351	43	132	3	636	16
All other diseases	Residual	70	91	-	582	20	209	2	75	9
Motor vehicle accidents	E810-E835	5	88	-	393	-	3		43	14
All other accidents	E800-E802, E840-E962	25	57	1	668	28	20	3	73	19
Suicide	E963, E970-E979	-	1	-	214	-	-		21	4
Homicide and injury resulting from operations of war	E964-E965, E980-E999	2	6	-	211	1	-		3	6

(a) Differs from total of 2,321 in Table F. (b) 44 deaths in Table F. (c) 2,292 deaths in Table F. (d) Included in residual category.

TABLE H. DEATH RATES PER 100,000 POPULATION FROM SPECIFIC CAUSES BY COUNTRY, RECENT YEARS

Cause		Argentina 1962 (a)	Brazil 1963 (São Paulo State)	Canada 1964	Chile 1964	Colombia 1964	Costa Rica 1964	Cuba 1964	Dominican Republic 1964	Ecuador 1964	El Salvador 1963	Guatemala 1963
Total deaths		824.7	903.7	756.8	1121.6	b)1003.3	884.6	*625.3	b)625.0	1208.5	1089.2	1710.9
Tuberculosis, all forms	001-019	14.6	19.9	3.5	45.9	22.0	12.2	15.2	7.6	23.6	15.3	30.9
Syphilis and its sequelae	020-029	1.6	2.0	0.5	1.8	1.1	1.3	1.6	1.1	0.6	0.8	0.1
Typhoid fever	040	0.4	0.2	0.0	2.0	3.0	0.9	...	1.2	2.7	6.2	8.4
Paratyphoid fever and other Salmonella infections	041,042		...	0.1	0.2	0.4	0.4	...	0.2		0.1	0.2
Dysentery, all forms	045-048	0.5	4.2	0.1	0.8	5.3	2.2	0.5	0.7	5.0	4.8	40.1
Scarlet fever and streptococcal sore throat	050,051	0.0	0.1	0.0	0.2	0.1	-	0.0	0.0	0.1	-	0.3
Diphtheria	055	0.8	1.3	0.0	2.2	1.6	2.2	0.2	2.0	1.7	2.3	0.7
Whooping cough	056	1.0	1.1	0.1	3.5	15.8	6.8	0.1	1.2	64.0	17.8	76.8
Meningococcal infections	057	0.3	0.5	0.2	0.4	0.1	0.2	0.0	0.1	0.1	-	0.1
Plague	058	-	-	-	-	...	-	-	-	0.2	-	-
Leprosy	060	c) ...	2.3	-	-	0.6	0.2	...	0.1	0.2	-	-
Tetanus	061	c) ...	9.9	0.0	0.6	11.8	14.8	...	16.8	35.4	19.7	7.4
Yaws	073	-	...	-	-	...	-	...	...	-	-	-
Acute poliomyelitis	080	0.4	1.1	0.0	0.8	0.5	0.7	-	0.2	0.6	0.2	0.1
Smallpox	084	0.0	0.1	-	-	0.0	-	-	-	-	-	-
Measles	085	1.5	5.8	0.3	38.9	10.1	14.8	0.2	0.7	42.4	19.0	78.5
Yellow fever	091	-	-	-	-	0.0	-	-	-	-	-	-
Rabies	094	c) ...	0.2	0.0	0.1	0.2	-	-	0.1	0.4	0.2	0.1
Typhus and other rickettsiae	100-108	0.1	0.0	0.0	-	3.4	-	-	-	0.2	-	-
Malaria	110-117	0.1	0.1	0.0	-	6.3	0.5	0.0	1.4	5.6	13.6	3.3
All other infective and parasitic diseases	Residual	7.7	16.3	1.6	8.9	24.4	22.7	11.1	3.5	23.6	18.6	183.5
Malignant neoplasms, etc.	140-205	125.0	70.4	133.0	102.0	48.9	96.6	98.0	13.5	32.6	21.2	27.2
Benign and unspecified neoplasms	210-239	8.8	2.6	1.7	2.6	8.0	3.5	2.0	3.1	3.1	2.9	4.3
Non toxic goiter and thyrotoxicosis	250-25	d) ...	d) ...	0.2	0.1	0.5	0.1	d) ...	0.1	0.3	0.0	0.2
Diabetes mellitus	260	12.2	11.0	12.9	5.9	5.0	8.4	12.2	2.2	3.1	3.1	3.5
Avitaminoses and other deficiency states	280-286	d) ...	d) ...	0.4	3.0	23.6	9.7	d) ...	9.6	6.5	13.8	26.4
Anemias	290-293	2.1	1.8	1.6	2.4	17.6	9.1	3.7	6.6	21.7	14.1	42.4
Vascular lesions affecting central nervous system	330-334	64.6	55.2	78.1	56.9	29.6	27.5	57.1	9.2	17.2	10.9	7.4
Non-meningococcal meningitis	340	6.4	4.8	0.9	8.0	9.4	7.9	2.6	3.2	6.1	1.6	3.9
Rheumatic fever	400-402	0.4	1.7	0.2	1.1	1.1	0.9	1.2	0.1	0.4	0.4	0.4
Chronic rheumatic heart disease	410-416	3.1	7.5	6.9	5.6	3.0	4.2	4.0	0.6	1.2	0.4	0.8
Arteriosclerotic and degenerative heart disease	420-422	65.2	70.8	240.7	66.6	28.1	42.4	67.3	8.8	8.5	5.1	14.4
Other diseases of the heart	430-434	36.9	42.5	11.5	7.5	29.3	19.2	24.8	5.9	19.8	6.4	9.1
Hypertension with heart disease	440-443	17.0	24.8	13.8	7.1	7.3	3.6	35.6	1.5	4.9	0.4	1.4
Hypertension without mention of heart	444-447		9.0	4.2	5.6	4.3	3.3		4.2		0.6	4.0
Arteriosclerosis	450	d) ...	d) ...	13.2	10.5	9.9	4.5	d) ...	2.9	d) ...	4.4	4.5
Other diseases of the circulatory system	451-468	d) ...	d) ...	9.5	3.5		3.5	d) ...		d) ...		1.5
Influenza	480-483	1.7	6.9	1.6	16.1	8.4	6.9	3.5	0.4	32.6	16.8	116.4
Pneumonia	490-493	27.9	57.1	25.7	167.2	66.4	60.8	29.5	13.1	62.5	30.3	144.7
Bronchitis	500-502	4.9	7.3	5.3	7.6	49.1	22.8	6.7	11.7	115.8	38.0	30.4
Other diseases of respiratory system	470-475,510-527	d) ...	d) ...	9.2	7.0	9.2	8.1	d) ...	3.1	d) ...	10.7	4.7
Ulcer of stomach and duodenum	540, 541	2.5	3.7	5.1	4.0	5.6	2.5	4.1	0.9	2.3	1.8	1.6
Appendicitis	550-553	0.8	0.5	0.8	1.3	1.0	0.7	0.6	0.2	0.7	0.3	0.8
Intestinal obstruction and hernia	560,561,570	6.7	5.9	4.8	6.7	5.0	6.4	6.8	1.3	9.4	2.9	4.0
Gastritis, enteritis, etc.	543, 571, 572	24.7	69.0	3.9	68.4	105.4	136.8	28.1	98.5	120.4	60.3	229.0
Cirrhosis of the liver	581	9.3	10.8	6.4	37.3	4.5	6.6	9.7	5.6	3.7	5.6	8.1
Other diseases of digestive system	Residual	d) ...	d) ...	7.6	18.7	26.3	11.9	d) ...	5.2	d) ...	124.0	21.6
Nephritis and nephrosis	590-594	8.1	10.7	6.6	9.4	12.3	8.9	12.1	3.3	8.4	2.0	6.2
Other diseases of the genitourinary system	600-637	d) ...	d) ...	8.1	6.4	5.3	6.2	d) ...	1.0	d) ...	2.1	2.3
Complications of pregnancy, childbirth and puerperium	640-689	2.8	4.6	0.7	10.3	9.8	5.9	3.4	3.6	10.6	5.8	9.7
Congenital malformations	750-759	6.9	12.9	13.4	12.0	8.7	14.9	13.8	3.6	5.1	3.7	5.0
Certain diseases of early infancy	760-776	51.1	92.2	33.9	159.9	110.9	109.3	51.5	40.2	113.6	92.2	190.5
Senility, ill-defined, and unknown	780-795	166.9	141.9	5.7	75.8	142.0	96.0	5.6	297.6	273.0	378.2	269.1
All other diseases	Residual	84.9	60.0	18.5	30.0	27.5	30.2	68.5	7.0	65.2	37.3	37.0
Motor vehicle accidents	E810-E835	54.6	15.2	25.2	15.3	11.5	7.8	9.4	3.3	9.1	8.4	10.4
All other accidents	E800-E802, E840-E962		23.5	29.6	61.0	31.8	31.3	17.5	12.4	38.2	23.0	23.7
Suicide	E963, E970-E979		8.9	8.2	6.9	4.8	3.0	10.7	1.1	0.7	9.5	2.7
Homicide and injury resulting from operations of war	E964-E965, E980-E999		5.6	1.3	5.4	25.4	3.5	6.3	3.6	5.2	32.2	11.3

(a) Excluding Córdoba; provisional data. (b) Rate based on numbers in Table G. (c) Included in residual category for infective and parasitic diseases. (d) Included in residual category.

TABLE H. DEATH RATES PER 100,000 POPULATION FROM SPECIFIC CAUSES BY COUNTRY, RECENT YEARS (Continued)

Cause		Honduras 1964	Jamaica 1964	México 1964	Nicaragua 1964	Panamá 1964	Paraguay 1963 (a)	Perú 1964 (b)	Trinidad and Tobago 1963	United States 1964	Uruguay 1963	Venezuela 1964
Total deaths		982.1	767.8	1029.9	728.1	713.4	1009.9	912.4	722.3	939.6	888.0	727.2
Tuberculosis, all forms	001-019	9.1	5.3	24.1	5.7	24.1	23.5	66.1	8.0	4.3	17.2	14.7
Syphilis and its sequelæ	020-029	0.2	5.8	1.2	-	1.3	3.1	1.0	4.3	1.4	2.7	1.6
Typhoid fever	040	3.9	0.8	4.7	4.9	0.1	0.3	3.5	0.3	0.0	0.1	0.2
Paratyphoid fever and other Salmonella infections	041,042	-	0.1	2.7	17.5	0.1	1.1	1.6	-	0.0	0.2	0.1
Dysentery, all forms	045-048	3.9	0.5	10.0	1.9	1.3	10.9	2.7	0.9	0.1	0.1	11.5
Scarlet fever and streptococcal sore throat	050,051	0.0	0.1	0.2	-	-	0.2	0.2	-	0.0	0.1	0.1
Diphtheria	055	0.5	0.2	0.8	0.1	1.5	1.9	1.0	0.3	0.0	0.3	0.3
Whooping cough	056	13.8	0.6	16.7	7.2	7.9	3.2	6.8	0.1	0.0	2.4	4.7
Meningococcal infections	057	-	0.2	0.3	-	0.3	0.3	0.2	0.1	0.4	0.2	0.1
Plague	058	-	-	-	-	-	-	-	-	-	-	-
Leprosy	060	0.4	0.1	0.2	-	-	0.6	0.1	1.1	0.0	0.2	0.2
Tetanus	061	6.0	5.6	6.0	21.6	18.9	19.9	7.3	5.2	0.1	0.7	5.2
Yaws	073	...	...	...	-	...	...	...	...	...	...	-
Acute poliomyelitis	080	0.8	0.1	0.6	-	0.1	1.4	2.2	0.4	0.0	0.0	0.3
Smallpox	084	-	-	-	-	-	-	0.4	-	-	-	-
Measles	085	18.6	0.1	19.9	9.8	5.5	1.3	32.5	0.9	0.2	0.3	4.5
Yellow fever	091	-	-	-	-	0.1	-	0.4	-	-	-	0.0
Rabies	094	0.3	-	0.2	0.1	-	-	0.3	-	0.0	-	0.2
Typhus and other rickettsiæ	100-108	-	-	0.2	-	-	-	-	-	0.0	-	-
Malaria	110-117	7.2	0.2	0.1	24.3	3.3	-	0.1	-	0.0	-	-
All other infective and parasitic diseases	Residual	18.5	9.0	11.5	14.7	19.0	13.7	1.1	2.6	2.9	6.4	12.2
Malignant neoplasms, etc.	140-205	21.2	75.8	37.7	16.7	47.0	55.6	66.7	62.6	151.3	180.8	54.8
Benign and unspecified neoplasms	210-239	0.1	2.7	2.7	4.1	3.6	3.7	2.4	0.5	2.6	4.0	1.9
Non-toxic goitre and thyrotoxicosis	250-252	0.0	0.2	0.2	0.3	-	0.3	0.6	0.3	0.3	0.6	0.1
Diabetes mellitus	260	2.0	20.6	9.8	4.2	7.4	5.0	7.4	15.6	16.9	17.9	6.3
Avitaminoses and other dificiency states	280-286	8.9	23.8	10.5	1.8	5.0	4.9	22.2	4.4	0.8	0.7	5.7
Anemias	290-293	14.6	5.8	8.7	6.6	13.6	9.5	3.6	5.4	1.8	1.8	3.0
Vascular lesions affecting central nervous system	330-334	18.6	81.6	23.0	19.9	44.6	47.3	29.3	91.1	103.6	99.4	25.0
Non-meningococcal meningitis	340	2.4	3.7	4.7	3.2	3.3	8.5	9.1	2.7	1.3	2.1	4.2
Rheumatic fever	400-402	-	1.9	0.8	-	0.3	1.3	0.9	0.9	0.3	0.5	0.3
Chronic rheumatic heart disease	410-416	0.1	3.2	4.2	0.2	1.7	2.6	2.9	4.4	8.1	4.8	2.8
Arteriosclerotic and degenerative heart disease	420-422	1.2	40.5	17.1	6.1	33.5	20.0	44.1	78.1	312.9	151.3	44.8
Other diseases of the heart	430-434	18.3	28.8	14.3	26.3	11.6	19.1	6.6	18.1	14.5	12.4	10.9
Hypertension with heart disease	440-443	0.0	20.7	3.2	0.9	3.2	3.7	7.1	33.4	30.0	19.0	9.0
Hypertension without mention of heart	444-447	2.0	16.4	2.3	1.1	7.1	4.4	5.1	8.9	6.4	10.6	3.0
Arteriosclerosis	450	0.2	10.5	2.6	0.8	15.7	9.4	11.1	11.7	19.4	22.1	3.0
Other diseases of the circulatory system	451-468	3.1		8.8	2.9	5.4	4.0			13.5		2.6
Influenza	480-483	9.0	1.2	10.6	1.8	0.6	12.1	7.7	0.1	0.9	12.7	10.4
Pneumonia	490-493	38.3	34.5	124.2	24.0	33.8	51.3	123.1	47.3	30.2	22.4	26.7
Bronchitis	500-502	11.3	11.9	28.3	2.4	22.1	12.6	25.6	10.8	2.8	7.2	5.8
Other diseases of respiratory system	470-475,510-527	2.0	6.0	10.9	5.4	8.3	10.2	10.5	9.5	15.2	10.0	5.7
Ulcer of stomach and duodenum	540,541	1.2	6.0	4.8	1.8	2.4	1.2	2.7	4.4	5.7	4.3	1.9
Appendicitis	550-553	1.0	0.7	1.3	1.0	0.8	1.4	1.5	0.7	0.9	1.0	0.9
Intestinal obstruction and hernia	560,561,570	2.3	4.5	6.4	2.4	4.3	12.5	9.4	4.8	5.2	6.6	3.6
Gastritis, enteritis, etc.	543,571,572	71.9	48.0	111.2	87.7	45.3	83.0	81.3	32.8	4.3	12.8	47.8
Cirrhosis of the liver	581	1.8	6.8	19.0	5.1	2.7	6.2	13.5	13.0	12.1	9.1	6.9
Other diseases of digestive system	Residual	80.1	5.6	32.7	28.7	17.7	17.7	21.2	6.8	8.9	12.9	5.6
Nephritis and nephrosis	590-594	0.7	10.5	8.9	1.3	7.9	7.3	11.0	9.0	6.5	8.1	8.2
Other diseases of the genitourinary system	600-637	2.1	10.4	3.6	4.0	6.1	7.5	4.6	16.4	9.9	6.8	3.6
Complications of pregnancy, childbirth and puerperium	640-689	9.0	7.0	8.2	5.3	6.2	12.1	5.9	4.2	0.7	1.9	4.3
Congenital malformations	750-759	0.1	8.3	8.8	0.4	6.8	7.4	11.0	10.2	10.6	10.3	9.9
Certain diseases of early infancy	760-776	19.8	59.3	125.7	58.4	49.0	63.6	114.2	85.0	31.5	56.2	75.8
Senility, ill-defined, and unknown	780-795	458.2	126.7	181.0	218.4	138.0	353.0	21.2	49.6	13.2	59.2	199.1
All other diseases	Residual	32.4	25.2	22.8	17.3	22.4	21.2	23.5	25.2	17.7	35.5	15.1
Motor vehicle accidents	E810-E835		7.8	6.9	8.3	10.5	6.2	18.5	8.0	24.5	6.9	19.7
All other accidents	E800-E802, E840-E962	64.8	19.7	40.8	24.6	29.5	24.1	44.5	15.8	29.7	30.5	26.3
Suicide	E963, E970-E979		1.9	1.9	1.2	5.1	3.2	1.7	1.6	10.8	10.3	5.8
Homicide and injury resulting from operations of war	E964-E965, E980-E999		1.2	22.2	25.8	7.0	15.4	3.0	4.4	5.1	4.5	10.4

(a) Area of information only; approximately half of population of country. (b) Districts with medical certification.

TABLE H. DEATH RATES PER 100,000 POPULATION FROM SPECIFIC CAUSES BY COUNTRY, RECENT YEARS (Continued)

Cause	Antigua 1964	Bahama Islands 1964	Barbados 1964	Bermuda 1964	British Guiana 1963	British Honduras 1964	Canal Zone 1964	Cayman Islands 1963	Dominica 1963	Falkland Islands 1964
Total deaths	754.8	578.7	878.9	762.5	748.4	707.8	287.0	677.8	a)1281.0	650.0
Tuberculosis, all forms 001-019	6.5	5.7	5.8	4.2	8.2	11.7	3.7	-	44.4	-
Syphilis and its sequelae 020-029	14.5	4.3	9.9	4.2	0.2	1.9	3.7	-	9.5	-
Typhoid fever 040	-	-	0.8	2.1			-	-	7.9	-
Paratyphoid fever and other Salmonella infections 041,042	-	-	-	-	1.6	1.0	-	-	-	-
Dysentery, all forms 045-048	-	1.4	0.4	-	6.4	4.9	-	-	41.3	-
Scarlet fever and streptococcal sore throat 050,051	-	-	-	-	-	-	-	-	-	-
Diphtheria 055	-	-	0.8	-	0.5	-	-	-	-	-
Whooping cough 056	-	-	0.4	-	2.9	-	-	-	90.5	-
Meningococcal infections 057	-	-	0.4	-	-	-	-	-	7.9	-
Plague 058	-	-	-	-	-	-	-	-	-	-
Leprosy 060	1.6	-	-	-	-	-	-	-	-	-
Tetanus 061	4.8	9.2	7.4	-	2.5	7.8	-	-	12.7	-
Yaws 073	...	...	...	-	-	-	-	-	...	-
Acute poliomyelitis 080	-	1.4	-	-	2.6	-	-	-	-	-
Smallpox 084	-	-	-	-	-	-	-	-	-	-
Measles 085	-	-	-	-	3.3	-	-	-	6.3	-
Yellow fever 091	-	-	-	-	-	-	-	-	-	-
Rabies 094	-	-	-	-	-	-	-	-	-	-
Typhus and other rickettsiae 100-108	-	-	-	-	-	-	-	-	-	-
Malaria 110-117	-	-	-	-	-	-	-	-	-	-
All other infective and parasitic diseases Residual	8.1	5.7	7.0	-	-	5.8	5.6	-	9.5	-
Malignant neoplasms, etc. 140-205	75.8	37.6	105.4	118.7	-	51.5	35.2	(66.7)	82.5	-
Benign and unspecified neoplasms 210-239	-	5.0	1.2	-	-	3.9	1.9	-	6.3	-
Non-toxic goitre and thyrotoxicosos 250-252	1.6	-	-	-	-	1.0	-	-	-	-
Diabetes mellitus 260	14.5	2.8	33.1	18.7	24.5	6.8	-	-	20.6	-
Avitaminoses and other deficiency states 280-286	43.5	0.7	12.4	-	1.6	12.6	-	-	166.7	-
Anemias 290-293	4.8	6.4	3.7	-	-	7.8	3.7	-	12.7	-
Vascular lesions affecting central nervous system 330-334	74.2	33.3	136.8	89.6	47.3	50.5	35.2	(77.8)	68.3	(50.0)
Non-meningococcal meningitis 340	1.6	5.0	2.9	4.2	3.8	1.9	1.9	-	-	-
Rheumatic fever 400-402	-	-	0.8	-	1.0	-	1.9	-	-	-
Chronic rheumatic heart disease 410-416	11.3	-	3.7	-	2.1	1.0	1.9	211.1	-	-
Arteriosclerotic and degenerative heart disease 420-422	17.7	24.1	85.1	181.2	-	16.5	38.9		85.7	(250.0)
Other diseases of the heart 430-434	16.1	9.2	43.0	4.2	16.4	38.8	7.4	-	6.3	-
Hypertension with heart disease 440-443	51.6	10.6	21.9	37.5				-	9.5	-
Hypertension without mention of heart 444-447	17.7	9.9	13.6	6.2	58.4	5.8	5.6	-	7.9	-
Arteriosclerosis 450	8.1	4.3	36.8	10.4	b) ...	b) ...	b) ...	-	6.3	-
Other diseases of the circulatory system 451-468		9.9		16.7	b) ...	b) ...	b) ...	-		-
Influenza 480-483	-	-	-	-	0.3	-	-		12.7	-
Pneumonia 490-493	38.7	70.9	45.0	14.6	74.0	41.7	40.7		76.2	(100.0)
Bronchitis 500-502	-	5.7	6.2	4.2	28.2	4.9	-	111.1	7.9	-
Other diseases of respiratory system 470-475,510-527	1.6	5.0	9.1	2.1	b) ...	b) ...	b) ...		14.3	-
Ulcer of stomach and duodenum 540,541	3.2	0.7	4.5	2.1	-	4.9	-	-	1.6	-
Appendicitis 550-553	3.2	0.7	0.8	2.1	-	-	-	-	-	-
Intestinal obstruction and hernia 560,561,570	3.2	3.5	8.7	10.4	6.2	2.9	1.9	-	3.2	-
Gastritis, enteritis, etc. 543,571,572	79.0	37.6	23.6	6.2	6.2	142.7	-	(44.4)	181.0	-
Cirrhosis of the liver 581	19.4	19.1	4.5	10.4	7.9	1.9	-	-	6.3	-
Other diseases of digestive system Residual	-	8.5	6.6	2.1	b) ...	b) ...	b) ...	-	1.6	-
Nephritis and nephrosis 590-594	12.9	5.0	16.5	12.5	17.0	4.9	5.6	(11.1)	4.8	-
Other diseases of the genitourinary system 600-637	14.5	4.3	4.5	6.2	b) ...	b) ...	b) ...	-	7.9	-
Complications of pregnancy, childbirth and puerperium 640-689	9.7	3.5	3.7	2.1	-	-	-	(11.1)	11.1	(50.0)
Congenital malformations 750-759	4.8	7.1	9.9	12.5	3.6	5.8	3.7	-	20.6	(50.0)
Certain diseases of early infancy 760-776	53.2	148.2	85.1	62.5	132.4	9.7	5.6		81.0	-
Senility, ill-defined, and unknown 780-795	88.7	9.9	63.6	52.1	259.1	187.4	5.6	122.2	106.3	(100.0)
All other diseases Residual	25.8	14.9	26.0	10.4	-	52.4	29.6	-	19.0	-
Motor vehicle accidents E810-E835	8.1	12.8	7.4	2.1	1.8	1.9	13.0		7.9	-
All other accidents E800-E802, E840-E962	14.5	21.3	13.2	37.5	16.2	13.6	14.8	(22.2)	14.3	(50.0)
Suicide E963, E970-E979	-	2.1	2.1	10.5	10.8	1.0	3.7		-	-
Homicide and injury resulting from operations of war E964-E965, E980-E999	-	11.3	4.1	2.1	1.5	1.0	16.7		-	-

(a) Rates based on numbers in Table G. (b) Included in residual category.

TABLE H. DEATH RATES PER 100,000 POPULATION FROM SPECIFIC CAUSES BY COUNTRY, RECENT YEARS (Continued)

Cause	Grenada 1963	Guadeloupe 1964	Montserrat 1964	Puerto Rico 1964	St. Kitts Nevis Anguilla 1963	St. Lucia 1963	St. Pierre and Miquelon 1964	Surinam 1964	Virgin Islands (US) 1963
Total deaths	898.9	a) 749.0	823.1	720.2	932.8	1137.2	a) 860.0	a) 700.0	957.5
Tuberculosis, all forms 001-019	5.4	13.7	(23.1)	19.3	13.1	9.6	(20.0)	5.5	2.5
Syphilis and its sequelae 020-029	5.4	0.7	-	1.5	-	5.3	-	3.1	7.5
Typhoid fever 040	2.2	0.3	(23.1)	0.0	-	6.4	-	0.6	-
Paratyphoid fever and other Salmonella infections 041, 042		-		0.2	-		-	-	-
Dysentery, all forms 045-048	10.9	0.3	-	0.2	-	1.1	-	0.3	-
Scarlet fever and streptococcal sore throat 050, 051	-	-	-	-	-	-	-	-	-
Diphtheria 055	-	-	-	0.0	-	2.1	-	-	-
Whooping cough 056	1.1	0.3	-	0.7	-	-	-	-	-
Meningococcal infections 057	-	-	-	0.4	-	1.1	-	-	-
Plague 058	-	-	-	-	-	-	-	-	-
Leprosy 060	-	1.0	-	-	1.6	-	-	-	2.5
Tetanus 061	-	3.6	-	2.5	1.6	12.8	-	8.0	2.5
Yaws 073	-	...	-	...	-	-	-	...	-
Acute poliomyelitis 080	-	-	-	0.1		-	-	-	-
Smallpox 084	-	-	-	-	-	-	-	-	-
Measles 085	1.1	-	-	1.6	-	11.7	-	-	-
Yellow fever 091	-	-	-	-	-	-	-	-	-
Rabies 094	-	-	-	-	-	-	-	-	-
Typhus and other rickettsiae 100-108	-	-	-	-	-	-	-	-	-
Malaria 110-117	-	-	-	-	-	12.8	-	-	-
All other infective and parasitic diseases ..... Residual	14.1	14.4	(7.6)	6.6	8.2	6.4	-	7.6	10.0
Malignant neoplasms, etc. 140-205	95.7	38.6	100.0	82.3	73.8	50.0	220.0	44.6	110.0
Benign and unspecified neoplasms 210-239	1.1	0.3	-	3.6	1.6	1.1	-	2.4	7.5
Non-toxic goitre and thyrotoxicosis 250-252	-	-	-	0.1	-	-	-	-	2.5
Diabetes mellitus 260	26.1	6.2	(23.1)	14.9	11.5	8.5	-	7.6	30.0
Avitaminoses and other deficiency states 280-286	-	2.3	-	5.0	36.1	79.8	-	11.0	-
Anemias 290-293	4.3	7.5	-	5.4	3.3	18.1	-	4.3	2.5
Vascular lesions affecting central nervous system 330-334	76.1	72.9	269.2	51.0	116.4	50.0	(100.0)	44.3	77.5
Non-meningococcal meningitis .. 340	-	2.3	(23.1)	4.6	3.3	8.5	-	4.0	5.0
Rheumatic fever 400-402	1.1	0.7	-	0.4	1.6	-	-	0.6	-
Chronic rheumatic heart disease 410-416	3.3	-	-	3.5	-	1.1	(20.0)	6.1	-
Arteriosclerotic and degenerative heart disease 420-422	26.1	-	(61.5)	100.0	83.6	21.3	(40.0)	47.1	172.5
Other diseases of the heart 430-434	27.2	95.4	(30.8)	17.0	26.2	35.1	(40.0)	19.6	17.5
Hypertension with heart disease. 440-443	41.3	-	-	11.7	14.8	-	-	3.4	62.5
Hypertension without mention of heart 444-447		12.4	-	4.5	14.8	-	-	3.7	15.0
Arteriosclerosis 450	b) ...	0.3	-	18.2	9.8	b) ...	-	5.8	40.0
Other diseases of the circulatory system 451-468	b) ...	9.2	-	6.7		b) ...	(20.0)	1.5	7.5
Influenza 480-483	6.5	0.3	-	1.6	4.9	20.2	-	4.0	2.5
Pneumonia 490-493	42.4	7.5	(53.8)	35.2	86.9	105.3	-	26.9	20.0
Bronchitis 500-502	7.6	4.9	-	2.9	3.3	19.1	-	27.2	-
Other diseases of respiratory system 470-475, 510-527	b) ...	0.7	-	9.4	13.1	b) ...	-	3.7	12.5
Ulcer of stomach and duodenum .. 540, 541	2.2	0.3	(15.4)	3.4	1.6	2.1	-	3.1	2.5
Appendicitis 550-553	-	0.3	-	0.4	-	2.1	-	0.6	-
Intestinal obstruction and hernia 560, 561, 570	4.3	3.3	(7.6)	3.9	8.2	5.3	-	3.7	5.0
Gastritis, enteritis, etc. 543, 571, 572	129.3	30.1	(30.8)	40.3	85.2	105.3	(20.0)	26.6	5.0
Cirrhosis of the liver 581	6.5	9.2	(7.6)	15.1	1.6	5.3	(40.0)	8.9	27.5
Other diseases of digestive system ..... Residual	b) ...	8.8	-	6.4	13.1	b) ...	(40.0)	4.0	15.0
Nephritis and nephrosis 590-594	12.0	14.1	(15.4)	6.2	4.9	5.3	-	16.8	12.5
Other diseases of the genitourinary system 600-637	b) ...	1.6	-	5.0	8.2	b) ...	-	4.0	10.0
Complitations of pregnancy, childbirth and puerperium 640-689	15.2	0.7	(7.6)	1.6	4.9	3.2	-	4.6	2.5
Congenital malformations 750-759	5.4	6.5	(15.4)	15.8	9.8	2.1	(20.0)	19.3	22.5
Certain diseases of early infancy 760-776	73.9	73.5	(69.2)	78.3	114.8	131.9	(120.0)	55.4	75.0
Senility, ill-defined, and unknown 780-795	140.2	225.5	(30.8)	52.4	70.5	140.4	(60.0)	194.5	40.0
All other diseases ..... Residual	76.1	29.7	-	22.6	32.8	222.3	(40.0)	22.9	22.5
Motor vehicle accidents E810-E835	5.4	28.8	-	15.2	-	3.2		13.1	35.0
All other accidents E800-E802, E840-E962	27.2	18.6	(7.6)	26.0	45.9	21.3	(60.0)	22.3	47.5
Suicide E963, E970-E979	-	0.3	-	8.3	-	-		6.4	10.0
Homicide and injury resulting from operations of war E964-E965, E980-E999	2.2	2.0	-	8.2	1.6	-		0.9	15.0

(a) Rate based on numbers in Table G. (b) Included in residual category.

TABLE I. FIRST FIVE PRINCIPAL CAUSES OF DEATH WITH RATES PER 100,000 POPULATION BY COUNTRY, RECENT YEARS

Area and principal causes	Number	Rate	Per cent of total deaths
ARGENTINA (1962) (a) All causes	160 591	824.7	100
Malignant neoplasms (140-205)	24 347	125.0	15.2
Diseases of the heart (410-447) (b)	23 781	122.1	14.8
Vascular lesions affecting central nervous system (330-334)	12 584	64.6	7.8
Accidents, suicide and homicide (c) (E800-E999)	10 637	54.6	6.6
Certain diseases of early infancy (760-776)	9 950	51.1	6.2
BRAZIL (1963) Sao Paulo State - All causes	129 593	903.7	100
Diseases of the heart (410-443)	20 892	145.7	16.1
Certain diseases of early infancy (760-776)	13 217	92.2	10.2
Malignant neoplasms (140-205)	10 099	70.4	7.8
Gastritis, enteritis, etc. (543, 571, 572)	9 892	69.0	7.6
Influenza and pneumonia (480-483, 490-493)	9 172	64.0	7.1
CANADA (1964) - All causes	145 850	756.8	100
Diseases of the heart (410-443)	52 576	272.8	36.1
Malignant neoplasms (140-205)	25 637	133.0	17.6
Vascular lesions affecting central nervous system (330-334)	15 030	78.0	10.3
Accidents (E800-E962)	10 564	54.8	7.2
Certain diseases of early infancy (760-776)	6 539	33.9	4.5
CHILE (1964) - All causes	94 111	1121.6	100
Influenza and pneumonia (480-483, 490-493)	15 385	183.4	16.3
Certain diseases of early infancy (760-776)	13 419	159.9	14.3
Malignant neoplasms (140-205)	8 560	102.0	9.1
Diseases of the heart (410-443)	7 291	86.9	7.7
Accidents (E800-E962)	6 404	76.3	6.8
COLOMBIA (1964) - All causes	175 948	1006.5	100
Certain diseases of early infancy (760-776)	19 392	110.9	11.1
Gastritis, enteritis, etc. (543, 571, 572)	18 427	105.4	10.5
Influenza and pneumonia (480-483, 490-493)	13 081	74.8	7.5
Diseases of the heart (410-443)	11 838	67.7	6.7
Bronchitis (500-502)	8 592	49.1	4.9
COSTA RICA (1964) - All causes.	12 269	884.6	100
Gastritis, enteritis, etc. (543, 571, 572)	1 898	136.8	15.5
COSTA RICA (continued)			
Certain diseases of early infancy (760-776)	1 516	109.3	12.4
Malignant neoplasms (140-205)	1 062	76.6	8.7
Diseases of the heart (410-443)	962	69.4	7.8
Influenza and pneumonia (480-483, 490-493)	939	67.7	7.7
CUBA (1964) - All causes	* 46 488	625.3	100
Diseases of the heart (410-447) (b)	9 786	131.6	21.1
Malignant neoplasms (140-205)	7 287	98.0	15.7
Vascular lesions affecting central nervous system (330-334)	4 243	57.1	9.1
Certain diseases of early infancy (760-776)	3 830	51.5	8.2
Influenza and pneumonia (480-483, 490-493)	2 455	33.0	5.3
DOMINICAN REPUBLIC (1964) All causes	22 649	648.2	100
Gastritis, enteritis, etc. (543, 571, 572)	3 442	98.5	15.2
Certain diseases of early infancy (760-776)	1 405	40.2	6.2
Tetanus (061)	587	16.8	2.6
Diseases of the heart (410-443)	585	16.7	2.6
Accidents (E800-E962)	549	15.7	2.4
ECUADOR (1964) - All causes	58 989	1208.5	100
Gastritis, enteritis, etc. (543, 571, 572)	5 876	120.4	10.0
Bronchitis (500-502)	5 654	115.8	9.6
Certain diseases of early infancy (760-776)	5 543	113.6	9.4
Influenza and pneumonia (480-483, 490-493)	4 646	95.2	7.9
Whooping cough (056)	3 122	64.0	5.3
EL SALVADOR (1963) - All causes	29 636	1089.2	100
Certain diseases of early infancy (760-776)	2 509	92.2	8.5
Gastritis, enteritis, etc. (543, 571, 572)	1 642	60.3	5.5
Influenza and pneumonia (480-483, 490-493)	1 282	47.1	4.3
Bronchitis (500-502)	1 034	38.0	3.5
Homicide and injuries resulting from the operations of war (E964, E965, E980-E999)	876	32.2	3.0

(a) Excludes Cordoba Province. (b) Includes hypertension without mention of heart (444 - 447) (c) Data available only for entire category of accidents and violence. *Provisional.

TABLE I. FIRST FIVE PRINCIPAL CAUSES OF DEATH WITH RATES PER 100,000 POPULATION BY COUNTRY, RECENT YEARS (continued)

Area and principal causes	Number	Rate	Per cent of total deaths
GUATEMALA (1963) - All causes	71 449	1710.9	100
Influenza and pneumonia (480-483, 490-493)	10 902	261.1	15.3
Gastritis, enteritis, etc. (543, 571, 572)	9 561	229.0	13.4
Certain diseases of early infancy (760-776)	7 954	190.5	11.1
Measles (085)	3 280	78.5	4.6
Whooping cough (056)	3 209	76.8	4.5
HONDURAS (1964) - All causes	20 546	982.1	100
Gastritis, enteritis, etc. (543, 571, 572)	1 504	71.9	7.3
Accidents, suicide, and homicide (E800-E999) (a)	1 356	64.8	6.6
Influenza and pneumonia (480-483, 490-493)	991	47.4	4.8
Malignant neoplasms (140-205)	443	21.2	2.2
Certain diseases of early infancy (760-776)	414	19.8	2.0
JAMAICA (1964) - All causes	13 476	779.9	100
Diseases of the heart (410-443)	1 610	93.2	11.9
Vascular lesions affecting central nervous system (330-334)	1 410	81.6	10.5
Malignant neoplasms (140-205)	1 309	75.8	9.7
Certain diseases of early infancy (760-776)	1 024	59.3	7.6
Gastritis, enteritis, etc. (543, 571, 572)	829	48.0	6.2
MEXICO (1964) - All causes	408 275	1029.9	100
Influenza and pneumonia (480-483, 490-493)	53 460	134.9	13.1
Certain diseases of early infancy (760-776)	49 819	125.7	12.2
Gastritis, enteritis, etc. (543, 571, 572)	44 064	111.2	10.8
Accidents (E800-E962)	18 931	47.8	4.6
Diseases of the heart (410-443)	15 340	38.7	3.8
NICARAGUA (1964) - All causes	11 628	728.1	100
Gastritis, enteritis, etc. (543, 571, 572)	1 400	87.7	12.0
Certain diseases of early infancy (760-776)	933	58.4	8.0
Diseases of the heart (410-443)	536	33.6	4.6
Accidents (E800-E962)	526	32.9	4.5
Influenza and pneumonia (480-483, 490-493)	412	25.8	3.5
PANAMA (1964) - All causes	8 727	736.5	100
Diseases of the heart (410-443)	593	50.0	6.8
Certain diseases of early infancy (760-776)	581	49.0	6.7
Malignant neoplasms (140-205)	557	47.0	6.4
Gastritis, enteritis, etc. (543, 571, 572)	537	45.3	6.2
Vascular lesions affecting central nervous system (330-334)	529	44.6	6.1
PARAGUAY (1963) (b) - All causes	9 958	1009.9	100
Gastritis, enteritis, etc. (543, 571, 572)	818	83.0	8.2
Certain diseases of early infancy (760-776)	627	63.6	6.3
Influenza and pneumonia (480-483, 490-493)	625	63.4	6.3
Malignant neoplasms (140-205)	548	55.6	5.5
Vascular lesions affecting central nervous system (330-334)	466	47.3	4.7
PERU (1964) (c) - All causes	44 778	912.4	100
Influenza and pneumonia (480-483, 490-493)	6 420	130.8	14.3
Certain diseases of early infancy (760-776)	5 606	114.2	12.5
Gastritis, enteritis, etc. (543, 571, 572)	3 992	81.3	8.9
Malignant neoplasms (140-205)	3 274	66.7	7.3
Tuberculosis (001-019)	3 246	66.1	7.2
TRINIDAD AND TOBAGO (1963) - All causes	6 660	722.3	100
Diseases of the heart (410-443)	1 236	134.1	18.6
Vascular lesions affecting central nervous system (330-334)	840	91.1	12.6
Certain diseases of early infancy (760-776)	784	85.0	11.8
Malignant neoplasms (140-205)	577	62.6	8.7
Influenza and pneumonia (480-483, 490-493)	437	47.4	6.6
UNITED STATES (1964) - All causes	1798 051	939.6	100
Diseases of the heart (410-443)	699 352	365.4	38.9
Malignant neoplasms (140-205)	289 577	151.3	16.1
Vascular lesions affecting central nervous system (330-334)	198 209	103.6	11.0
Accidents (E800-E962)	103 843	54.3	5.8
Certain diseases of early infancy (760-776)	60 322	31.5	3.4

(a) Data available only for entire category of accidents and violence. (b) Data are for the area of registration covering approximately one half of the total population. (c) Data are for districts with medical certification only. (d) Includes hypertension without mention of heart (444 - 447)

TABLE I. FIRST FIVE PRINCIPAL CAUSES OF DEATH WITH RATES PER 100,000 POPULATION, BY COUNTRY, RECENT YEARS (continued)

Area and principal causes	Number	Rate	Per cent of total deaths
URUGUAY (1963) - All causes ..	23 524	888.0	100
Diseases of the heart (410-443)	4966	187.5	21.1
Malignant neoplasms (140-205) ...	4789	180.8	20.4
Vascular lesions affecting central nervous system (330-334)	2634	99.4	11.2
Certain diseases of early infancy (760-776)	1488	56.2	6.3
Accidents (E800-E962)	990	37.4	4.2
VENEZUELA (1964) - All causes	61281	727.2	100
Certain diseases of early infancy (760-776)	6386	75.8	10.4
Diseases of the heart (410-443) ...	5688	67.5	9.3
Malignant neoplasms (140-205) ...	4621	54.8	7.5
Gastritis, enteritis, etc. (543, 571, 572)	4028	47.8	6.6
Accidents (E800-E962)	3878	46.0	6.3
BRITISH GUIANA (1963) - All causes	4573	747.2	100
Certain diseases of early infancy (760-776)	809	132.2	17.7
Diseases of the heart (410-447) (a) .	470	76.8	10.3
Influenza and pneumonia (480-483, 490-493)	454	74.2	9.9
Vascular lesions affecting central nervous system (330-334)	289	47.2	6.3
Bronchitis (500-502)	172	28.1	3.8
PUERTO RICO (1964) - All causes	18566	720.2	100
Diseases of the heart (410-443) ...	3408	132.2	18.4
Malignant neoplasms (140-205) ..	2122	82.3	11.4
Certain diseases of early infancy (760-776)	2019	78.3	10.9
Vascular lesions affecting central nervous system (330-334)	1316	51.0	7.1
Accidents (E800-E962)	1061	41.2	5.7

(a) Includes hypertension without mention of heart (444-447).

TABLE J. NUMBER OF MATERNAL DEATHS WITH RATES PER 1,000 LIVE BIRTHS BY COUNTRY, 1960-1964

Area	Source	Number					Rate				
		1960	1961	1962	1963	1964	1960	1961	1962	1963	1964
Argentina	A	...	502	547	...	...	...	1.1	1.1	...	...
Bolivia	A	...	145	171	135	115	...	1.5	1.6	1.4	1.4
Brazil (São Paulo)	B	667	...	614	657	...	1.5	...	1.3	1.4	...
Canada	A	215	219	191	165	137	0.4	0.5	0.4	0.4	0.3
Chile	A	845	923	914	803	866	3.1	3.3	3.2	2.7	2.9
Colombia	A	1553	1475	1509	1636	1717	2.6	2.4	2.3	2.5	2.6
Costa Rica	A	B) 74	96	90	77	82	1.3	1.6	1.4	1.2	1.3
Cuba	A	...	222	281	289	256	...	1.0	1.2	1.2	1.0
Dominican Republic	A	130	115	156	134	126	1.2	1.1	1.5	1.2	
Ecuador	A	...	574	522	587	519	...	2.8	2.4	2.6	2.3
El Salvador	A	210	186	171	157	118	1.7	1.5	1.3	1.2	0.9
Guatemala	A	433	488	457	406	...	2.3	2.5	2.4	2.1	...
Haiti	...	...	...	...	...	...	...	...	...	...	...
Honduras	A	C) 255	236	245	212	188	3.1	2.7	2.7	2.3	1.9
Jamaica	A	...	114	103	118	121	...	1.7	1.5	1.8	1.7
Mexico	A	B)3 102	3 186	3 151	3 040	3 259	1.9	1.9	1.8	1.7	1.8
Nicaragua	A	103	117	115	88	84	1.7	2.0	1.9	1.4	1.3
Panama	A	82	89	81	79	74	2.0	2.1	1.8	1.7	1.6
Paraguay (a)	A	90	97	108	119	114	...	...	...	...	...
Peru (b)	A	...	284	298	331	288	...	...	...	...	...
Trinidad and Tobago	A	43	40	48	39	46	1.3	1.2	1.4	1.2	...
United States	A	1579	1573	1465	1466	1343	0.4	0.4	0.4	0.4	0.3
Uruguay	A	...	...	...	51	...	...	...	...	0.8	...
Venezuela	A	353	378	368	335	361	1.1	1.1	1.1	0.9	1.0
Antigua	A	10	8	8	7	6	5.3	4.5	4.5	3.8	3.2
Bahama Islands	A	...	...	...	...	5	...	...	...	...	1.1
Barbados	A	17	15	16	22	9	2.2	2.2	2.3	3.2	1.4
Bermuda	A	-	C) 1	...	...	1	-	0.8	...	...	0.9
British Guiana	A	...	-	...	-	...	...	-	...	-	...
British Honduras	A	6	13	2	5	-	1.5	3.1	0.4	1.0	-
Canal Zone	A	1	-	-	1	-	1.3	-	-	1.6	-
Cayman Islands	A	...	-	-	1	-	...	-	-	3.3	-
Dominica	A	...	...	...	7	...	...	...	...	2.8	...
Falkland Islands	A	-	-	-	-	1	-	-	-	-	23.8
French Guiana	A	3	...	...	...	...	2.9	...	...	...	...
Grenada	A	5	1	3	14	...	1.2	0.3	0.9	4.1	...
Guadeloupe	A	...	...	...	...	2	...	...	...	...	0.2
Martinique	A	4	-	-	...	...	0.4	-	-	...	...
Montserrat	A	...	...	...	...	1	...	...	...	...	2.7
Netherlands Antilles	...	...	...	...	...	...	...	...	...	...	...
Puerto Rico	A	...	44	58	43	41	...	0.6	0.8	0.6	0.5
St. Kitts-Nevis and Anguilla	A	6	2	4	3	...	2.5	1.0	1.9	...	...
St. Lucia	A	14	9	4	3	...	3.3	2.2	1.0	0.8	...
St. Pierre and Miquelon	A	-	...	...	1	-	-	...	...	8.6	-
St. Vincent	C	...	7	...	...	...	...	1.8	...	...	...
Surinam	A	16	12	...	15	15	...	1.0	...	...	...
Turks and Caicos Islands	A	...	...	...	2	...	...	...	...	8.4	...
Virgin Islands (UK)	...	...	...	...	...	...	...	...	...	...	...
Virgin Islands (US)	A	...	1	-	1	...	...	0.8	-	0.7	...

(a) Area of information. (b) Districts with medical certification. Sources: A - Third Report on World Health Situation. B - Country Publication. C - U.N. Demographic Yearbook.

CHAPTER II

CHILD MORTALITY

The proportion of total deaths which occur among children under 5 years of age is probably one of the simplest and most convenient indices of the health conditions in a population. These data in Table 1 point directly to the magnitude of the problem of child mortality in the American region. In 13 of 23 countries with data, over 40 per cent of deaths are among children under 5 years of age. The proportions reach as high as 52 per cent in Costa Rica, 57 per cent in the Dominican Republic and 58 per cent in Ecuador and as low as 6 per cent in the United States. By region the percentages are 7 in Northern America, 44 in Middle and 39 in South America. Only a small improvement in the proportions is evident in the period since 1960. These high proportions continue to emphasize the major health problem in Latin America, the excessive mortality of children under 5 years of age.

This problem was recognized in the Charter of Punta del Este in which the objective for the decade was established "to reduce the present mortality rate in children under five years of age by one-half."

Table 1. Number and Percentage of Deaths Under 5 Years of Age, by Country, 1964

Country	All ages	Under 5 years					
		Total		Under 1 year		1-4 years	
		Number	Per cent	Number	Per cent	Number	Per cent
Argentina (a)	168 785	32 745	19.4	26 656	15.8	6 089	3.6
Bolivia	33 363	15 544	46.6	8 205	24.6	7 339	22.0
Brazil (São Paulo) (b)	129 593	48 954	37.8	37 767	29.1	11 187	8.6
Canada	145 850	13 055	9.0	11 169	7.7	1 886	1.3
Chile	94 111	38 680	41.1	31 495	33.5	7 185	7.6
Colombia	175 948	86 626	49.2	56 189	31.9	30 437	17.3
Costa Rica	12 269	6 429	52.4	4 889	39.8	1 540	12.6
Cuba	48 048	11 483	23.9	10 136	21.1	1 347	2.8
Dominican Republic	22 649	12 872	56.8	9 054	40.0	3 818	16.9
Ecuador	58 989	34 011	57.7	20 608	34.9	13 403	22.7
El Salvador (b)	29 636	14 800	49.9	9 035	30.5	5 765	19.5
Guatemala (c)	68 278	33 355	48.9	17 253	25.3	16 102	23.6
Honduras	20 546	9 033	44.0	4 564	22.2	4 469	21.8
Jamaica	13 476	3 763	27.9	2 723	20.2	1 040	7.7
Mexico	408 275	185 834	45.5	119 235	29.2	66 599	16.3
Nicaragua	11 628	4 877	41.9	3 320	28.6	1 557	13.4
Panama	8 727	3 214	36.8	2 019	23.1	1 195	13.7
Paraguay (d)	9 478	3 236	34.1	2 321	24.5	915	9.7
Peru (e)	44 778	21 224	47.4	13 560	30.3	7 664	17.1
Trinidad and Tobago (b)	5 840	1 675	28.7	1 344	23.0	331	5.7
United States	1 798 051	115 759	6.4	99 783	5.5	15 976	0.9
Uruguay	24 118	3 117	12.9	2 800	11.6	317	1.3
Venezuela	61 281	25 421	41.5	18 313	29.9	7 108	11.6
Northern America	1 943 901	128 814	6.6	110 952	5.7	17 862	0.9
Middle America	649 372	287 335	44.2	183 572	28.3	103 763	16.0
South America	800 444	309 558	38.7	217 914	27.2	91 644	11.5

(a) Year 1962, excluding Cordoba Province. (b) 1963. (c) Revised figure. (d) Area of information. (e) Districts with medical certification.

INFANT MORTALITY

In Table A at the end of the Chapter the numbers of infant deaths together with rates per 1,000 live births are given for the countries and other areas of the Americas for the years 1960-1964. By regions, the trend of infant mortality is shown in Figure 1 for the period 1957 to 1964. The downward trend in this period in both Middle and South America has been continuous, with decreases in the period of 21 and 15 per cent respectively. In both regions reduction since 1961 has not been as great as in the earlier years. In Northern America the trend has also been downward but the reduction has been only 7 per cent in the seven year interval.

Regional rates in 1964 were 24.8 for Northern, 61.9 for Middle and 81.2 for South America. In several countries in other regions of the World infant mortality is considerably lower than in Northern America. Consequently, causes of infant mortality are being carefully studied in an effort to accomplish further reductions.

By country infant death rates in 1964 varied between a low of 24.7 in Canada and a high of 105.3 in Chile. Among the other areas of the region infant mortality was as low as 14.4 in the Canal Zone and 15.7 in the Netherlands Antilles and as high as 75.3 in St. Vincent.

Deaths under one year of age are probably less completely registered than those in any other age group. Varying practices are used in countries for registration of infant deaths. For example, deaths occurring before registration of the birth are often not counted, or deaths in the first day of life may be excluded. Uniform definitions of fetal deaths and live births are not properly used. Infant death rates are without doubt higher in many areas than registration indicates.

In analyzing the reasons for the high infant mortality in the Americas information on age at death is useful. In Table 2 are shown for 1964 the neonatal and postneonatal death rates by country. The neonatal rates (deaths under 28 days per 1,000 live births) vary much less than the postneonatal rates which are influenced to a greater extent by environmental conditions. Relatively the greatest excess mortality in

Figure 1

INFANT DEATHS PER 1,000 LIVE BIRTHS IN THE THREE REGIONS OF THE AMERICAS, 1957-1964

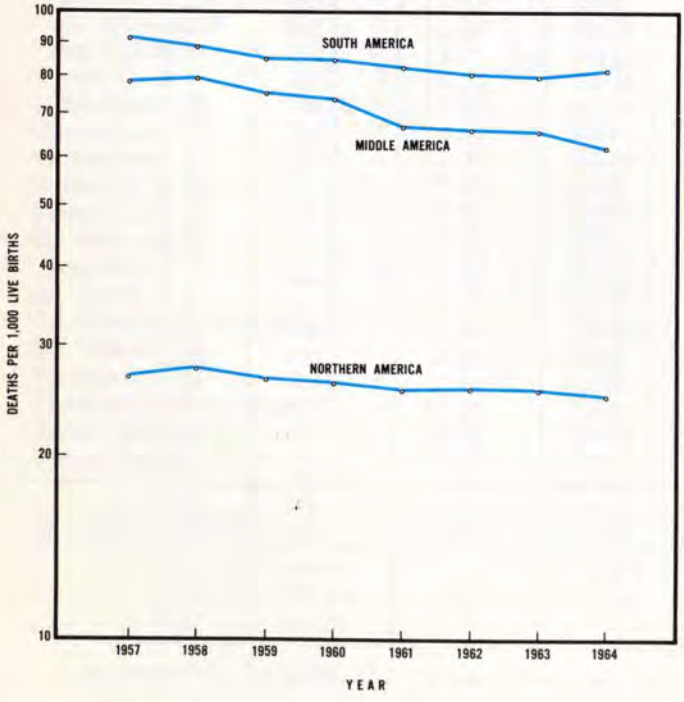


Table 2. Neonatal and Post Neonatal Death Rates, by Country, Recent Years

Country	Year	Rate per 1,000 live births			Per cent under 28 days
		Total	Under 28 days	28 days to 11 months	
Brazil (São Paulo State)	1962	76.2	36.9	39.3	48.5
Canada	1964	24.7	17.3	7.4	70.1
Chile	1964	105.3	34.8	70.5	33.1
Colombia	1964	84.3	35.4	48.8	42.0
Costa Rica	1964	75.2	26.3	49.0	34.9
Ecuador	1964	89.9	33.6	56.3	37.4
El Salvador	1963	67.8	26.5	41.3	39.1
Guatemala	1962	91.3	36.3	55.1	39.7
Honduras	1963	47.0	16.5	30.4	35.2
Jamaica	1964	39.3	20.0	19.3	50.9
Mexico	1964	64.5	23.8	40.6	36.9
Nicaragua	1964	49.7	10.9	38.7	22.0
Panama	1964	42.4	23.4	19.0	55.1
Peru	1964	83.5	47.4	36.1	56.8
United States	1964	24.8	17.9	6.9	72.2
Uruguay	1963	43.9	20.6	23.4	46.8
Venezuela	1964	51.4	25.5	25.8	49.7

Latin America as compared to Northern America occurs after the first month of life.

A further division of mortality by age in the first year of life can be seen in Table 3. In all countries for which information is given the risk of death is reasonably similar in the first week of life. After that differences begin to appear and the greatest are observed in the last six months of the first year.

Table 3. Ratios of Age Specific Mortality Rates Under One Year of Age to Those in the United States, 1964

Country	Ratios			
	Under 7 days	7-27 days	28 days-5 months	6-11 months
Chile	1.3	7.3	9.6	11.9
Colombia	1.3	7.3	4.7	11.1
Costa Rica	1.0	5.7	6.3	9.3
Guatemala (a)	1.2	8.5	5.7	14.3
Mexico	0.9	5.2	4.7	9.1
Venezuela	1.0	5.1	2.9	6.2

(a) 1962.

Trends are shown in Figure 2 of infant mortality by age in 12 countries of the Americas between 1950 and 1964. The three lines, A, B, and C, represent mortality in three periods in the first year of life. A is the trend of deaths under 28 days per 1,000 live births; B the deaths from 28 days through 5 months per 1,000 live births; and C deaths from 6 through 11 months per 1,000 live births. The sum of the three values for each calendar year constitutes the infant mortality rate.

The relative position of the three trend lines for each country indicates the proportion of total infant deaths occurring during these three age periods. For several countries the lines are distinctly separated with A highest, B second and C lowest. This is the pattern for the United States, Canada, and Venezuela. Colombia, Trinidad and Tobago and Jamaica are similar but the trend lines cross in a few points. In other countries such as Chile and Costa Rica the deaths in the period from 1 through 5 months exceed those under one month, but deaths are fewer in the second six months. For El Salvador and Guatemala the three lines are often at the same level, indicating that approximately one third of infant deaths occur under one month of age, one third between 1-5 months and one third from 6-11 months.

For most countries the downward trend of line A, the neonatal death rate, has not been marked. This is the period in which improvement has usually been slowest. The deaths in this period are in large part associated with the condition of the infants at birth. Usually the largest decline is observed for C, deaths from 6 through 11 months, and the reduction in B, deaths from 1-5 months, is intermediate to A and C. However, in a few countries such as Chile, no progress appears to have been made in preventing deaths at ages 1-5 months. In Figure 2 the similarity of the neonatal mortality in most countries is again observed and the great diversity of mortality patterns in the other two age groups is readily apparent.

MORTALITY IN THE AGE GROUP 1-4 YEARS

Differences among countries such as those observed with respect to postneonatal mortality are further enlarged when mortality in the age group 1-4 years is compared. In Table B the numbers of deaths in this age group with rates per 1,000 population are given by country for the five years 1960-1964.

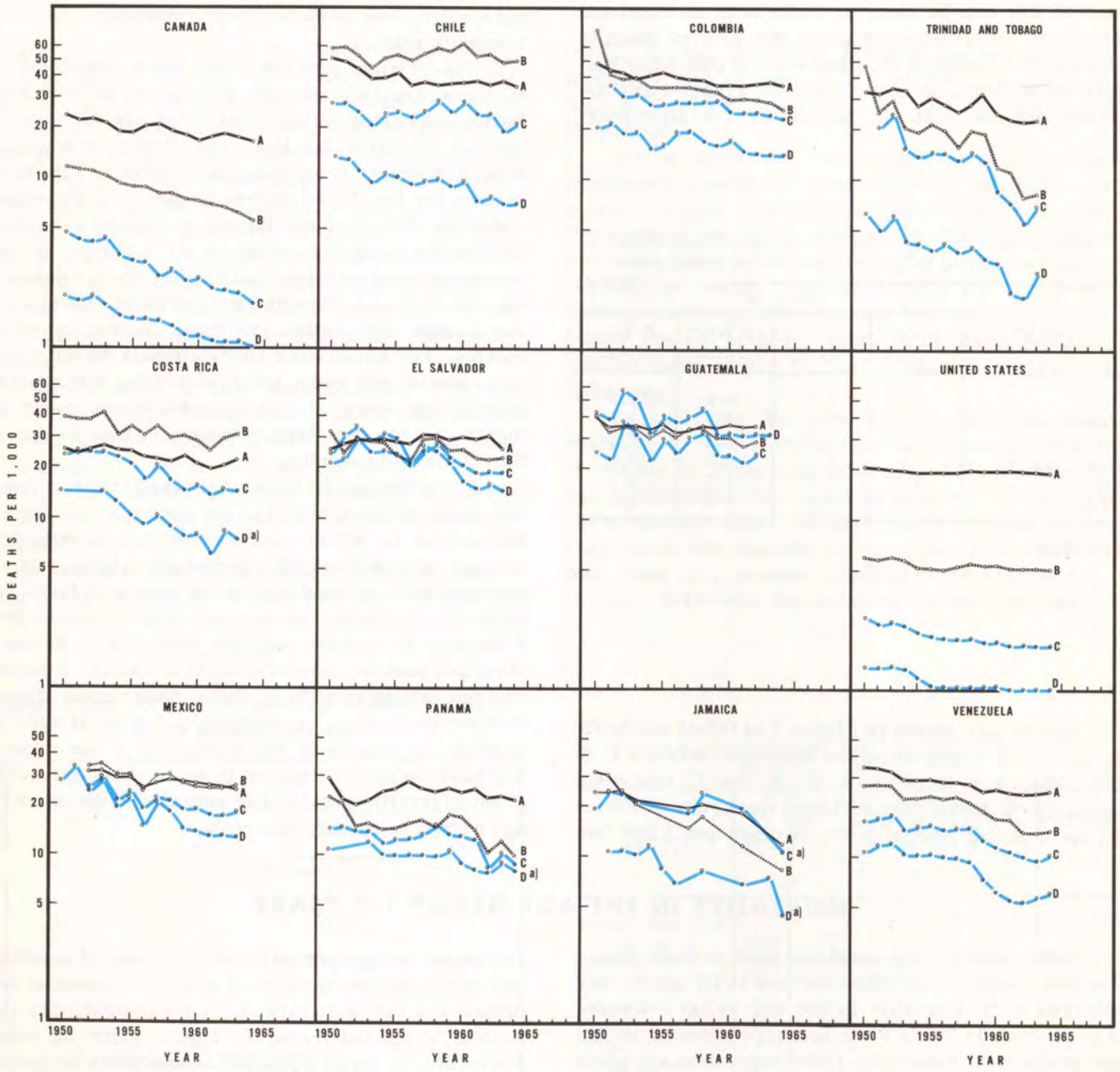
In the United States, Canada and Uruguay death rates in this age group are low, approximately 1 per 100,000 population in this period. In contrast, in Guatemala the rate in 1964 is over 25 times greater than in the United States or Canada. Six other countries in the region have rates over 10 per 100,000. In almost all of the areas of the region other than countries, age specific rates are under 10 per 100,000.

The greatest progress in reducing child mortality in the last decade has been achieved in the age group 1-4 years, an age period for which causes of morbidity and mortality are associated with environmental conditions and can be in large measure controlled or prevented. From the trends in Figure 3 for the period 1957-1964, a large reduction in mortality in this age group is apparent for Middle America and a somewhat smaller decline for South America. Rates are nearly the same for both regions in 1964, approximately ten times the rate in Northern America.

In Figure 2, the trend of mortality from 1950 to 1964 in the age group 1-4 years is also shown for 12 countries as line D. For most countries the reduction in mortality in this age group is greater than in any of the age periods under one year (lines A, B, and C.) In Guatemala, however, mortality has remained excessively high among children in this older age group.

Figure 2

DEATHS PER 1,000 POPULATION OF CHILDREN BY AGE GROUPS,* IN 12 COUNTRIES, 1950-1964



A - UNDER 28 DAYS OF AGE B - 28 DAYS TO 5 MONTHS C - 6 TO 11 MONTHS D - 1 TO 4 YEARS

* Deaths under one year per 1,000 live births a) Data for every year not available

MORTALITY FROM SPECIFIC CAUSES

Analysis of the causes of high infant and child mortality is essential to formulation of plans for the reduction of these losses. Data on mortality by age and cause are available in the annual WHO/PAHO questionnaires completed by the countries and for some countries in national statistical publications. In Table C data have been assembled from these sources to show the principal causes of child mortality in the region. For the two age divisions, under one year and 1-4 years of age, the number of deaths with rates per 100,000 and the percentage of total deaths in the age group are given for the first five principal causes. The causes are arranged in order of the total number of deaths under 5 years of age.

Table 4 summarizes the frequency with which specific causes appear among the first five leading causes in 21 countries or areas for which data are available. In all countries of the region three groups - 1) certain diseases of early infancy, 2) gastritis, enteritis, etc. and 3) influenza and pneumonia - are included among the first five principal causes for children under one year of age.

To diseases of early infancy the greatest number of deaths is assigned in 19 of the 21 countries. In nine of these, over 40 per cent of infant deaths are classified in this group which includes deaths due to nutritional deficiency, diarrheal disease and ill defined diseases peculiar to early infancy. Gastritis, enteritis, etc. ranks after diseases of early infancy as a leading cause of death of infants and the group of pneumonia and influenza is in third place. To these three groups are assigned from 41.1 to 85.7 of infant deaths in a country. Congenital malformations were among the five principal causes in 13 countries. Also frequently included were tetanus in 11 countries and bronchitis

Figure 3

DEATHS OF CHILDREN 1-4 YEARS OF AGE PER 1,000 POPULATION IN THE THREE REGIONS OF THE AMERICAS, 1957-1964

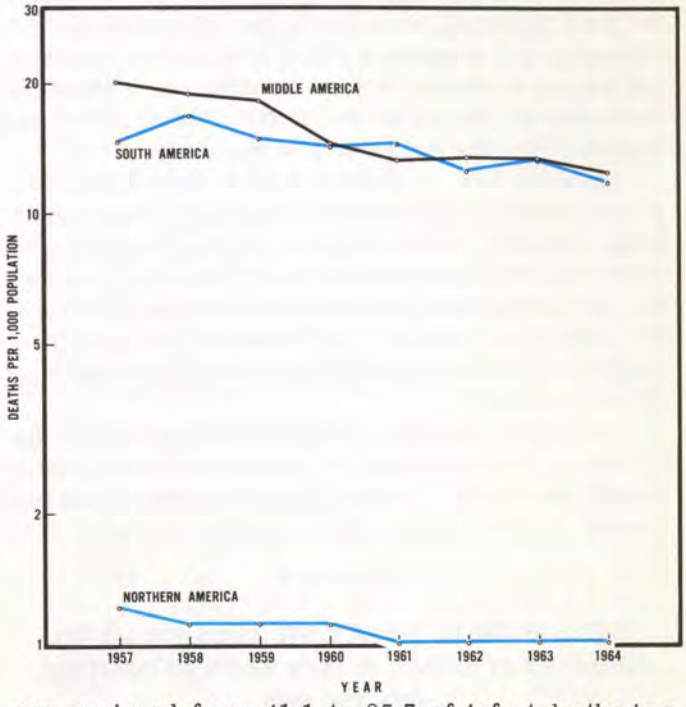


Table 4. Causes of Death Ranked as the First Five for Children Under One Year of Age and 1-4 Years of Age in 21 Countries, 1964

Causes of death	Total	Under one year of age					Causes of death	Total	1-4 years of age				
		1st	2nd	3rd	4th	5th			1st	2nd	3rd	4th	5th
Certain diseases of early infancy	21	19	2	-	-	-	Gastritis, enteritis, etc.	21	13	4	1	1	2
Gastritis, enteritis, etc.	21	2	10	7	-	2	Influenza and pneumonia	21	5	11	2	2	1
Influenza and pneumonia	21	-	5	10	4	2	Accidents	13	2	1	3	3	4
Congenital malformations	13	-	2	1	6	4	Avitaminosis and other deficiency states	11	1	1	-	6	3
Tetanus	11	-	-	3	1	7	Measles	10	-	2	6	1	1
Bronchitis	10	-	2	-	6	2	Bronchitis	8	-	1	3	3	1
Accidents	2	-	-	-	2	-	Whooping cough	6	-	-	1	2	3
Whooping cough	2	-	-	-	1	1	Malignant neoplasms	4	-	-	2	1	1
Non-meningococcal meningitis	2	-	-	-	-	2	Congenital malformations	4	-	-	1	1	2
Measles	1	-	-	-	1	-	Non-menigococcal meningitis	3	-	-	1	-	2
Malaria	1	-	-	-	-	1	Malaria	1	-	1	-	-	-
							Dysenteries	1	-	-	1	-	-
							Diseases of early infancy	1	-	-	-	1	-
							Paratyphoid and other salmonellosis	1	-	-	-	-	1

in 10. Other causes listed only once or twice for the age group were accidents, whooping cough, non-meningococcal meningitis, measles and malaria. Of these principal causes several are preventable.

More diseases or groups of diseases enter the list of the first five leading causes of death for the age group 1-4 years. In this age group, as among the infants, gastritis, enteritis, etc. and influenza and pneumonia are principal causes of mortality in all 21 countries. For 13 countries gastritis, enteritis, etc. is the first principal cause and in four others the second. Influenza and pneumonia ranks first in five countries and second in eleven. Accidents appear as a principal cause for 13 countries and in two, United States and Canada, were the main cause of mortality.

Measles has remained a major cause of mortality in ten countries for children of this age. Other infectious diseases which appear on the list of major causes in 1964 are whooping cough, malaria, dysenteries and paratyphoid and other salmonella infections. Non-infectious causes also recorded are malignant neoplasms, congenital malformations and non-meningococcal meningitis.

A notable change in principal causes was the inclusion of avitaminosis and other deficiency states among the leading causes in eleven countries; in one country in first place, and in another in second. It is only in recent years that sufficient detail is being obtained on causes of mortality to indicate the extent of malnutrition as a regional problem.

Figure 4

DEATHS OF CHILDREN UNDER FIVE YEARS PER 100,000 POPULATION, BY CAUSES, IN LATIN AMERICAN COUNTRIES, 1956 AND 1963

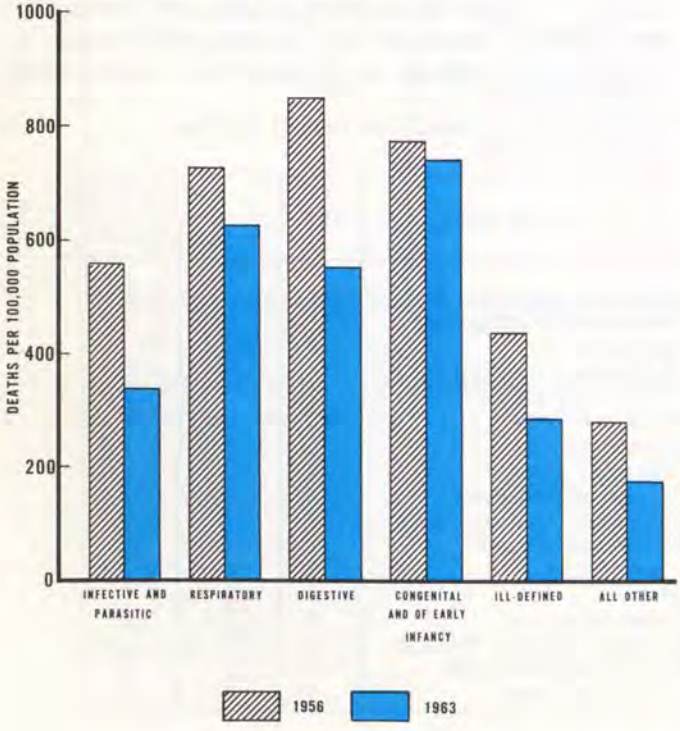


Table 5. Average Annual Deaths from Avitaminosis and Other Deficiency States and Anemias per 100,000 Population Among Children Under One Year and 1-4 Years of Age in Nine Countries, 1961-1963

Country	Avitaminosis and other nutritional deficiency states (280-286)		Anemias (290-293)	
	Under one year[a]	1-4 years	Under one year[a]	1-4 years
Canada	1.8	0.4	2.7	0.6
Colombia	142.3	119.9	27.8	27.0
Costa Rica	10.9	19.5	25.3	12.9
El Salvador	1.8	49.0	0.3	11.8
Nicaragua	7.6	9.4	15.2	12.1
Panama	5.2	12.9	10.3	11.2
Trinidad and Tobago	9.8	11.7	16.7	8.4
United States	0.5	0.5	2.7	1.1
Venezuela	14.9	23.2	3.6	3.7

(a) Per 100,000 live births.

Death rates from nutritional deficiency diseases and anemias understate the magnitude of the problem of malnutrition in the Americas. Malnutrition is a contributing factor to many deaths of children which are assigned to other concurrent and associated conditions such as infectious diseases or diarrheal diseases. In addition deaths from malnutrition are often assigned to the group of ill defined diseases. In Table 5 for the two age groups under one year and 1-4 years, death rates from avitaminosis and other nutritional deficiency states and from anemias are given for nine countries of the region. In spite of the difficulties in using death rates to measure the extent of this problem the wide variation in these rates and the great excess in Latin American countries over rates in Northern America are evident for both age groups.

The progress already achieved in the reduction of child mortality is encouraging but the task to be completed is large. Causes of morbidity and of mortality in childhood which can be prevented continue to produce large numbers of deaths. Comparison of death rates under five years of age in two periods, 1956 and 1963, from broad groups of causes illustrates both the accomplishments and the magnitude of the remaining problems (Figure 4). During this period death rates from infectious and parasitic diseases were reduced by over 40 per cent and from diseases of the digestive system (mainly diarrheal diseases in this age group) by 35 per cent. However, death rates from infectious and parasitic diseases are currently over 300 per 100,000 population and from the digestive system almost 600 per 100,000.

TABLE A. NUMBER OF INFANT DEATHS WITH RATES PER 1,000 LIVE BIRTHS BY COUNTRY, 1960-1964

Area	Source	Number					Rate				
		1960	1961	1962	1963	1964	1960	1961	1962	1963	1964
Argentina	C	29 502	*28 370	*28 866	*28 521	*28 827	62.4	60.2	60.5	60.3	60.7
Bolivia	A	...	10 294	10 347	9 662	8 205	...	109.5	97.2	100.4	99.4
Brazil (São Paulo)	B	33 735	34 356	34 872	37 767	...	77.2	76.8	76.2	78.7	...
Canada	A	13 077	12 940	12 941	12 270	11 169	27.3	27.2	27.6	26.3	24.7
Chile	A	34 003	31 638	32 920	31 044	31 495	126.2	114.1	113.6	105.5	105.3
Colombia	A	59 721	56 178	58 265	58 695	56 189	99.8	89.6	89.6	88.3	84.3
Costa Rica	B	4 076	3 850	4 170	4 456	4 889	69.3	62.4	66.6	69.8	75.2
Cuba	A	...	8 207	9 346	9 906	*10 136	...	36.3	39.5	41.2	41.5
Dominican Republic	A	C)11 078	C)10 499	8 482	8 928	9 054	100.6	102.3	79.5	78.9	...
Ecuador	A	20 610	20 058	20 710	21 298	20 608	100.0	96.2	95.9	94.6	89.9
El Salvador	A	9 258	8 737	9 077	9 035	8 662	76.3	70.0	71.4	67.8	65.3
Guatemala	A	17 128	16 438	17 485	18 349	D)*17 506	91.9	84.8	91.3	92.8	91.6
Haiti	...	...	...	...	...	...	...	...	...	...	...
Honduras	A	4 275	4 283	4 020	4 400	4 564	52.0	49.9	43.6	47.0	45.4
Jamaica	A	3 527	3 157	3 218	3 289	2 723	51.0	47.2	48.1	49.2	39.3
Mexico	A	119 316	115 666	119 295	120 361	119 235	74.2	70.2	69.9	68.5	64.5
Nicaragua	A	4 269	3 806	3 280	3 317	3 320	70.9	63.9	54.6	52.9	49.7
Panama	A	2 363	2 352	1 925	2 168	2 019	56.9	54.4	42.6	47.3	42.4
Paraguay (a)	A	2 496	2 419	2 219	2 617	2 321	...	86.3	80.6	90.6	80.3
Peru	B	34 655	33 406	32 057	*33 895	D)*30 216	92.1	93.2	84.9	88.5	83.5
Trinidad and Tobago	A	1 491	1 481	1 313	1 346	...	45.4	44.9	38.5	40.9	...
United States	A	110 873	107 956	105 479	103 390	99 783	26.0	25.3	25.3	25.2	24.8
Uruguay	C	2 871	...	...	2 771	...	47.4	...	...	43.9	...
Venezuela	A	17 887	18 137	16 187	17 049	18 313	55.2	53.3	48.0	48.2	51.4
Antigua	A	129	97	75	100	89	68.7	54.9	42.0	54.6	47.2
Bahama Islands	C	174	190	168	...	D) 194	51.8	50.9	48.4	...	41.3
Barbados	A	473	570	376	418	339	60.4	83.8	54.6	60.7	52.1
Bermuda	C	38	36	31	33	39	31.5	30.4	26.2	27.0	33.2
British Guiana	A	1 427	1 378	1 360	1 350	D) *1 056	61.4	57.9	56.0	55.0	42.2
British Honduras	A	263	232	310	250	247	64.3	54.7	69.5	52.3	54.1
Canal Zone	A	17	19	15	6	10	22.1	24.3	20.4	9.3	14.4
Cayman Islands	A	* 3	11	7	7	7	11.4	39.7	24.1	23.1	25.9
Dominica	C	302)	*309	189	244	D) 145	107.3	116.4	73.7	96.7	55.5
Falkland Islands	A	1	2	2	1	1	18.5	41.7	40.8	22.7	23.8
French Guiana	C	69	57	...	61	* 60	67.3	53.5	...	54.6	54.5
Grenada	A	313	266	179	187	172	77.9	72.1	52.4	54.3	51.0
Guadeloupe	C	496	400	415	404	382	47.3	40.0	38.1	37.7	36.7
Martinique	C	574	431	463	396	*400	53.8	40.8	43.4	38.8	38.1
Montserrat	A	41	30	27	14	15	114.2	89.6	83.3	41.1	41.2
Netherlands Antilles	C	160	160	135	(119)	94	24.1	24.7	20.7	...	15.7
Puerto Rico	A	C) 3 307	3 123	3 192	3 453	4 078	43.3	41.4	41.7	44.6	52.3
St. Kitts-Nevis and Anguilla	C	238	206	129	196	102	98.1	101.1	61.1	72.1	52.4
St. Lucia	A	454	408	405	312	...	107.1	101.7	102.9	78.4	...
St. Pierre and Miquelon	A	...	1	1	2	4	...	10.1	8.1	17.2	31.2
St. Vincent	C	526	426	342	352	D) 277	132.0	107.4	91.8	96.8	75.3
Surinam	A	476	554	631	526	512	...	44.0	...	...	...
Turks and Caicos Islands	C	20	25	27	24	...	79.4	101.2	107.1	100.8	...
Virgin Islands (UK)	C	21	20	11	* 20	D) 16	75.3	77.8	39.7	77.2	71.1
Virgin Islands (US)	A	42	50	40	48	49	35.6	41.9	29.1	31.7	27.8
North America		123 988	120 933	118 452	115 695	110 995	26.2	25.5	25.5	25.3	24.8
Middle America		184 334	185 449	188 116	192 055	188 724	73.4	66.6	65.6	65.2	61.9
South America		237 453	236 847	238 436	245 255	197 803	84.7	81.9	80.2	79.2	81.2

* Provisional. (a) Area of information only. Sources: A - Third Report on World Health Situation. B - Country Publication. C - UN Demographic Yearbook. D - UN Population and Vital Statistics Report.

TABLE B. NUMBER OF DEATHS 1-4 YEARS OF AGE WITH RATES PER 1,000 POPULATION BY COUNTRY, 1960-1964

Country	Number					Rate				
	1960	1961	1962	1963	1964	1960	1961	1962	1963	1964
Argentina	7 722	...	a) 6 089	...	...	...	...	a) 3.8	...	...
Bolivia	...	7 244	9 447	7 729	7 339	...	16.5	21.2	17.1	16.0
Brazil (b)	10 783	11 575	10 262	11 187	...	7.3	7.6	6.5	6.9	...
Canada	2 067	1 998	2 045	1 962	1 886	1.2	1.1	1.0	1.1	1.0
Chile	8 793	6 734	7 481	6 795	7 185	9.6	7.2	7.8	7.0	7.2
Colombia	35 261	30 356	29 970	30 327	30 437	18.1	15.1	14.4	14.1	13.7
Costa Rica	1 337	1 080	1 554	1 476	1 540	7.7	6.0	8.2	7.6	7.5
Cuba	...	1 576	1 615	1 376	1 347	...	...	...	...	...
Dominican Republic	5 250	4 522	3 751	3 962	3 818	12.5	10.3	8.3	8.5	7.9
Ecuador	14 084	12 644	13 304	13 539	13 403	24.0	20.9	21.3	21.0	20.2
El Salvador	5 726	5 509	6 054	5 765	...	17.6	16.4	17.4	16.0	...
Guatemala	16 416	16 176	17 539	18 463	16 102	31.0	29.6	31.1	31.8	26.9
Honduras	3 747	3 799	3 883	3 983	4 469	13.8	13.5	13.4	13.3	14.4
Jamaica	...	1 448	1 520	1 649	1 040	...	6.8	7.1	7.5	4.6
Mexico	67 156	63 858	67 340	67 876	66 599	14.5	13.3	13.6	13.3	12.7
Nicaragua	1 806	1 883	1 561	1 578	1 557	8.8	8.9	7.2	7.0	6.7
Panama	1 260	1 149	1 079	1 422	1 195	8.9	7.9	7.3	9.3	7.6
Paraguay (c)	1 124	1 056	931	1 074	915	...	10.0	8.9	9.4	7.3
Peru (d)	...	5 165	6 435	7 110	7 664	...	10.2	11.2	11.8	12.6
Trinidad and Tobago	343	220	226	331	...	3.3	2.0	2.0	2.9	...
United States	17 682	16 629	16 254	16 571	15 976	1.1	1.0	1.0	1.0	1.0
Uruguay	...	292	...	296	...	...	1.4	...	1.4	...
Venezuela	6 212	5 899	5 937	6 571	7 108	6.1	5.6	5.5	5.8	6.1
Antigua	53	42	20	78	36	7.9	6.2	2.8	10.9	4.9
Bahama Islands	...	...	...	...	...	...	...	...	...	...
Barbados	90	109	87	96	92	3.5	4.2	3.3	3.6	3.4
Bermuda	2	3	4	2	9	0.5	0.7	0.9	0.4	1.9
British Guiana	*444	359	...	380	...	5.8	4.6	...	4.5	...
British Honduras	88	91	111	82	90	6.7	6.7	8.0	5.7	6.1
Canal Zone	1	1	1	8	14	0.3	0.3	0.3	1.9	3.0
Cayman Islands	...	...	...	...	...	...	...	...	...	...
Dominica	168	...	91	181	...	19.8	...	10.5	20.3	...
Falkland Islands	...	-	-	-	-	...	-	-	-	-
French Guiana	37	35	18	...	...	9.7	8.9	4.6	...	...
Grenada	179	189	129	92	87	12.9	13.5	9.1	6.4	6.0
Guadeloupe	353	172	155	...	...	9.9	4.7	4.1	...	...
Martinique	291	229	238	...	...	8.1	6.2	6.3	...	...
Montserrat	9	11	12	...	...	6.6	7.4	8.1	...	...
Netherlands Antilles	43	35	31	30	...	1.8	1.4	1.2	1.2	...
Puerto Rico	856	791	751	655	747	3.1	2.8	2.6	2.2	2.4
St. Kitts-Nevis and Anguilla	117	112	56	...	...	13.8	12.7	6.3	...	...
St. Lucia	254	235	232	216	...	21.8	19.4	18.6	16.9	...
St. Pierre and Miquelon	...	1	1	2	-	...	2.3	2.3	4.5	-
St. Vincent	...	193	...	223	...	...	15.4	...	17.3	...
Surinam	...	139	196	203	175	...	4.0	5.6	5.4	4.5
Turks and Caicos Islands	...	4	8	...	...	...	5.1	10.3	...	...
Virgin Islands (UK)	...	11	...	10	...	...	9.6	...	8.7	...
Virgin Islands (US)	10	6	11	6	9	2.6	1.5	2.6	1.2	1.8
Northern America	19 751	18 631	18 304	18 537	17 871	1.1	1.0	1.0	1.0	1.0
Middle America (e)	105 553	103 451	108 055	109 558	98 742	14.5	13.2	13.4	13.3	12.4
South America (f)	84 460	81 498	90 070	85 211	74 226	14.2	14.4	12.5	13.2	11.8

* Provisional. (a) Excluding Cordoba Province. (b) State of São Paulo only. (c) Area of information only. (d) Data for districts with medical certification. (e) Regional rates exclude Cuba. (f) Regional rates exclude Argentina, Brazil and Uruguay.

TABLE C. FIRST FIVE PRINCIPAL CAUSES OF DEATH AMONG CHILDREN UNDER 5 YEARS OF AGE, UNDER 1 YEAR AND 1-4 YEARS WITH RATES PER 100,000 POPULATION, BY COUNTRY, RECENT YEARS

Country and principal causes	Under 5 years				Under 1 year				1-4 years			
	Rank order	Number	Rate	Per cent	Rank order	Number	Rate*	Per cent	Rank order	Number	Rate	Per cent
ARGENTINA (1962)(a) - All causes ...	-	32745	1612.3	100	-	26656	5974.3	100	-	6089	379.8	100
Certain diseases of early infancy (760-776)	1	10808	532.2	33.0	1	10623	2380.9	39.9	4	185	11.5	3.0
Gastritis, enteritis, etc. (543, 571, 572) ...	2	4498	221.5	13.7	2	3608	808.6	13.5	2	890	55.5	14.6
Influenza and pneumonia (480-483, 490-493)	3	3693	181.8	11.3	3	2765	619.7	10.4	1	928	57.9	15.2
Congenital malformations (750-759)	4	1478	72.8	4.5	4	1394	312.4	5.2	-	84	5.2	1.4
Non-meningococcal meningitis (340)	5	823	40.5	2.5	5	597	133.8	2.2	3	226	14.1	3.7
Bronchitis (500-502)	-	522	25.7	1.6	-	428	95.9	1.6	5	179	11.2	2.9
BRAZIL, São Paulo State (1962) - All causes	-	45134	2219.0	100	-	34872	7619.9	100	-	10262	652.4	100
Certain diseases of early infancy (760-776)	1	12344	606.9	27.3	1	12344	2697.3	35.4	-	-	-	-
Gastritis, enteritis, etc. (543, 571, 572) ...	2	7885	387.6	17.5	2	5796	1266.5	16.6	1	2089	132.8	20.4
Influenza and pneumonia (480, 483, 490-493)	3	5351	263.1	11.9	3	3767	823.1	10.8	2	1584	100.7	15.4
Congenital malformations (750-759)	4	1609	79.1	3.6	4	1454	317.7	4.2	-	155	9.9	1.5
Tetanus (061)	5	1189	58.5	2.6	5	1151	251.5	3.3	-	38	2.4	0.4
Measles (085)	-	752	37.0	1.7	-	215	47.0	0.6	3	537	34.1	5.2
Accidents (E800-E962)	-	491	24.1	1.1	-	90	19.7	0.3	5	401	25.5	3.9
Avitaminoses and other deficiency states (280-286)	-	452	22.2	1.0	-	9	2.0	0.0	4	443	28.2	4.3
CANADA (1964) - All causes	-	13055	551.1	100	-	11169	2466.0	100	-	1886	102.9	100
Certain diseases of early infancy (760-776)	1	6539	276.0	50.1	1	6538	1443.5	58.5	-	1	0.1	0.1
Congenital malformations (750-759)	2	2162	91.3	16.6	2	1969	434.7	17.6	4	193	10.5	10.2
Accidents (E800-E962)	3	1249	52.7	9.6	4	527	116.4	4.7	1	722	39.4	38.3
Influenza and pneumonia (480-483, 490-493)	4	1226	51.8	9.4	3	985	217.5	8.8	2	241	13.1	12.8
Gastritis, enteritis, etc. (543, 571, 572) ...	5	265	11.2	2.0	5	213	47.0	1.9	5	52	2.8	2.8
Malignant neoplasms (140-205)	-	229	9.7	1.8	-	29	6.4	0.3	3	200	10.9	10.6
CHILE (1963) - All causes	-	37839	3030.0	100	-	31044	10552.9	100	-	6795	695.9	100
Certain diseases of early infancy (760-776)	1	14043	1124.5	37.1	1	14043	4773.7	45.2	-	-	-	-
Influenza and pneumonia (480-483, 490-493)	2	11619	930.4	30.7	2	9116	3098.8	29.4	1	2503	256.3	36.8
Gastritis, enteritis, etc. (543, 571, 572) ...	3	4174	334.2	11.0	3	3448	1172.0	11.1	3	726	74.4	10.7
Measles (085)	4	2133	170.8	5.6	4	968	329.0	3.1	2	1165	119.3	17.1
Accidents (E800-E962)	5	863	69.1	2.3	-	281	95.5	0.9	4	582	59.6	8.6
Congenital malformations (750-759)	-	862	69.0	2.3	5	786	267.1	2.5	-	76	7.8	0.1
Non-meningococcal meningitis (340)	-	454	36.4	1.2	-	334	113.5	1.1	5	120	12.3	1.8
COLOMBIA (1963) - All causes	-	89022	3215.3	100	-	58695	8834.3	100	-	30327	1413.6	100
Certain diseases of early infancy (760-776)	1	19612	708.3	22.0	1	19612	2951.8	33.4	-	-	-	-
Gastritis, enteritis, etc. (543, 571, 572) ...	2	17208	621.5	19.3	2	10418	1568.0	17.7	1	6790	316.5	22.4
Influenza and pneumonia (480-483, 490-493)	3	9369	338.4	10.5	3	5808	874.2	9.9	2	3561	166.0	11.7
Bronchitis (500-502)	4	7981	288.3	9.0	4	4741	713.6	8.1	3	3240	151.0	10.7
Avitaminoses and other deficiency states (280-286)	5	3212	116.0	3.6	-	832	125.2	1.4	4	2380	110.9	7.8
Whooping cough (056)	-	2849	102.9	3.2	-	1521	228.9	2.6	5	1328	61.9	4.4
Tetanus (061)	-	1875	67.7	2.1	5	1795	270.2	3.1	-	80	3.7	0.3

(a) Excludes Cordoba Province. * Per 100,000 live births.

TABLE C. FIRST FIVE PRINCIPAL CAUSES OF DEATH AMONG CHILDREN UNDER 5 YEARS OF AGE, UNDER 1 YEAR AND 1-4 YEARS WITH RATES PER 100,000 POPULATION, BY COUNTRY, RECENT YEARS (continued)

Country and principal causes	Under 5 years				Under 1 year				1-4 years			
	Rank order	Number	Rate	Per cent	Rank order	Number	Rate*	Per cent	Rank order	Number	Rate	Per cent
COSTA RICA (1964) - All causes	-	6 429	2 450.1	100	-	4 889	7 524.8	100	-	1 540	750.1	100
Gastritis, enteritis, etc. (543, 571, 572) ...	1	1 769	674.2	27.5	2	1 360	2 093.2	27.8	1	409	199.2	26.6
Certain diseases of early infancy (760-776).....	2	1 516	577.7	23.6	1	1 516	2 333.3	31.0	-	-	-	-
Influenza and pneumonia (480-483, 490-493)	3	683	260.3	10.6	3	487	749.6	10.0	2	196	95.5	12.7
Bronchitis (500-502).....	4	280	106.7	4.4	4	209	321.6	4.3	4	71	34.6	4.6
Congenital malformations (750-759)	5	195	74.3	3.0	5	182	280.1	3.7	-	13	6.3	0.8
Measles (085).....	-	182	69.4	2.8	-	59	90.8	1.2	3	123	59.9	8.0
Avitaminoses and other deficiency states (280-286).....	-	72	27.4	1.1	-	4	6.2	0.1	5	68	33.1	4.4
DOMINICAN REPUBLIC (1964) - All causes	-	12 872	2 180.2	100	-	9 054	...	100	-	3 818	786.1	100
Gastritis, enteritis, etc. (543, 571, 572) ...	1	3 275	554.7	25.4	1	2 287	...	25.3	1	988	203.4	25.9
Certain diseases of early infancy (760-776).....	2	1 405	238.0	10.9	2	1 390	...	15.4	-	15	3.1	0.4
Tetanus (061)	3	477	80.8	3.7	3	448	...	4.9	-	29	6.0	0.8
Bronchitis (500-502).....	4	363	61.5	2.8	4	221	...	2.4	3	142	29.2	3.7
Influenza and pneumonia (480-483, (490-493)	5	282	47.8	2.2	5	167	...	1.8	4	115	23.7	3.0
Avitaminoses and other deficiency states (280-286).....	-	271	45.9	2.1	-	95	...	1.0	2	176	36.2	4.6
Accidents (E800-E962).....	-	92	15.6	0.7	-	28	...	0.3	5	64	13.2	1.7
ECUADOR (1964) - All causes	-	34011	4 102.7	100.0	-	20 608	8 993.5	100.0	-	13 403	2021.0	100.0
Bronchitis (500-502).....	1	5 312	640.8	15.6	2	3 518	1 535.3	17.1	2	1 794	270.5	13.4
Gastritis, enteritis, etc. (543, 571, 572) ...	2	5 193	626.4	15.3	3	2 904	1 267.3	14.1	1	2 289	345.1	17.1
Certain diseases of early infancy (760-776).....	3	4 866	587.0	14.3	1	4 866	2 123.6	23.6	-	-	-	-
Whooping cough (056)	4	2 890	348.6	8.5	-	1 355	591.3	6.6	3	1 535	231.5	11.5
Influenza and pneumonia (480-483, (490-493)	5	2 834	341.9	8.3	4	1 667	727.5	8.1	5	1 167	176.0	8.7
Measles (085).....	-	1 794	216.4	5.3	-	439	191.6	2.1	4	1 355	204.3	10.1
Tetanus (061)	-	1 543	186.1	4.5	5	1 512	659.8	7.3	-	31	4.7	0.2
EL SALVADOR (1963) - All causes ...	-	14 800	3 034.0	100	-	9 035	6 784.9	100	-	5 765	1597.0	100
Certain diseases of early infancy (760-776).....	1	2 509	514.4	17.0	1	2 509	1 884.2	27.8	-	-	-	-
Gastritis, enteritis, etc. (543, 571, 572) ...	2	1 185	242.9	8.0	3	665	499.4	7.4	1	520	144.0	9.0
Bronchitis (500-502).....	3	935	191.7	6.3	2	686	515.2	7.6	4	249	69.0	4.3
Influenza and pneumonia (480-483, 490-493)	4	847	173.6	5.7	4	529	397.3	5.9	3	318	88.1	5.5
Whooping cough (056)	5	449	92.0	3.0	-	257	193.0	2.8	5	192	53.2	3.3
Measles (085)	-	441	90.4	3.0	-	122	91.6	1.4	2	319	88.4	5.5
Tetanus (061)	-	437	89.6	3.0	5	420	315.4	4.6	-	17	4.7	0.3

* Per 100,000 live biths.

TABLE C. FIRST FIVE PRINCIPAL CAUSES OF DEATH AMONG CHILDREN UNDER 5 YEARS OF AGE, UNDER 1 YEAR AND 1-4 YEARS WITH RATES PER 100,000 POPULATION, BY COUNTRY, RECENT YEARS (continued)

Country and principal causes	Under 5 years				Under 1 year				1-4 years			
	Rank order	Number	Rate	Per cent	Rank order	Number	Rate*	Per cent	Rank order	Number	Rate	Per cent
GUATEMALA (1963) - All causes..	-	36 812	4 808.3	100	-	18 349	9 282.6	100	-	18 463	3 178.9	100
Certain diseases of early infancy (760-776)	1	7 954	1 038.9	21.6	1	7 954	4 023.9	43.3	-	-	-	-
Gastritis, enteritis, etc. (543, 571, 572).	2	6 357	830.3	17.3	3	2 522	1 275.9	13.7	1	3 835	660.3	20.8
Influenza and pneumonia (480-483, 490-493)	3	6 224	813.0	16.9	2	3 100	1 568.3	16.9	2	3 124	537.9	16.9
Whooping cough (056)	4	2 849	372.1	7.7	4	1 165	589.4	6.3	4	1 684	289.9	9.1
Measles (085)	5	2 634	344.0	7.2	-	589	298.0	3.2	3	2 045	352.1	11.1
Bronchitis (500-502)	-	1 026	134.0	2.8	5	606	306.6	3.3	-	420	72.3	2.3
Avitaminoses and other deficiency states (280-286)	-	546	71.3	1.5	-	10	5.1	0.1	5	536	92.3	2.9
JAMAICA (1964) - All causes	-	3 763	1 287.1	100	-	2 723	3 929.8	100	-	1 040	462.6	100
Certain diseases of early infancy (760-776)	1	1 020	349.1	27.1	1	1 016	1 466.8	37.3	-	4	1.8	0.4
Gastritis, enteritis, etc. (543, 571, 572).	2	700	239.6	18.6	2	488	704.5	17.9	2	212	94.3	20.4
Avitaminoses and other deficiency states (280-286)	3	343	117.4	9.1	-	55	79.4	2.0	1	288	128.1	27.7
Influenza and pneumonia (480-483, 490-493)	4	330	112.9	8.8	3	189	272.9	6.9	3	141	62.7	13.6
Congenital malformations (750-759) ..	5	120	41.1	3.2	4	104	150.1	3.8	-	16	7.1	1.5
Bronchitis (500-502)	-	115	39.4	3.1	-	60	86.6	2.2	4	55	24.5	5.3
Accidents (E800-E962)	-	76	26.0	2.0	-	33	47.6	1.2	5	43	19.1	4.1
Tetanus (061)	-	74	25.3	2.0	5	64	92.4	2.4	-	10	4.4	1.0
MEXICO (1964) - All causes	-	185 834	2 645.5	100	-	119 235	6 447.2	100	-	66 599	1 266.5	100
Certain diseases of early infancy (760-776).....	1	49 819	709.2	26.8	1	49 819	2 693.8	41.8	-	-	-	-
Gastritis, enteritis, etc. (543, 571,572).	2	36 699	522.4	19.7	3	22 637	1 224.0	19.0	1	14 062	267.4	21.1
Influenza and pneumonia (480-483, (490-493).....	3	35 744	508.8	19.2	2	22 783	1 231.9	19.1	2	12 961	246.5	19.5
Bronchitis (500-502)	4	9 266	131.9	5.0	4	7 010	379.0	5.9	-	2 256	42.9	3.4
Measles (085)	5	6 696	95.3	3.6	-	1 349	72.9	1.1	3	5 347	101.7	8.0
Whooping cough (056)	-	6 069	86.4	3.3	-	2 084	112.7	1.7	4	3 985	75.8	6.0
Congenital malformations (750, 759) ..	-	3 277	46.7	1.8	5	3 004	162.4	2.5	-	273	5.2	0.4
Avitaminoses and other deficiency states (280-286)	-	2 535	36.1	1.4	-	10	0.5	0.0	5	2 525	48.0	3.8
NICARAGUA (1964) - All causes ..	-	4 877	1 675.4	100	-	3 320	4 965.1	100	-	1 557	668.5	100
Gastritis, enteritis, etc. (543, 571, 572).	1	1 339	460.0	27.5	1	978	1 462.6	29.5	1	361	155.0	23.2
Certain diseases of early infancy (760-776).....	2	933	320.5	19.1	2	933	1 395.3	28.1	-	-	-	-
Influenza and pneumonia (480-483, 490-493)	3	268	92.1	5.5	4	191	285.6	5.8	4	77	33.1	4.9
Malaria (110-117)	4	249	85.5	5.1	5	157	234.8	4.7	2	92	39.5	5.9
Tetanus (061)	5	248	85.2	5.1	3	225	336.5	6.8	-	23	9.9	1.5
Paratyphoid fever and other salmonella infections (041, 042)	-	159	54.6	3.3	-	100	149.6	3.0	5	59	25.3	3.8
Measles (085)	-	135	46.4	2.8	-	45	67.3	1.4	3	90	38.6	5.8

* Per 100,000 live births.

TABLE C. FIRST FIVE PRINCIPAL CAUSES OF DEATH AMONG CHILDREN UNDER 5 YEARS OF AGE, UNDER 1 YEAR AND 1-4 YEARS WITH RATES PER 100,000 POPULATION, BY COUNTRY, RECENT YEARS (continued)

Country and principal causes	Under 5 years				Under 1 year				1-4 years			
	Rank order	Number	Rate	Per cent	Rank order	Number	Rate*	Per cent	Rank order	Number	Rate	Per cent
PANAMA (1964) - All causes	-	3214	1580.1	100	-	2019	4243.3	100	-	1195	760.2	100
Certain diseases of early infancy (760-776)	1	581	285.6	18.1	1	581	1221.1	28.8	-	-	-	-
Gastritis, enteritis, etc. (543, 571, 572).	2	490	240.9	15.2	2	299	628.4	14.8	1	191	121.5	16.0
Bronchitis (500-502)	3	236	116.0	7.3	4	120	252.2	5.9	3	116	73.8	9.7
Influenza and pneumonia (480-483, (490-493)	4	201	98.8	6.3	5	83	174.4	4.1	2	118	75.1	9.9
Tetanus (061)	5	200	98.3	6.3	3	193	405.6	9.6	-	7	4.5	0.6
Whooping cough (056)	-	74	36.4	2.3	-	26	54.6	1.3	5	48	30.5	4.0
Accidents (E800-E962)	-	64	31.5	2.0	-	18	37.8	0.9	4	46	29.3	3.8
PARAGUAY (1963) (a) - All causes	-	3691	2617.7	100	-	2617	9060.0	100	-	1074	942.1	100
Gastritis, enteritis, etc. (543,571,572)..	1	680	482.3	18.4	2	388	1343.2	14.8	1	292	229.8	27.2
Certain diseases of early infancy (760-776).....	2	627	444.7	17.0	1	627	2170.7	24.0	-	-	-	-
Influenza and pneumonia (480-483, (490-493)	3	386	273.8	10.5	3	277	959.0	10.6	2	109	95.6	10.1
Tetanus (061)	4	163	108.5	4.4	4	159	550.4	6.1	-	4	3.5	0.4
Bronchitis (500-502)	5	100	70.9	2.7	5	80	277.0	3.1	-	20	17.5	1.9
Dysentery, all forms (045-048)	-	64	45.4	1.7	-	23	79.6	0.9	3	41	36.0	3.8
Non-meningococcal meningitis (340)..	-	58	41.1	1.6	-	34	117.6	1.3	5	24	21.1	2.2
Accidents (E800-E962)	-	45	31.9	1.2	-	14	48.4	0.5	4	31	27.2	2.9
PERU (1964) (b) - All causes	-	21224	2563.6	100	-	13560	7829.1	100	-	7664	1263.6	100
Certain diseases of early infancy (760-776)	1	5562	671.8	26.2	1	5536	3196.3	40.8	-	26	1170.1	0.3
Influenza and pneumonia (480-483, 490-493)	2	4494	542.8	21.2	2	2736	1579.7	20.2	1	1758	268.4	22.9
Gastritis, enteritis, etc. (543,571,572)..	3	3582	432.7	16.9	3	2240	1293.3	16.5	2	1342	204.9	17.5
Measles (085)	4	1444	174.4	6.8	-	394	227.5	2.9	3	1050	160.3	13.7
Bronchitis (500-502)	5	984	118.9	4.6	4	640	369.5	4.7	-	344	52.5	4.5
Avitaminoses and other deficiency states (280-286)	-	892	107.7	4.2	-	6	3.5	0.0	4	866	135.3	11.6
Congenital malformations (750-759) ..	-	470	56.8	2.2	5	402	232.1	3.0	-	68	10.4	0.9
Accidents (E800-E962)	-	458	55.3	2.2	-	110	63.5	0.8	5	348	53.1	4.5
TRINIDAD AND TOBAGO (1963) - All causes	-	1677	1141.6	100	-	1346	4091.7	100	-	331	288.1	100
Certain diseases of early infancy (760-776).....	1	772	525.2	46.0	1	772	2346.8	57.4	-	-	-	-
Influenza and pneumonia (480-483, 490-493)	2	252	171.6	15.0	3	157	477.3	11.7	1	95	82.7	28.7
Gastritis, enteritis, etc. (543,571,572)..	3	230	156.6	13.7	2	172	522.9	12.8	2	58	50.5	17.5
Congenital malformations (750-759) ..	4	77	52.4	4.6	4	67	203.7	5.0	-	10	8.7	3.0
Accidents (E800-E962)	5	35	23.8	2.1	-	13	39.5	1.0	3	22	19.1	6.6
Avitaminoses and other deficiency states (280-286)	-	23	15.7	1.4	-	4	12.2	0.3	4	19	16.5	5.7
Tetanus (061)	-	21	14.3	1.3	5	18	54.7	1.3	-	3	2.6	0.9
Malignant neoplasms (140-205).....	-	16	10.9	1.0	-	3	9.1	0.2	5	13	11.3	3.9

* Per 100,00 live births. (a) Area of information. (b) Districts with medical certification.

TABLE C. FIRST FIVE PRINCIPAL CAUSES OF DEATH AMONG CHILDREN UNDER 5 YEARS OF AGE, UNDER 1 YEAR AND 1-4 YEARS WITH RATES PER 100,000 POPULATION, BY COUNTRY, RECENT YEARS (continued)

Country and principal causes	Under 5 years				Under 1 year				1-4 years			
	Rank order	Number	Rate	Per cent	Rank order	Number	Rate*	Per cent	Rank order	Number	Rate	Per cent
UNITED STATES (1964) - All causes	-	115 759	560.8	100	-	99 783	2 477.5	100	-	15 976	96.1	100
Certain diseases of early infancy (760-776)	1	60 304	291.9	52.1	1	60 298	1 497.2	60.4	-	6	0.0	0.0
Congenital malformations (750-759)	2	15 906	77.0	13.7	2	14 197	352.5	14.2	3	1 709	10.3	10.7
Influenza and pneumonia (480-483, 490-493)	3	10 866	52.6	9.4	3	8 691	215.8	8.7	2	2 175	13.1	13.6
Accidents (E800-E962)	4	8 590	41.6	7.4	4	3 406	84.6	3.4	1	5 184	31.2	32.4
Gastritis, enteritis, etc. (543,571,572)	5	2 487	12.0	2.1	5	2 024	50.3	2.0	5	463	2.8	2.9
Malignant neoplasms (140-205)	-	1 758	8.5	1.5	-	233	5.8	0.2	4	1 525	9.2	9.5
URUGUAY (1963) - All causes	-	3 067	1 136.8	100	-	2 771	4 393.7	100	-	296	141.8	100
Certain diseases of early infancy (760-776)	1	1 488	551.5	48.5	1	1 487	2 357.8	53.7	-	1	0.5	0.3
Influenza and pneumonia (480-483, 490-493)	2	354	131.2	11.5	2	302	478.8	10.9	1	52	24.9	17.6
Gastritis, enteritis, etc. (543, 571,572)	3	274	101.6	8.9	3	244	386.9	8.8	4	30	14.4	10.1
Congenital malformations (750-759)	4	205	76.0	6.7	4	188	298.1	6.8	5	17	8.1	5.7
Whooping cough (056)	5	64	23.7	2.1	5	47	74.5	1.7	-	17	8.1	5.7
Accidents (E800-E962)	-	54	20.0	1.8	-	19	30.1	0.7	2	35	16.8	11.8
Malignant neoplasms (140-205)	-	25	9.3	0.8	-	3	4.8	0.1	3	22	10.5	7.4
VENEZUELA (1964) - All causes	-	25 421	1 685.7	100	-	18 313	5 136.2	100	-	7 108	610.7	100
Certain diseases of early infancy (760-776)	1	6 205	411.5	24.4	1	6 205	1 740.3	33.9	-	-	-	-
Gastritis and enteritis (543,571,572)	2	3 672	243.5	14.4	2	2 611	732.3	14.3	1	1 061	91.2	14.9
Influenza and pneumonia (480-483, 490-493)	3	2 252	149.3	8.9	3	1 488	417.3	8.1	2	764	65.6	10.7
Congenital malformations (750-759)	4	751	49.8	3.0	4	671	188.2	3.7	-	80	6.9	1.1
Accidents (E800-E962)	5	545	36.1	2.1	-	158	44.3	0.9	3	387	33.3	5.4
Measles (085)	-	339	22.5	1.3	-	82	23.0	0.4	5	257	22.1	3.6
Tetanus (061)	-	323	21.4	1.3	5	307	86.1	1.7	-	16	1.4	0.2
Avitaminoses and other deficiency states (280-286)	-	292	19.4	1.1	-	3	0.0	0.0	4	289	24.8	4.1
PUERTO RICO (1964) - All causes	-	4 825	1 267.3	100	-	4 078	5 228.3	100	-	747	244.4	100
Certain diseases of early infancy (760-776)	1	2 018	530.0	41.8	1	2 017	2 585.0	49.5	-	1	0.3	0.1
Gastritis, enteritis, etc. (543,571,572)	2	934	245.3	19.4	2	761	975.7	18.7	1	173	56.6	23.2
Influenza and pneumonia (480-483, 490-493)	3	464	121.9	9.6	4	326	418.0	8.0	2	138	45.2	18.5
Congenital malformations (750-759)	4	362	95.1	7.5	3	332	425.6	8.1	5	30	9.8	4.0
Accidents (E800-E962)	5	103	27.1	2.1	-	50	64.1	1.2	3	53	17.3	7.1
Non-meningococcal meningitis (340)	-	87	22.9	1.8	5	74	94.9	1.8	-	13	4.3	1.7
Avitaminoses and other deficiency states (280-286)	-	35	9.2	0.7	-	3	3.8	0.1	4	32	10.5	4.3

* Per 100,000 live births.

CHAPTER III

COMMUNICABLE DISEASES

Communicable diseases are an important contributor to morbidity and mortality in many countries of the Americas. The Ministries of Health annually complete questionnaires providing the Organization with information on diseases notifiable in their countries. This information is compiled and analyzed in the annual publication *Reported Cases of Notifiable Diseases in the Americas*. For this present publication statistics of deaths from selected communicable diseases have been combined with those of cases in an analysis of the situation and the trends of both morbidity and mortality. For detail, reference should be made to the annual publications.

Completeness of reporting of notifiable diseases and of vital statistics depends in part on the availability of medical facilities and health services. Thus as health programs are extended and especially as case-finding activities are developed, improvements in the reporting of both cases and the medical certification of deaths occur. Eradication or control programs may in their early stages, by focussing attention on certain diseases, result in a more extensive notification of cases or more accurate diagnoses of cause of death. In later stages the statistics of cases and deaths will usually reflect more reliably the existing situation. Thus interpretation of the data requires understanding of local situations. Tables are presented in this chapter for 24 diseases; many contain data on cases and deaths usually for the four years, 1961-1964, but in a few instances for an eight-year period 1957-1964. For the quarantinable diseases information is also included for the year 1965. Since the series of reports of cases and deaths are often not complete for all countries and other areas, it has been necessary to exclude certain countries from the regional totals to facilitate study of trends over a period of time.

DENGUE

Beginning in 1963 epidemics of dengue have occurred in the Caribbean and have extended across Venezuela. Dengue is considered to be endemic in the Dominican Republic and cases have been reported each year. However, in other countries and areas, dengue occurred as an epidemic and evidently the disease was newly introduced into the islands and countries. Table 1 gives the numbers of reported cases of dengue for the six years 1960-1965.

The first outbreak in 1963 occurred in Jamaica; it started in Spanish Town in March and spread throughout the island reaching its peak in July-October.

In August 1963 dengue appeared on the north central coast of Puerto Rico and an epidemic developed which swept around the island in a clockwise direction reaching the western coast in January 1964. Reported cases were 25,737 for 1963.

Table 1. Reported Cases* of Dengue by Country, 1960-1965

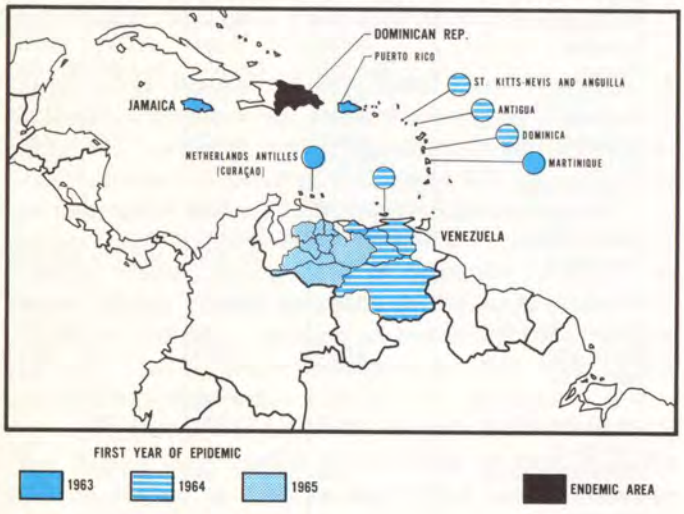
Country	1960	1961	1962	1963	1964	1965
Argentina	-	-	-	-	1	...
Chile	-	-	-	-	1	...
Dominican Republic	494	821	822	350	407	...
Ecuador	...	...	...	...	a) 2	...
Jamaica	-	-	-	1578	156	≠ 36
Mexico	-	-	1	2	...	...
United States (b)	-	-	-	10	6	...
Venezuela (c)	56	-	-	-	18306	≠4248
Antigua	-	-	-	-	264	≠ 8
Dominica	...	...	...	2	≠ 43	...
Puerto Rico	-	-	-	25737	2440	≠ 90
St. Kitts-Nevis and Anguilla	-	-	-	...	≠ 721	...

* Excludes epidemics without reports of cases in Curaçao and Martinique in 1963. (a) Hospital data. (b) Not nationally notifiable. (c) Reporting area. ≠ Provisional data.

During December 1963 outbreaks of dengue also occurred in the islands of Antigua, Curacao and Martinique. In 1964 epidemics were reported in the states of Anzoategui, Nueva Esparta, Sucre and others in northern Venezuela with 18,306 reported cases in the year. In 1965 the epidemic spread westward in Venezuela and 4,248 cases were reported. In Figure 1 the spread of the known epidemics of dengue in the Caribbean and in Venezuela may be seen with the geographic areas shaded to indicate the year of the initial epidemic.

Figure 1

SPREAD OF DENGUE IN THE CARIBBEAN AREA, 1963-1965



These epidemics of dengue are dramatic evidence of the presence of *Aëdes aegypti* mosquitoes. They show the reinfestation of areas previously freed from this mosquito. This mosquito is the urban vector of yellow fever as well as of dengue. In many parts of the Caribbean the vector had developed resistance to DDT and other chlorinated insecticides. The outbreaks of dengue in 1963 coincided with the interruption of eradication campaigns and an increased prevalence of the vector. The eradication program in the Americas continues in accordance with the mandates of the governing bodies of the Organization and simultaneously research is being conducted on new and effective insecticides.

DIPHTHERIA

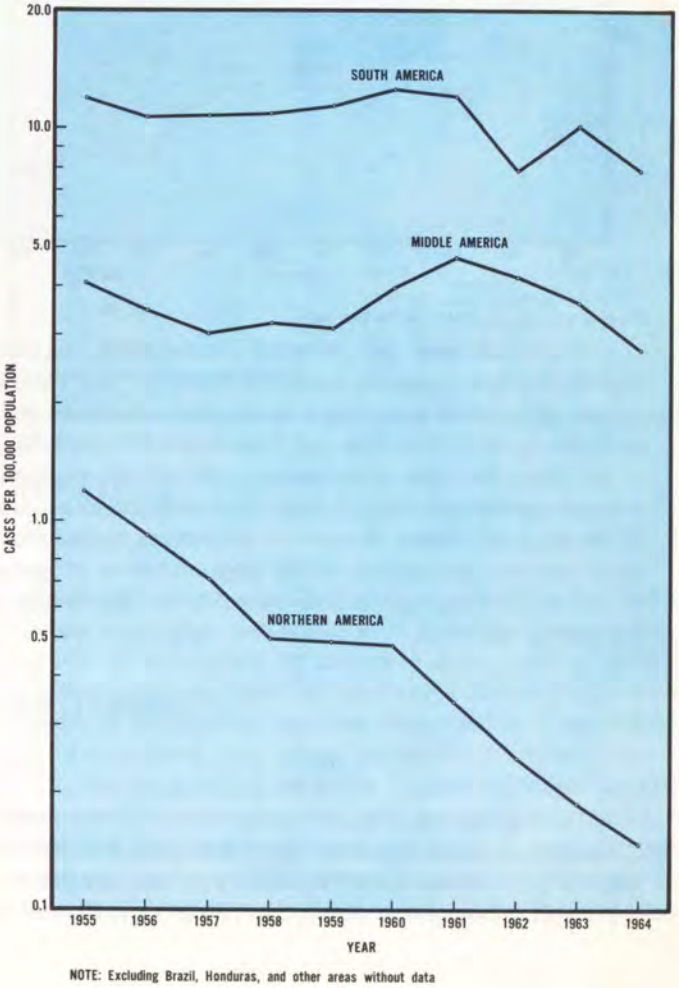
The fact that around 10,000 cases and 1,000 deaths from diphtheria are reported each year in the Americas indicates that diphtheria continues to be a health problem in spite of the availability of a means of prevention. Data for each country for the four years, 1961-1964, are given in Table A at the end of the chapter.

In Northern America the declines of both reported case and death rates have continued and have reached a very low level (Figures 2 and 3). Annual cases number less than 2 per million population and deaths are only 0.2 per million. In Northern America in 1964 there were 318 reported cases and only 47 deaths. In Middle and South America there appears to be a decrease in the death rates since 1960. The case rates are also lower than the high rates noted in 1961. In that year 11,468 cases were reported as compared to 8,184 in 1964. Reported cases in Middle America and South America are approximately four and six times the number of deaths, respectively.

Reported cases of diphtheria increased in Argentina and Chile to relatively high rates in 1960 and 1961. In Cuba a marked rise occurred in 1961 and 1962. Immunizations were increased in these countries and the case rates declined in Chile and Cuba. In Argentina the case rate was also high in 1963.

Figure 2

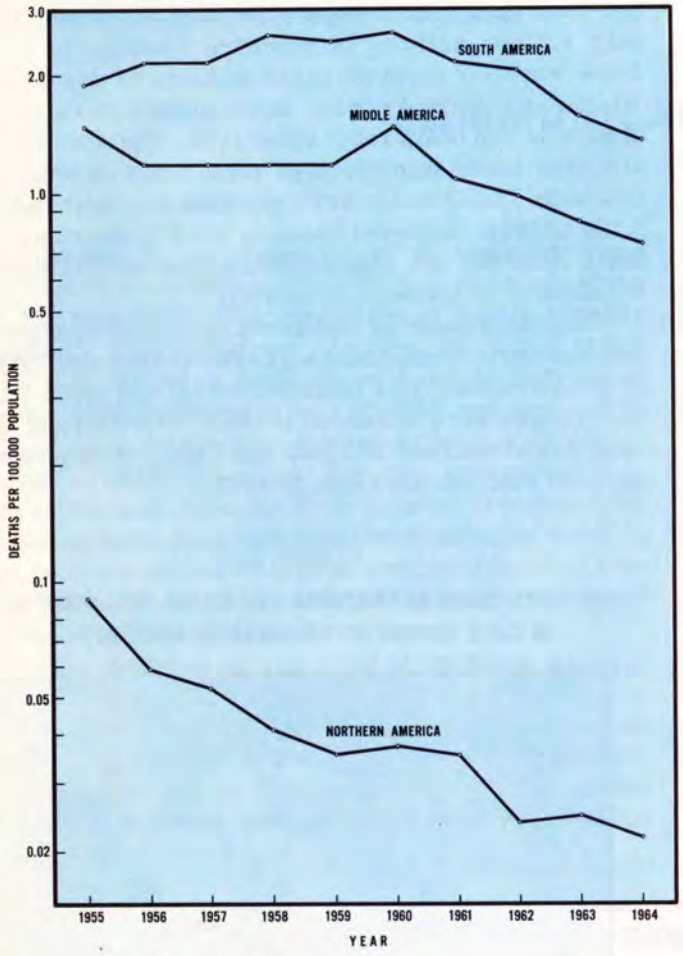
REPORTED CASES OF DIPHTHERIA PER 100,000 POPULATION IN THREE REGIONS OF THE AMERICAS, 1955-1964



NOTE: Excluding Brazil, Honduras, and other areas without data

Figure 3

DEATHS FROM DIPHTHERIA PER 100,000 POPULATION IN THREE REGIONS OF THE AMERICAS, 1955-1964



NOTE: Based on 11 countries in Middle and 7 in South America

The numbers of persons immunized against diphtheria are shown by years in Table 2. The volume of immunization was large in several countries such as Cuba in 1963 (788,844) and Mexico in 1964 (692,868). In the previous four-year period, 1957-1960, immunizations against diphtheria had increased and thus combined with increases in several countries in this four-year period, the effect of the immunization program in reducing case and death rates from diphtheria is becoming apparent.

Table 2. Number of Persons Immunized Against Diphtheria, by Country, 1961-1964

Country	1961	1962	1963	1964
Argentina	567 081	562 870	411 047	...
Bolivia	...	...	30 794	...
Brazil (a)	...	68 104	92 005	58 673
Chile	659 755	463 155	436 930	440 217
Colombia	375 407	368 013	464 044	390 512
Costa Rica	12 595	19 582	...	b) 60 209
Cuba	225 319	416 857	c) 788 844	175 408
Dominican Republic	...	d) 5 370	5 184	...
Ecuador	21 000	37 000	...	164 328
El Salvador	18 445	14 421	23 330	...
Guatemala	44 757	30 671	18 498	69 579
Haiti	12	55	...	...
Honduras	5 577	9 881	5 184	14 272
Jamaica	3 530	4 347	60 495	29 069
Mexico	345 725	424 680	444 825	692 868
Nicaragua	3 393	7 398	14 126	21 331
Panama	4 583	7 400	9 109	26 233
Paraguay (d)	6 342	8 137	6 939	9 287
Peru	136 236	76 427	...	109 391
Trinidad and Tobago (e)	1 114	994	...	...
United States	b,f) 10 981 730	b,f) 11 240 145	...	...
Venezuela	216 437	201 400	193 902	153 309
Antigua	b) 23 261	b) 26 314	1 450	1 691
Bahama Islands	...	...	...	d) 2 442
Barbados	1 318	1 471	...	5 813
Bermuda	...	...	...	471
British Honduras	11 911	7 747	8 383	...
Canal Zone (b, f)	6 066	7 201	8 779	...
Dominica	...	...	1 041	...
Falkland Islands	22	28	...	...
French Guiana	...	...	...	4 199
Grenada	-	-	...	...
Martinique	d) 12 253	9 262	...	...
Montserrat	-	-	...	642
Puerto Rico	32 006	27 658	56 870	...
St. Kitts-Nevis and Anguilla	-	-	...	...
St. Lucia	-	-	540	...
St. Pierre and Miquelon	138	57	...	...
Surinam	...	...	4 310	1 235
Virgin Islands (UK)	164	280	...	...
Virgin Islands (US)	d) 1 263	d) 1 911	578	...

(a) São Paulo State, exluding capital. (b) Number of doses. (c) October 1962 to December 1963. (d) Including boosters. (e) Excludes immunizations under school program. (f) Excludes immunizations by private physicians or in other non-governmental facilities.

INFECTIOUS ENCEPHALITIS

During the four-year period several major outbreaks of arthropod-borne viral encephalitis were reported in Canada, the United States, countries bordering the Caribbean and Jamaica (Table 3 and Figure 4).

The largest of these outbreaks occurred in Venezuela. In October-December 1962, an outbreak of acute infectious encephalitis, principally Venezuelan equine with mild symptoms occurred in the State of

Table 3. Reported Cases of Arthropod-Borne Encephalitis in Man, by Country, 1961-1964

Country	1961	1962	1963	1964
Canada	2	4	57	5
Chile	148	...	...	...
Colombia (a)	...	380	...	...
Jamaica	...	b) 11	...	1
Mexico	39	17	18	...
Panama	c) 17	-	-	8
United States	79	270	59	582
Uruguay	...	29	...	...
Venezuela (a)	...	d) 6 897	10 145	11 540

(a) Reporting area. (b) Eastern equine encephalitis. (c) Reported by Veterinary Section. (d) Acute infectious encephalitis; principally Venezuelan equine encephalitis.

Zulia. For the year 6,897 cases were reported. A further outbreak of the same disease was reported in Northern Colombia in the Commissary of La Guajira. The reported number of cases was 380 but according to estimates around 3,000 human cases occurred and about 1,000 equines were affected. A series of outbreaks started in May 1963 in Zulia and spread eastward across Venezuela reaching the State of Sucre in August. The total number of cases for the year was 10,145. The epidemic continued in 1964 when 11,540 cases were reported.

An epidemic of St. Louis encephalitis occurred in the Tampa Bay Region of the State of Florida in the United States in 1962 in which 231 cases were reported.

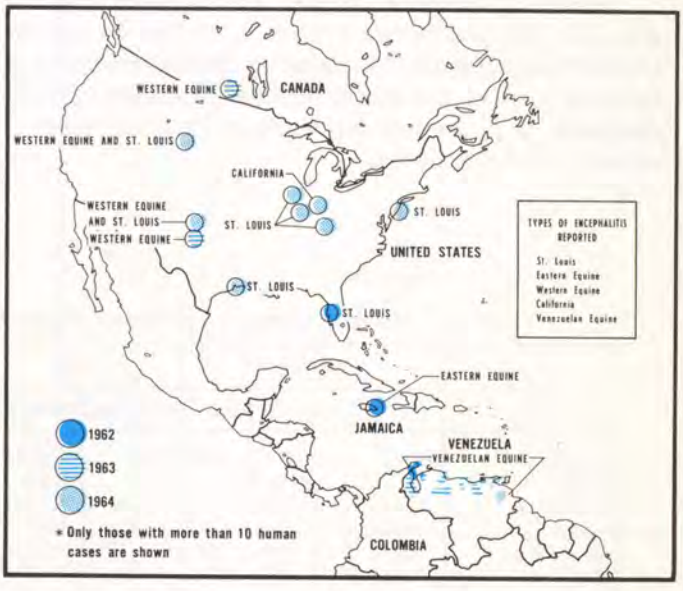
In 1963 outbreaks of Western equine encephalitis occurred in the Province of Saskatchewan, Canada with 38 confirmed cases and in Hale County, Texas in the United States with 41 confirmed cases.

In 1964 outbreaks of St. Louis encephalitis occurred in the States of Colorado, Illinois, Indiana, Kentucky, New Jersey, Tennessee and Texas in the United States. The largest with 221 cases was an urban outbreak in Houston, Texas. In addition to 470 cases of St. Louis encephalitis, 64 cases of Western equine encephalitis, 42 of California encephalitis, 5 of Eastern equine encephalitis and one attributed to Tensaw virus were reported.

The total numbers of cases of acute infectious encephalitis (Table B at the end of chapter) are larger than those attributed to arthropod-borne encephalitis. In the United States cases of primary infectious encephalitis including those of unknown etiology totalled 2,002 in 1964. In addition, 1,585 cases of postinfectious encephalitis were reported.

Figure 4

OUTBREAKS* OF ARTHROPOD BORNE ENCEPHALITIS BY TYPE, IN THE AMERICAS, 1962-1964



INFECTIOUS HEPATITIS

Reporting of cases of infectious hepatitis is now more widespread than in the past, probably due in part to the improvement in the diagnosis of cases and the inclusion of this disease as notifiable. In 1964 cases were reported from 18 countries and eight other areas while in 1960 reports were received from only 10 countries and six other areas. However, the incidence varies widely. The numbers of reported cases per 100,000 population in the 12 years 1953-1964 are shown in Figure 5 for six countries. In the United States and Canada the epidemicity of the disease stands out clearly. In 1953 in both countries the incidence was high declining to a low in 1957 or 1958. Cases then started to increase each year reaching another peak in 1961. In the United States cases then began to decline but the rate remained at a high level in Canada for a year longer before the decrease began.

The patterns in the Latin American countries are not as clear. The curves are more irregular and except for yearly fluctuations epidemic cycles are not evident. However, in several countries such as in Peru and Costa Rica incidence rates have been as high

as in the United States and Canada for a large part of the period shown. Increases have occurred in Argentina and Mexico from very low case rates at the beginning of this 12 year period. However, this may be attributable to reporting practices.

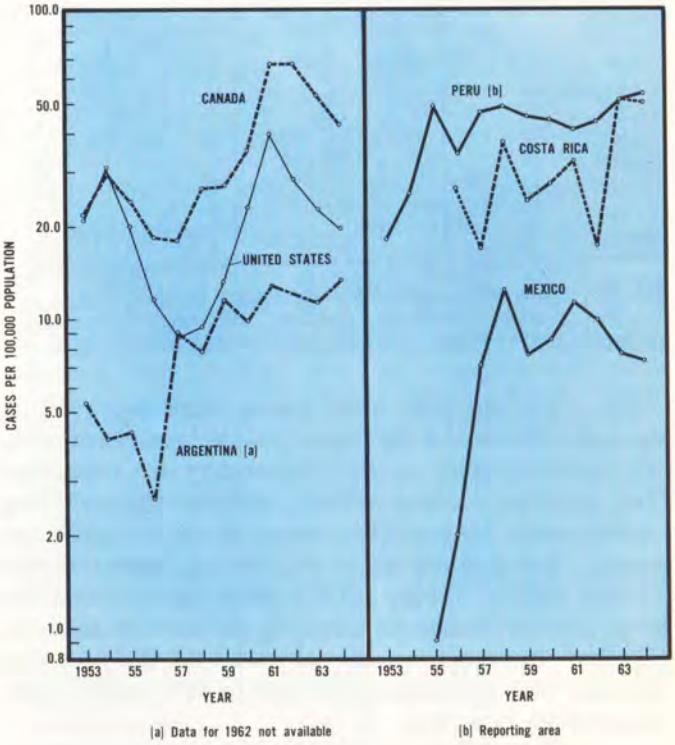
Information is provided in Table 4 for 17 countries and 14 other areas for which cases were reported. In St. Pierre and Miquelon, islands with a total estimated population of 5,000, 630 cases of infectious hepatitis were reported in 1962 which represented 12.6 per cent of the population. In this epidemic attack rates were high in adults of all age groups and low in childhood.

Age distributions of reported cases vary widely. The maximum incidence occurs at school ages in the United States and then falls off gradually. In Peru the incidence is high among children under 5 years; however, the incidence is higher among young adults and remains high throughout the age span.

Similarly seasonal trends are variable in countries for which data are available. In Canada and the United States the disease shows a distinct increase in incidence during the winter months. In Mexico the peak incidence is in the late fall while in Peru no seasonal pattern can be detected.

Figure 5

REPORTED CASES OF INFECTIOUS HEPATITIS PER 100,000 POPULATION IN SIX COUNTRIES, 1953-1964



(a) Data for 1962 not available

(b) Reporting area

Table 4. Reported Cases of Infectious Hepatitis with Rates per 100,000 Population, by Country, 1961-1964

Country	Number				Rate			
	1961	1962	1963	1964	1961	1962	1963	1964
Argentina	2720	...	2447	2931	12.9	...	11.3	13.3
Brazil	...	...	a) 424	...	...	...	2.8	...
Canada (b)	12314	12538	10077	8218	67.4	67.4	53.2	42.6
Chile	90	250	249	618	1.1	3.1	3.0	7.4
Costa Rica	394	219	684	695	32.2	17.2	50.9	50.1
Cuba	349	3615	4659	5249	5.0	51.1	64.4	70.6
Dominican Republic	...	...	186	2	...	...	5.5	0.1
El Salvador	c) 152	c) 335	994	1069	10.3	22.1	36.5	37.9
Haiti	103	109	...	≠ 138	2.4	2.5	...	3.0
Honduras	...	*	...	c) 252	...	*	...	20.2
Jamaica	164	118	100	71	10.0	7.2	5.9	4.1
Mexico	4074	3727	2961	2940	11.3	10.0	7.7	7.4
Panama	...	...	135	185	...	...	11.7	15.6
Paraguay (c)	197	209	182	99	16.6	17.1	16.5	9.0
Peru (c)	1987	2251	2451	2890	40.7	43.7	50.9	53.5
United States (b)	72651	53016	42974	37740	39.7	28.5	22.8	19.7
Uruguay	...	...	...	≠ 1338	...	...	...	49.9

Country	Number				Rate			
	1961	1962	1963	1964	1961	1962	1963	1964
Antigua	5	...	-	1	8.9	...	-	1.7
Bahama Islands	...	...	9	d) 14	...	...	6.7	...
Bermuda	8	5	≠ 8	6	17.8	10.9	17.0	12.5
British Guiana	-	41	*	*	-	6.9	*	*
British Honduras	-	4	3	≠ -	-	4.1	3.0	-
Canal Zone (b)	15	17	14	≠ 13	34.9	37.8	28.0	24.1
Cayman Islands	...	-	1	≠ -	...	-	(11.1)	-
Dominica	...	2	6	≠ 12	...	3.3	9.5	18.8
Montserrat	30	...	...	1	230.8	...	...	(7.7)
Puerto Rico (b)	1059	1114	949	1159	44.0	45.3	37.7	44.9
St. Kitts-Nevis and Anguilla	54	38	19	...	91.5	63.3	31.1	...
St. Pierre and Miquelon	-	630	...	...	-	e) (12.6%)	...	...
Turks and Caicos Islands	3	-	-	≠ 1	(50.0)	-	-	(16.7)
Virgin Islands (US) (b)	2	...	3	...	5.9	...	7.5	...

(a) Data for Federal District, States of Guanabara and Pernambuco, and capitals of 9 other states. (b) Including serum jaundice. (c) Reporting area. (d) Hospital data. (e) Rate of 12,600.0 per 100,000 population. ≠ Provisional data. ( ) Rate based on less than 10 cases in a population of less than 20,000. * Disease not notifiable.

LEPROSY

The case rates per 100,000 population for the past 10 years are shown in Figure 6 for Middle and South America. The slight downward trend in South America is due principally to the decrease in Brazil from which over two-thirds of the cases in South America are usually reported. Information on cases with rates per 100,000 population is given in Table C for the four years 1961-1964. The highest case rates are for French Guiana, Surinam and Paraguay (133.3, 89.5 and 30.8 respectively in 1964).

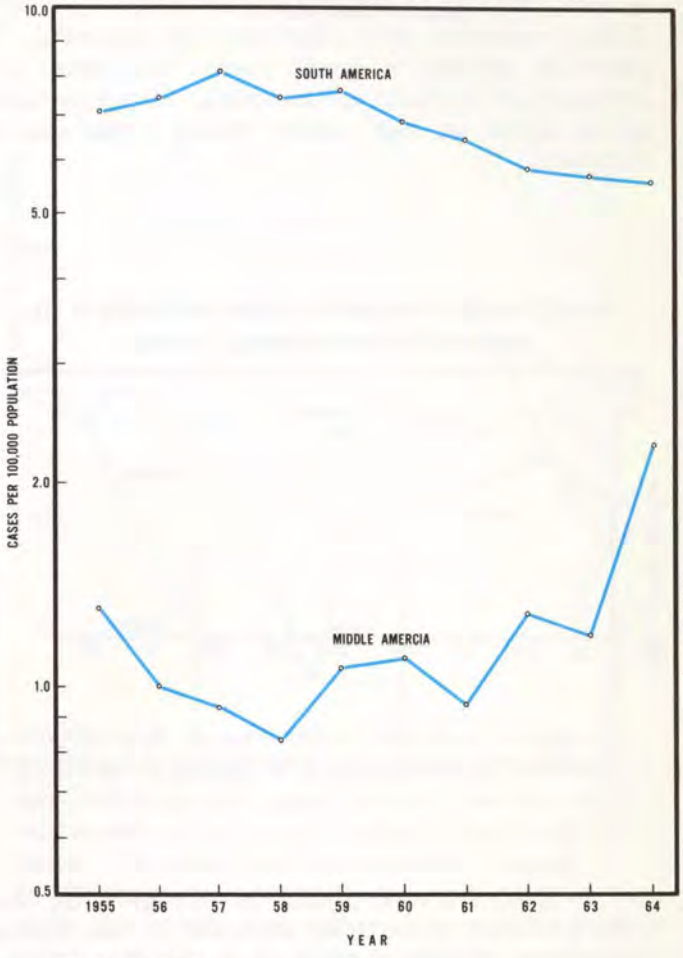
However, when cases of leprosy are distributed by major political divisions within countries, the areas of both the highest incidence and prevalence rates[1] are found to be concentrated in an area of South America covering large parts of Brazil and the contiguous areas of neighboring countries. A limited area of relatively high prevalence is also observed in Middle America in the western part of Mexico.

It has been estimated that there are over 200,000 cases of leprosy in the Americas. Active case registers in the region include 152,000 of whom 72 per cent are under surveillance.

Cases of leprosy continue to be reported from practically every country and island of the Americas. The total varies depending on case-finding activities in the countries; however, the variation in the last 10 years has been from around 9,000 to over 10,000 cases per year.

Figure 6

REPORTED CASES OF LEPROSY PER 100,000 POPULATION IN TWO REGIONS OF THE AMERICAS, 1955-1964



NOTE: Excluding Ecuador

MALARIA

Two sources of information are available for cases of malaria, the official data from the notifiable disease reporting system and data from the malaria eradication service of each country. Coordination of these two programs in each country is highly desirable especially in the surveillance and maintenance phases of malaria eradication programs. In this document the official data are used, both for reported cases of malaria and for deaths certified as due to malaria in the official vital statistics of the country. Another document[2] for the Conference provides data on cases confirmed by laboratory diagnosis as well as information regarding the extent and type of case finding and the numbers of examinations of blood smears.

Table D gives the numbers of reported cases and deaths with rates per 100,000 population for the four years 1961-1964.

1/ *Reported Cases of Notifiable Diseases*, 1961 and 1963.

2/ *Report on the Status of Malaria Eradication*, XIV Report, CPS/17/4, PAHO, 1966.

Interpretation of the trends of case and death rates is difficult because of the effect of eradication programs on case-finding. Case rates for six countries in Middle America and six countries in South America are shown in Figures 7 and 8 for the period 1955-1964. In Middle America the case rates for Costa Rica and Panama, although high, have declined as a result of the programs initiated in both countries in 1957. In Mexico and Nicaragua changes in case-finding activities have increased the reporting of cases of malaria in recent years. The recent increases in El Salvador and Guatemala although perhaps not as great as they appear reflect a true rise in incidence.

Figure 7

REPORTED CASES OF MALARIA PER 100,000 POPULATION IN SIX COUNTRIES OF MIDDLE AMERICA, 1955-1964

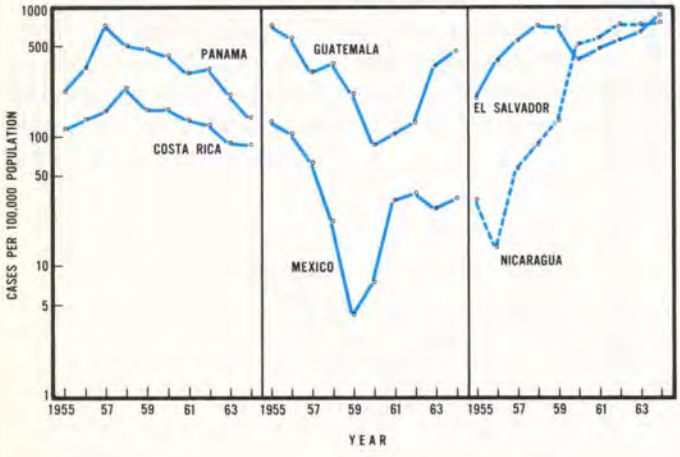
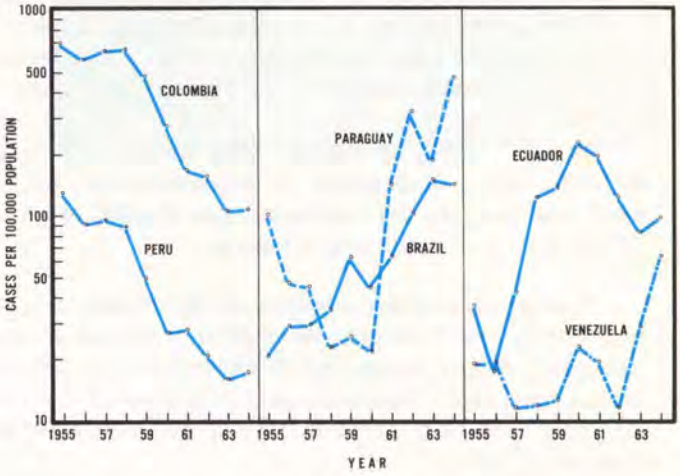


Figure 8

REPORTED CASES OF MALARIA PER 100,000 POPULATION IN SIX COUNTRIES OF SOUTH AMERICA, 1955-1964



In South America, similarly, the augmenting case rate in Brazil stems from expansion of case-finding operations. The sharp decrease in Colombia may not be as great as it appears. In recent years the more malarious parts of the country have been those newly settled and the coverage by the notifiable disease reporting system may be incomplete. In Ecuador a decline has been recorded in recent years. In Venezuela and Paraguay increases in cases have occurred in 1963 and 1964, although comparison with figures of confirmed cases in the latter country indicates that the increase shown in Figure 8 is excessive.

Coordination of the reporting systems for notifiable diseases and the malaria eradication services is clearly necessary if accurate data are to be obtained. In several countries, reported cases of malaria are lower in some years than the number of cases confirmed by laboratories of the national eradication service, which indicates that coordination is lacking and that case reporting through the notifiable disease system is incomplete. In other countries or years, the reverse is true and reported cases exceed confirmed cases; this may, particularly in earlier years, reflect the incomplete coverage obtained by the eradication service but in several instances, especially in recent years, the difference arises from inaccurate diagnoses and the lack of procedures for investigation and confirmation of reported cases ascribed to malaria. When this situation occurs, information available from the malaria eradication service can indicate at what point in time it becomes necessary and operationally practicable to set up within the general health services a procedure for investigation and confirmation of reported malaria cases.

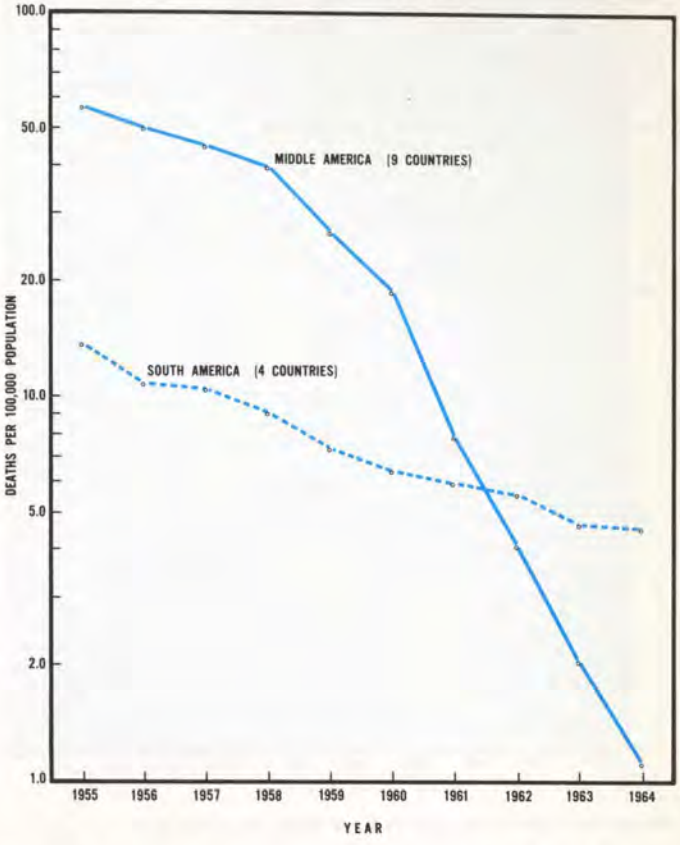
Usually death rates are a more reliable indicator than case rates since they are not influenced by case-finding activities. However, the emphasis placed on malaria by an eradication program undoubtedly results in an improvement of the accuracy of diagnoses which may contribute to the decrease in the number of deaths certified as caused by malaria. The malaria death rates for the countries and other areas for which data were available, in South America and Middle America, are shown in Figure 9. Reductions are noted in both regions. In 1964 the number of deaths certified as malaria was 2,060. Deaths attributed to malaria should

also be investigated especially in the final phases of malaria eradication.

The numbers of cases and deaths from malaria are drastically reduced by eradication program activities and it becomes feasible when they have reached low levels to institute investigation into all reported cases and deaths in order to ensure that laboratory confirmation has been made and that the diagnosis of malaria is justified for all cases and deaths reported as due to this disease. Such a procedure is essential in countries in advanced stages of eradication campaigns or which have already achieved eradication, and personnel employed in case reporting and death registration must be kept constantly alert to the importance of any newly-reported case or death from malaria and the necessity for immediate investigation.

Figure 9

DEATHS FROM MALARIA PER 100,000 POPULATION IN TWO REGIONS OF THE AMERICAS, 1955-1964



MEASLES

Although measles is usually considered a relatively mild disease of childhood, in many Latin American countries it is a severe disease resulting in a high death rate in children under 5 years of age. The numbers of reported cases per 100,000 population for the three regions are shown in Figure 10. In the last two years the case rate in South America exceeds slightly the case rate in Northern America.

For both the Middle and South American regions high death rates of 15 to 20 per 100,000 population are noted for several of the years in the past decade in Figure 11. In several countries, a marked increase has occurred in the death rate from this disease. For example, in 1955 the death rate in Chile was 8.0 per 100,000 population while in 1964 it was nearly five times as high, 38.9.

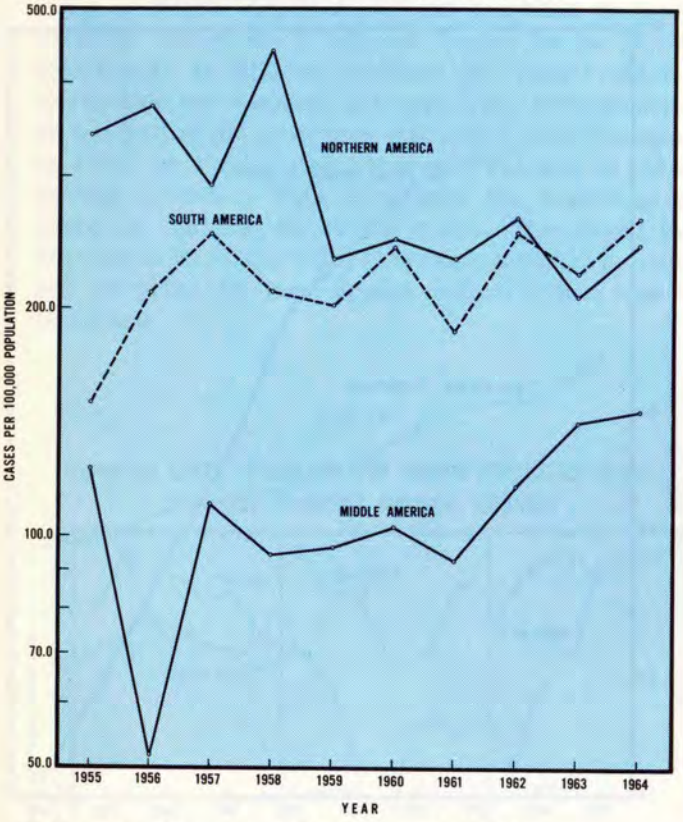
Table E provides information on cases and deaths for the four-year period. The countries with very high death rates in the period are Chile, Ecuador and Peru in South America and Costa Rica, El Salvador, Guatemala, Honduras and Mexico in Middle America.

The annual publication *Reported Cases of Notifiable Diseases in the Americas, 1964* contains an analysis of trends of case fatality rates and case and death rates by age groups. In 1963-1964 there were only 7 reported cases per death in Middle America and 21 cases per death in South America which is in marked contrast to 1,057 reported cases per death in Northern America. Although deficiencies in reporting may account in part for the high case fatality rates, actually high proportions of the cases in Latin America occur in infancy and early childhood which are the ages with high case fatality rates. However, the death rate in each age group is in excess of that in the United States. The death rate from measles in infants is 100 to 200 times higher in Chile than in the United States while for school age children it is 10 to 30 times higher. In 10 of 18 Latin American countries for which data are available, measles was one of the first five principal causes of death in 1964 among children of 1-4 years of age. The greater severity of the disease may be related to malnutrition which is a serious health problem in many parts of Middle and South America.

In 1963 the National Health Service in Chile initiated a vaccination program and in 1964, 242,266 children were vaccinated. Thus steps are being taken to reduce morbidity and mortality. Up to this time the use of measles vaccine has been extremely limited. However, it offers a preventive measure to attack one of the most frequent causes of child mortality.

Figure 10

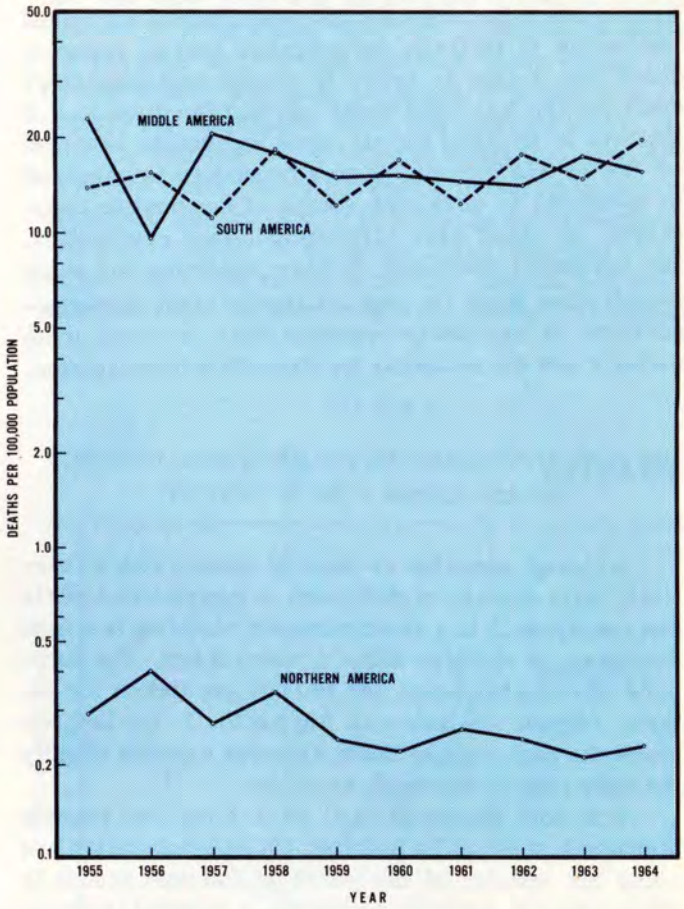
REPORTED CASES OF MEASLES PER 100,000 POPULATION IN THREE REGIONS OF THE AMERICAS, 1955-1964



NOTE: Excluding 1 country of Northern America, 2 of Middle America and 2 of South America

Figure 11

DEATHS FROM MEASLES PER 100,000 POPULATION IN THREE REGIONS OF THE AMERICAS, 1955-1964



NOTE: Excluding 1 country of Middle America and 3 of South America

PLAGUE

Plague has been considered an important problem of the Pan American Health Organization throughout its period of existence. In fact the control of the spread of plague was one if its first goals. During the twentieth century plague has been known to exist in fifteen of the American countries. In the past 20 years reported human cases of the disease have been limited to seven countries, Argentina, Bolivia, Brazil, Ecuador, Peru, United States and Venezuela.

A steady decrease in human cases has occurred from the beginning of the century until 1959, when only 93 cases were reported. Since that time a definite upward trend has occurred with 848 cases reported in 1965. Substantial increases have occurred in Bolivia, Brazil, Ecuador and Peru. Sylvatic (wild rodent) plague persists in these areas. Table 5 gives a record of the reports by countries for the decade 1956-1965. Of 3,476 cases reported in this decade 3,447 have been in these four countries. The remaining 29 have been from Argentina (1), United States (18), and Venezuela (10).

Table 5. Reported Cases of Plague by Country, 1956-1965

Country	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965 (a)
Total	115	154	97	93	258	308	527	423	653	848
Argentina	-	-	1	-	-	-	-	-	-	-
Bolivia	3	-	-	-	12	20	-	53	49	149
Brazil	4	37	25	16	28	106	36	39	285	119
Ecuador	80	79	22	40	77	105	326	258	194	374
Peru	24	37	49	33	139	68	164	72	125	200
United States	1	1	-	4	2	3	-	1	-	6
Venezuela	3	-	-	-	-	6	1	-	-	-

(a) Provisional

The situation regarding plague is analyzed in greater detail in the *Quadrennial Report of the Director, 1962-1965* and in the publication *Plague in the Americas*.

POLIOMYELITIS

Immunization against poliomyelitis has changed dramatically morbidity and mortality from this disease. In 1955 at the beginning of the 10-year period for which case and death rates are shown in Figure 12, 30,000 cases and over 1,000 deaths were reported in Northern America. In 1964, however, the number of cases reported was only 141 and deaths numbered 22 (Table F). This is outstanding evidence of the effectiveness of the immunization programs in Canada and the United States.

In Middle and South America epidemics have occurred such as the one in Argentina in 1956, in Honduras in 1958 and in the Dominican Republic in 1963. Undoubtedly reporting of poliomyelitis has improved in this period. By the end of the period of 1964 immunization programs were reaching several millions. The combination of these factors makes interpretation of trends for Latin America difficult. In both Middle and South America the numbers of cases per 100,000 population have declined.

The reduction of cases in Middle America is due in large part to reduction of cases in Mexico, a country in which several millions were vaccinated each year. Also in Cuba over two million people were vaccinated in 1962 and only one case was reported in 1963 and one in 1964.

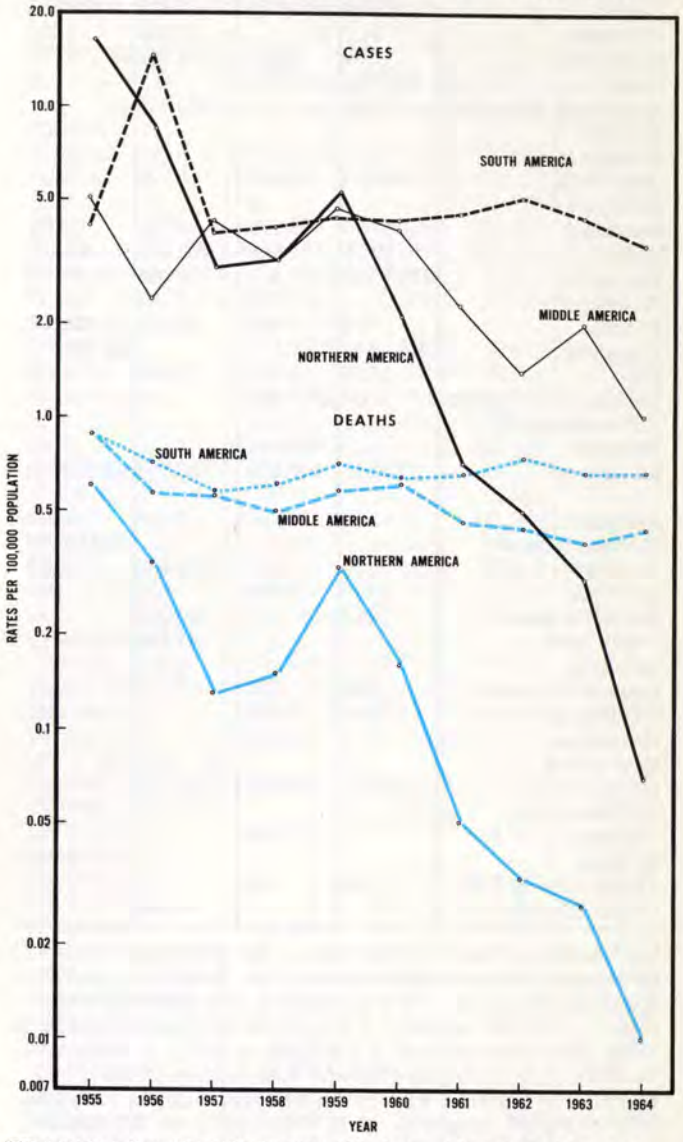
In South America, a decrease is noted in Argentina to a low rate of 2.5 cases per 100,000 population in 1964. However, 2,615 cases were reported in 1964 for South America (excluding Brazil for which information is not available) and the case rate of 3.6 per 100,000 population is relatively high. The provisional case rate for 1965 for eight of the South American countries is much lower which indicates that the immunization programs are probably being extended widely enough to affect case rates.

Death rates from poliomyelitis are also shown in Figure 12. In Middle and South America they appear to have declined only slightly. However, lack of data for Argentina and Bolivia as well as for Brazil in South America complicates interpretation of the situation. Excluding these three countries the deaths numbered 315 in 1964 which gave a death rate of 0.7 per 100,000 population. In Middle America there were 274 deaths in 1964 (0.4 per 100,000 population).

The large numbers of persons immunized in the Americas are given in Table 6. In the United States, the widespread application of inactivated poliovaccine began in 1955, followed by extensive use of oral poliovaccine commencing in 1961. Through 1964, approximately 465 million doses of inactivated vaccine and over 100 million doses of each monovalent oral vaccine had been administered.

Figure 12

REPORTED CASES AND DEATHS FROM POLIOMYELITIS PER 100,000 POPULATION IN THREE REGIONS OF THE AMERICAS, 1955-1964



NOTE: Data refer to 10 countries and 14 other areas in Middle America and 7 countries and 2 other areas in South America for deaths; and for cases to all countries and areas except Brazil

In Canada, since 1955 over 55 million doses of Salk vaccine were distributed and since March 1962 more than six million doses of a trivalent oral vaccine were administered. The data for Mexico include almost equal numbers of immunizations with inactivated and live vaccine for the years 1961-1963, but only the

Table 6. Persons Immunized Against Poliomyelitis, by Country, 1961-1964

Country	1961	1962	1963	1964
Argentina	800 000	600 000	5 000 000	
Bolivia	...	...	102 696	...
Brazil (a)	...	1 006 888	104 558	629 065
Canada	...	...	b) 500 000	c) 2 850 000
Chile	16 883	913 169	90 433	466 521
Colombia	...	...	c) 76 592	18 428
Costa Rica	1 189	5 000	c) 164 028	c) 27 207
Cuba	546 710	2 219 907	...	...
Dominican Republic	2 709	...	580 209	...
Ecuador	...	...	...	228 533
El Salvador	...	...	5 621	...
Guatemala	28 400	12 550	15 200	...
Haiti	...	8	...	...
Honduras	5 534	21 179	9 129	7 202
Jamaica	6 417	17 565	d) 103 446	16 261
Mexico (e)	3 935 450	7 305 401	6 218 666	3 450 000
Nicaragua	...	398	7 198	20 177
Panama	614	2 669	55 375	32 007
Paraguay	f) 849	f) 513	...	g) 24 737
Peru	1 139	3 155	12 859	3 175
Trinidad and Tobago	h) 90	h) 122	...	...
United States (i)	...	...	...	...
Uruguay	...	735 234	...	...
Venezuela	210 243	207 189	232 604	1 514 131
Antigua	...	...	1 155	7 126
Bahama Islands	...	...	...	c) 112 000
Barbados	290	347	cj) 49 488	1 705
Bermuda	6 477	2 998	521	257
British Guiana	1 424	...	120 000	...
Canal Zone	...	...	47 135	...
Dominica	...	...	5 000	...
Falkland Islands	228	110	...	...
Guadeloupe	258	1 163	...	642
Martinique	5	105	...	...
Montserrat	...	...	c) 773	c) 872
Puerto Rico	48 243	32 189	422 858	...
St. Pierre and Miquelon	57	89	...	...
Surinam	...	...	...	2 100
Virgin Islands (UK)	100	100	...	...
Virgin Islands (US)	...	...	298	...

(a) Interior of State of São Paulo. (b) Minimum estimate. (c) Number of doses administered. (d) In addition 44, 382 doses administered. (e) Vaccinations with inactivated vaccine: 1, 635, 450 in 1961, 3,905,401 in 1962 and 3,718,666 in 1963; oral vaccinations: 2. 3 million in 1961, 3. 4 million in 1962, 2. 5 million in 1963 and 3. 45 million in 1964. (f) Data for Capital. (g) Provisional data. (h) Excluding data from school program. (i) In 1961-1964 over 100 million doses of each type of monovalent oral vaccine were administered. (j) Incomplete data.

number of oral vaccinations was supplied for 1964. According to a published estimate, 75 per cent of the children under 6 years of age in Mexico were vaccinated in 1959-1964.

Large scale mass oral vaccination programs for young children were carried out in Cuba and Uruguay in 1962, in Puerto Rico in 1963 and in Venezuela in 1964. In Venezuela the greater part of the campaign was carried out in one day for each of the two doses; 1,354,210 children received the second dose of oral vaccine in 1964 and 159,921 the third dose of Salk vaccine. Large numbers of children were given oral vaccine in emergency campaigns due to outbreaks of poliomyelitis in Chile in 1962 and in the Dominican Republic, Barbados and British Guiana in 1963.

RABIES

Rabies is an invariably fatal disease. Thus the numbers of deaths by countries should give a complete record of cases. In a few countries for which information was not available from mortality statistics the numbers of cases have been given instead in parenthesis in Table 7. In each of the four years, 1961 to 1964, over 200 deaths from rabies have occurred in the Americas. Prior to this the number varied from 145 to 195.

In this 10-year period rabies deaths occurred in 21 countries and three other areas. Only the three countries Jamaica, Panama and Trinidad and Tobago had no rabies in man.

Table 7. Number of Deaths from Rabies by Country,* 1955-1964

Country	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964
Total	195	193	172	183	159	145	229	214	243	239
Argentina	22	16	13	(8)	20	(13)	(22)	(40)	(32)	(20)
Bolivia	(1)	-	-	(3)	(9)	(2)	...	-	(1)	-
Brazil (a)	...	...	...	...	...	...	29	19	26	...
Canada	-	-	-	-	2	-	1	-	-	1
Chile	8	4	2	5	5	7	5	6	2	5
Colombia	31	30	41	40	26	28	32	35	31	40
Costa Rica	-	-	2	-	-	-	-	-	-	-
Cuba	(1)	-	(2)	(2)	7	-	(1)	-	3	-
Dominican Republic	-	-	-	-	-	(1)	2	1	1	3
Ecuador	36	15	11	11	14	11	14	13	8	20
El Salvador	1	4	2	6	4	4	9	6	5	(5)
Guatemala	9	3	4	5	8	10	12	10	4	9
Haiti	(1)	-	-	-	-	...	(1)	1	-	-
Honduras	1	-	2	-	-	-	4	3	3	7
Mexico	54	72	47	55	(30)	(49)	62	46	91	90
Nicaragua	...	-	-	(1)	...	-	-	-	-	2
Paraguay	(3)	5	1	1	1	-	2	-	-	-
Peru	(7)	(15)	(26)	(10)	(8)	(11)	(17)	(11)	(9)	(17)
United States	4	10	5	5	7	2	3	1	2	1
Uruguay	-	-	-	-	-	-	-	-	-	(1)
Venezuela	15	19	14	31	14	5	6	21	25	19
British Guiana	-	-	-	-	2	2	-	-	-	...
Granada	...	...	...	...	-	-	-	1	-	...
Surinam	1	...	-	-	-	-	-	-	-	-

*When report of deaths from rabies was not available, case reports are used as (). (a) Data for the State of São Paulo only.

SMALLPOX

Although progress has been made in the eradication of smallpox, cases were reported from five countries in 1965 (Table 8). However, 86 per cent of the cases were reported from Brazil.

Revised figures for Brazil for 1961, 1962 and 1963 were given in a report of the activities of the National Campaign against Smallpox received in September 1964. The numbers of confirmed cases were obtained from the Secretariats of Health of the States, agencies of the Ministry of Health functioning in the States and other agencies cooperating in the Campaign. At that time it was stated that the data regarding reported cases and deaths were very incomplete especially in the interior of the country. The data available at present for 1965 are probably incomplete and may later be revised in a similar way.

Table 8. Reported Cases of Smallpox by Country, 1955-1965

Country	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965 ≠
Total	8348	6389	6220	4655	5092	5524	8992	9719	7126	3218	1547
Argentina	55	86	335	27	36	65	6	a) 2	-	a) 13	b) 15
Bolivia	372	499	1310	183	7	1	-	-	-	5	-
Brazil (b)	2580	2385	1411	1544	2958	3010	8473	9450	6211	2673	1333
Canada	-	-	-	-	-	-	-	c) 1	-	-	-
Chile	-	-	-	-	1	-	-	-	-	-	-
Colombia	3404	2572	2145	2009	950	209	16	41	d) 4	d) 21	149
Ecuador	1831	669	913	863	1140	2185	496	204	45	e) 42	-
Panama	-	-	a) 8	-	-	-	-	-	-	-	-
Paraguay	57	132	103	21	-	35	-	-	-	7	32
Peru	-	-	-	-	-	-	-	-	865	454	18
United States	f) 2	-	f) 1	-	-	-	-	-	-	-	-
Uruguay	45	42	2	-	-	a) 19	c) 1	a) 10	c) 1	a) 3	-
Venezuela	2	g) 4	-	-	-	-	-	11	-	-	-

(a) Including imported cases. (b) Incomplete data in 1955-1960: States of Guanabara and capitals of several other States (and State of Rio Grande do Sul in 1958-1960); no data available for territories in 1964. (c) Imported case. (d) Confirmed cases only. (e) Hospital data; cases not confirmed. (f) These cases do not fulfill the generally accepted criteria for a diagnosis of smallpox. (g) Clinical diagnosis not supported by epidemiological evidence. ≠ Provisional data.

An epidemic of mild smallpox occurred in Peru in 1963 and 1964 in the Departments of Loreto and Amazonas. Due to the characteristics of the jungle region of Peru information on the occurrence of cases is difficult to obtain. A mass vaccination campaign was undertaken with the objective of reaching the most isolated places of the Peruvian Amazon area. In 1964 smallpox cases were reported after a lapse of several years in Bolivia and Paraguay. Since 1959, except for one imported case in Canada, all reported cases have been in South America.

The numbers of smallpox vaccinations continue to be large, even though data are lacking for some countries. Table 9 shows the large vaccination pro-

Table 9. Number of Smallpox Vaccinations, by Country, 1961-1964

Country	1961	1962	1963	1964
Total	15 638 739	18 541 319	34 500 503	40 049 604
Argentina	4 569 523	1 351 772	631 445	284 239
Bolivia	34 215	164 449	517 270	535 049
Brazil	...	...	5 557 127	8 016 713
Chile	382 946	703 302	988 457	1 482 113
Colombia	2 228 375	1 377 001	1 594 164	1 701 972
Costa Rica	78 138	107 588	39 224	198 407
Cuba	119 758	139 698	50 775	63 173
Dominican Republic	10 000	27 388	20 492	31 383
Ecuador	550 000	1 180 000	768 852	642 977
El Salvador	40 499	133 606	274 038	435 839
Guatemala	73 080	127 004	127 159	544 385
Haiti	a) 6 582	180 719	350 156	419 702
Honduras	9 570	120 549	89 255	91 105
Jamaica	70 129	140 094	55 061	73 927
Mexico	2 575 696	7 302 563	7 345 366	7 323 964
Nicaragua	17 608	19 280	63 840	94 752
Panama	22 444	21 411	23 010	39 716
Paraguay	104 368	175 705	88 350	157 665
Peru	849 392	591 750	1 209 686	3 353 119
Trinidad and Tobago	43 938	48 820	40 730	44 901
United States (b)	2 418 113	2 858 159	13 360 000	13 298 000
Uruguay	188 674	214 277	55 364	188 702
Venezuela	1 133 543	1 322 559	1 082 027	978 142
Antigua	1 777	1 273	3 552	1 558
Bahama Islands	...	3 196	7 653	2 749
Barbados	14 070	88 763	4 591	10 490
Bermuda	...	...	...	1 500
British Guiana	...	6 982	4 087	7 477
British Honduras	...	10 617	5 936	...
Canal Zone	11 400	14 036	18 615	...
Cayman Islands	...	...	...	900
Dominica	1 351	2 315	1 250	1 585
Falkland Islands	247	677	...	...
French Guiana	...	1 122	1 922	1 227
Grenada	1 452	...	1 445	2 477
Guadeloupe	14 376	14 254	...	...
Martinique	8 965	10 665	11 641	9 779
Montserrat	459	569	873	458
Puerto Rico	43 412	59 870	95 066	...
St. Kitts-Nevis and Anguilla	2 935	2 487	2 058	2 035
St. Lucia	...	...	1 500	...
St. Pierre and Miquelon	220	910	...	...
St. Vincent	2 079	2 405	1 512	1 820
Surinam	8 400	5 286	6 000	5 435
Turks and Caicos Islands	351	...	58	65
Virgin Islands (UK)	46	117	73	104
Virgin Islands (US)	608	8 081	823	...

(a) Primary vaccinations. (b) Excluding vaccinations by private practitioners and in non-governmental institutions, in 1961-1962; estimates based on surveys, in 1963-1964.

gram being carried out. In 1964, excluding the United States, 26,751,604 vaccinations were reported. The two countries with the largest programs were Brazil with 8,016,713 and Mexico with 7,323,964 vaccinations against smallpox in that year. Peru extended its vaccination program in 1963 and 3,353,119 vaccinations were reported for 1964. In the United States, based on surveys, approximately 13 millions were vaccinated in each of the years 1963 and 1964.

SYPHILIS

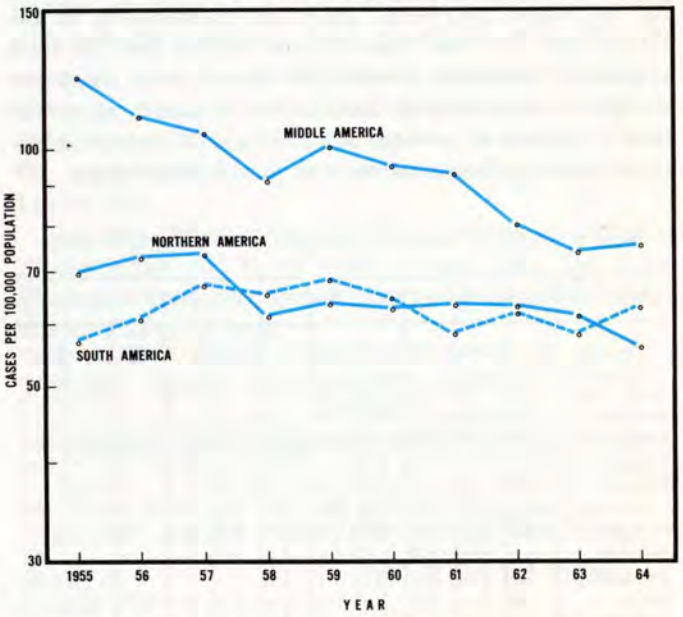
The numbers of reported cases of syphilis continue to be very large; in 1964, 117,097 cases were reported in Northern America, 55,295 in Middle America and 36,499 in seven countries and French Guiana in South America (Table G). The total number of cases exceeds 200,000 for the region. Figure 13 shows the downward trend in the case rates for the 10 years in Middle and Northern America. However, the case rates of around 60 per 100,000 population in South America have fluctuated from year to year without a consistent reduction.

Death rates from syphilis have continued to decline in all three regions (Figure 14). In 1964 the death rates are 1.3, 1.4 and 1.3 per 100,000 population for Northern, Middle and South America respectively. Treatment has been effectively used to reduce mortality from syphilis.

For twelve countries, the numbers of cases of early syphilis have been reported (Table 10). Early syphilis includes cases of primary, secondary and other early syphilis classified under the title number 021 of the *International Classification of Diseases*. Although the information is incomplete for several countries in the eight year period shown, in some,

Figure 13

REPORTED CASES OF SYPHILIS (ALL FORMS) PER 100,000 POPULATION IN THREE REGIONS OF THE AMERICAS, 1955-1964



NOTE: Excluding 1 country of Middle America and 3 of South America

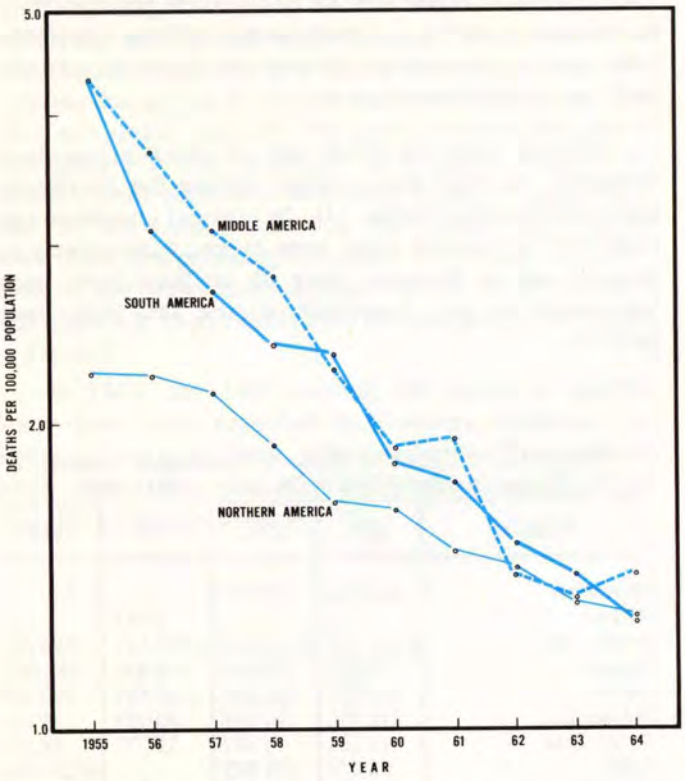
Table 10. Reported Cases of Early Syphilis with Rates per 100,000 Population by Country, 1957-1964

Country	Number								Rate							
	1957	1958	1959	1960	1961	1962	1963	1964	1957	1958	1959	1960	1961	1962	1963	1964
Argentina	1 984	1 596	1 975	4 606	1 501	...	1 572	1 315	10.1	8.0	9.7	22.3	7.1	...	7.2	6.0
Canada	192	205	389	461	591	783	845	817	1.2	1.2	2.2	2.6	3.2	4.2	4.5	4.2
Colombia (a)	3 667	4 794	5 227	4 629	5 324	6 356	b) 9 789	b) 14 992	30.5	39.2	41.5	34.3	38.7	46.6	69.2	85.8
Costa Rica	...	...	...	...	249	473	391	382	...	...	...	...	20.3	37.1	29.1	27.5
Dominican Republic	...	...	...	...	...	...	3 573	...	...	...	...	...	...	...	106.0	...
El Salvador (c)	3 171	2 869	2 436	2 699	800	1 522	2 058	5 346	276.7	227.3	185.0	184.1	54.3	100.5	75.6	189.3
Jamaica	...	...	...	...	...	639	679	206	...	...	...	...	...	38.9	40.2	11.9
Mexico	3 203	2 345	2 269	1 835	1 971	...	...	...	10.0	7.1	6.7	5.2	5.5	...	...	...
Peru (b, d)	...	...	...	1 690	2 068	2 388	2 427	2 434	...	...	...	30.2	42.4	46.3	50.4	45.1
Trinidad and Tobago	140	227	158	68	...	43	42	...	18.3	28.8	19.3	8.1	...	4.8	4.6	...
United States (e)	6 576	7 177	9 799	16 145	19 851	21 067	22 251	22 968	3.8	4.1	5.5	9.0	10.8	11.3	11.8	12.0
Puerto Rico	...	67	86	94	248	395	674	849	...	2.9	3.7	4.0	10.3	16.1	26.7	32.9

(a) Reporting area, except in 1964. (b) Including congenital syphilis. (c) Reporting area, except in 1963 and 1964. (d) Reporting area. (e) Civilian cases.

Figure 14

DEATHS FROM SYPHILIS (ALL FORMS) PER 100,000 POPULATION IN THREE REGIONS OF THE AMERICAS, 1955-1964



NOTE: Excluding 1 country of Middle America and 3 of South America

namely, Canada, Colombia, the United States and Puerto Rico, the case rates have increased rapidly and in the first three the rates in 1964 are around three times as high as in 1957. Such a rapid increase in early syphilis indicates that actions are needed to control a serious health problem.'

TETANUS

Reporting of cases of tetanus is not as complete as certification of deaths due to tetanus in many countries. The publication *Reported Cases of Notifiable Diseases, 1962,* contains a section on tetanus. In Northern America there were 1.5 cases reported per death while in Middle and South America the reported cases per death were 0.5 and 0.8 respectively.

In the Latin American countries two thirds or more of the deaths occur in children under one year of age and are principally tetanus neonatorum. In the United States in 1962 only 25 per cent of the deaths were in this age group.

Because of the high case fatality rate and the seriousness of tetanus, Table H gives the numbers of deaths from tetanus for the 10-year period 1955-1964 with rates per 100,000 population. The number of deaths has varied from around 6,000 to 10,000 even though data are lacking for several countries.

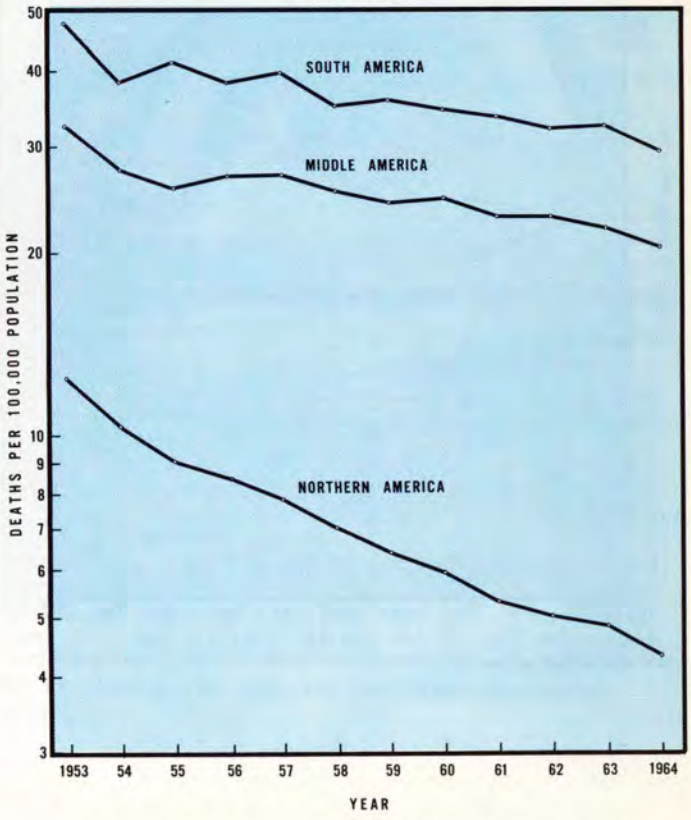
The death rates in both Middle and South America were high with the death rate for South America usually in excess of that for Middle America. In a few countries as Venezuela and Costa Rica a decrease has occurred in this 10-year period. In Ecuador, the increase in the death rate may be due to improvement of certification of the cause of death.

TUBERCULOSIS

The reduction in tuberculosis mortality which was rapid following the introduction of antibiotics and chemotherapy in the period 1948-1954 has continued at a slower rate in all three regions of the Americas in the last few years (Figure 15). In 1964 death rates were 4.3 per 100,000 population in Northern America,

Figure 15

DEATHS FROM TUBERCULOSIS, ALL FORMS, PER 100,000 POPULATION IN THREE REGIONS OF THE AMERICAS, 1953-1964



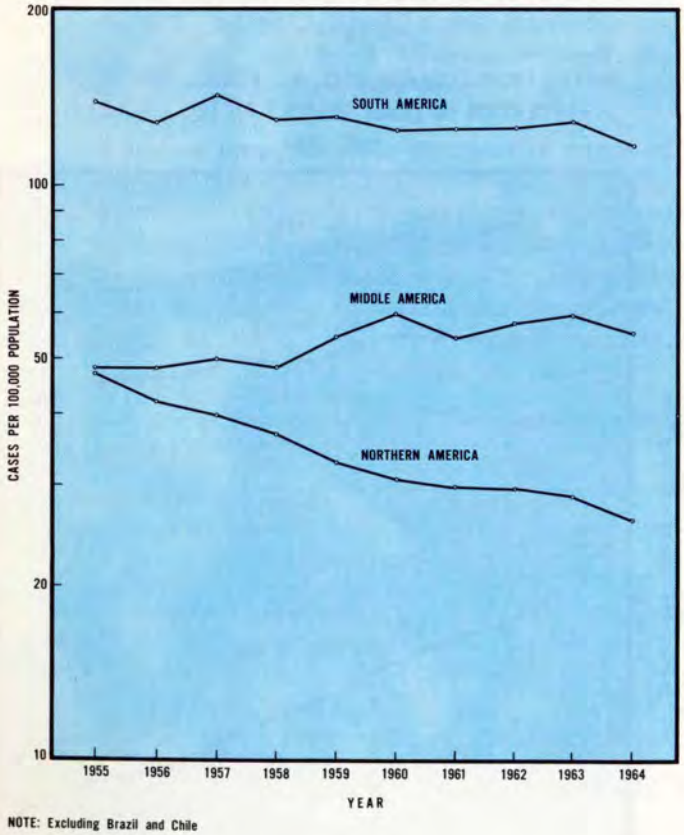
Note: Data refer to 10 countries and 15 other areas in Middle America and 7 countries and two other areas in South America, with exceptions in certain years

20.1 in Middle and 29.6 in South America.

However, the number of reported cases of tuberculosis in Middle America has increased from approximately 29,000 per year in 1957 to over 40,000 cases per year in 1962-1964. Such an increase probably results from the improvement of case-finding and reporting of cases. In South America a slight decline in the case rate was noted to 119.2 per 100,000 population in 1964 (Figure 16). In this year 70,386 cases were reported for South America excluding Brazil and Chile for which information was not available. In Northern America the case rate declined from 39.8 in 1957 to 26.3 per 100,000 population in 1964. The fact that 112,000 cases of tuberculosis were reported in Middle and South America in 1964 indicates that case-finding and treatment of cases of tuberculosis continue to be important health activities.

Figure 16

REPORTED CASES OF TUBERCULOSIS PER 100,000 POPULATION IN THREE REGIONS OF THE AMERICAS, 1955-1964



NOTE: Excluding Brazil and Chile

The numbers of reported cases and deaths from tuberculosis are given for the eight years 1957-1964 in Tables I and J at the end of this Chapter. The death rate in Canada in 1964 of 3.5 per 100,000 population is the lowest of the countries while that of Peru (districts with medical certification) was the highest, namely 66.1 per 100,000 population.

Twenty one countries and 10 other areas have reported on BCG vaccinations during the four-year period 1961-1964 (Table 11). In several countries the numbers vaccinated have been large, particularly in Brazil, and in Mexico. Over 20 millions have been vaccinated in the Americas during this four-year period.

Table 11. Number of Persons Vaccinated against Tuberculosis (BCG), by Country, 1961-1964

Country	1961	1962	1963	1964
Argentina	204 089	234 587	...	...
Bolivia	...	...	6 044	...
Brazil (a)	4 328 918	2 404 396	2 730 511	2 254 276
Canada	176 062	199 749	174 309	183 306
Chile	153 391	232 200	246 447	289 636
Colombia	274 892	187 849	93 022	125 751
Costa Rica	11 184	1 837	22 777	34 280
Cuba	93 973	127 527	...	b) 162 889
Dominican Republic	327 857	b) 9 032	...	...
Ecuador (c)	57 000	72 000	...	...
El Salvador	35 120	26 734	37 539	135 000
Guatemala	10 305	4 343	2 796	16 587
Honduras (c)	13 261	26 668	87 382	105 617
Jamaica	33 562	36 792	41 945	30 791
Mexico	304 619	411 648	543 374	2 000 000
Nicaragua	1 602	...	16 296	115 073
Panama	34 741	35 192	28 563	41 447
Paraguay	2 376	3 770	4 056	2 562
Peru	55 835	93 716	...	135 691
Trinidad and Tobago	9 869	16 818	97	...
Venezuela	506 062	c) 538 829	c) 470 268	c) 527 213
Bahama Islands	...	...	...	2 948
Barbados	2 621	3 597	7 734	8 441
British Honduras	3 603	2 075	1 532	...
Canal Zone	327	410	568	...
Falkland Islands	40	46	...	...
French Guiana	...	...	...	1 396
Guadeloupe	3 214	5 634	...	...
Martinique	3 168	1 862	...	...
St. Pierre and Miquelon	11	5	...	...
Surinam	...	...	1 028	1 028

(a) Number of doses distributed. (b) Data refer to new born only. (c) Including revaccinations.

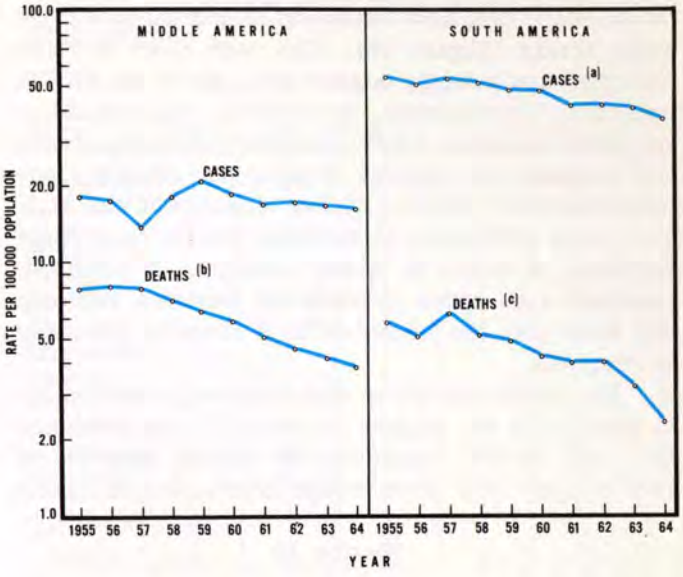
TYPHOID FEVER

Typhoid fever continue to be an important health problem; approximately 40,000 cases are reported each year in the region (excluding Brazil for which information is not available). Ninety-eight per cent of these cases are in Middle and South America. The case and death rates for the past 10 years are shown in Figure 17. The reduction in the death rates from typhoid fever in Middle and South America is greater than in the case rates. The very high case rate in South America probably indicates that higher proportions of the cases are reported than in Middle America. Data for each country for the four years are given in Table K.

In 1963 and 1964 around 700 cases of typhoid fever have been reported in Northern America, or 3 per million population. The death rate from typhoid fever has fallen and in 1963 only 22 deaths were registered and in 1964 only 17.

Figure 17

REPORTED CASES AND DEATHS FROM TYPHOID FEVER PER 100,000 POPULATION IN TWO REGIONS OF THE AMERICAS, 1955-1964



[a] Excluding Brazil. Data for 7 countries include paratyphoid fever. [b] Excluding Haiti. [c] Excluding 3 countries.

TYPHUS

The decline in louse-borne typhus or epidemic typhus, one of the six quarantinable diseases, has continued during the past decade (Table 12).

Following the low record of 279 cases of typhus reported in 1964 an increase was noted in 1965 to 427 cases. In 1965 an outbreak of 70 cases occurred in a district of Angaraes Province in the Department of Huancavelica in Peru. Also in 1965 several outbreaks with from 3 to 28 cases were reported in mountain villages of La Paz and Cochabamba Departments of Bolivia.

In Ecuador two outbreaks of 19 and 34 cases occurred in villages of Pichincha Department. Although in Mexico one outbreak of 19 cases was reported in Hidalgo State in 1965, the annual total showed a decrease; an outbreak of 58 cases occurred in 1964, in a locality of the State of Oaxaca. The disease is limited to the mountainous region of Mexico and to the Andean region of South America.

Table 12. Reported Cases of Louse-borne Typhus by Country, 1955-1965

Country	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965 (a)
Total	1 545	1 089	794	818	659	668	474	557	465	279	427
Argentina	-	-	-	-	4	-	-	-	-	-	-
Bolivia	397	216	66	15	29	7	1	1	141	64	126
Chile	7	90	9	5	6	10	6	3	11	4	11
Colombia	197	77	54	31	15	26	-	-	2	1	-
Ecuador	319	207	178	233	267	481	348	493	259	80	154
Guatemala	b) 14	b) 3	b) 1	b) 8	-	-	-	-	-	-	-
Mexico	382	324	314	432	242	106	89	3	39	86	35
Peru	229	172	125	94	96	38	30	57	13	44	101

(a) Provisional. (b) Including murine and unspecified typhus.

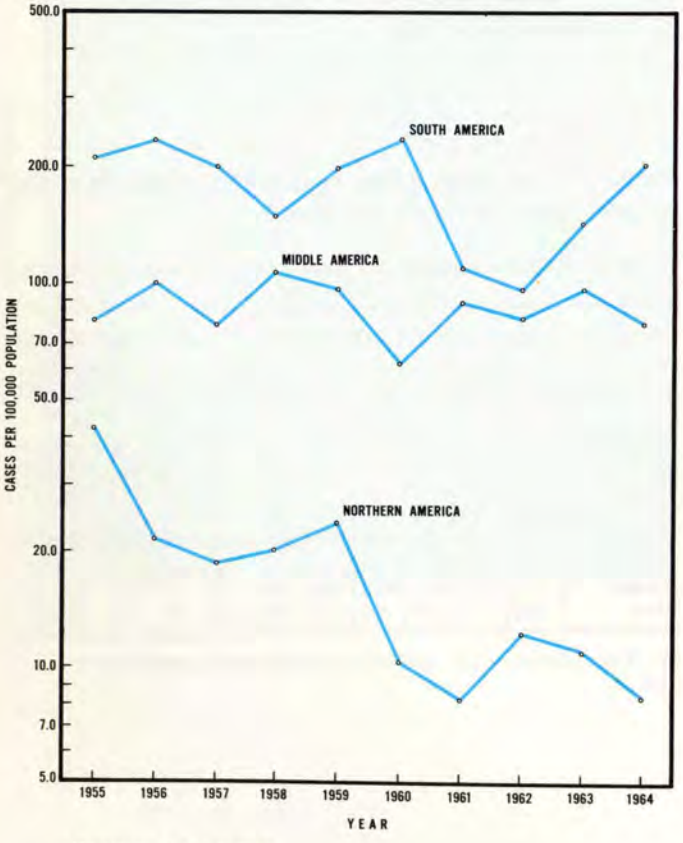
WHOOPING COUGH

Whooping cough is another common communicable disease of infancy and early childhood which continues to cause excessive morbidity and mortality in many countries of Latin America. Although case rates vary from year to year due to the epidemic occurrence of the disease, they have remained at approximately the same levels (Figure 18). The case rates in South America are usually higher than those in Middle America. For example, in 1964 for eight countries and other areas in South America (excluding Brazil and Ecuador) the number of cases per 100,000 population was 207.5 while in Middle America it was 81.3. The large difference is probably due to incomplete reporting of cases in Middle America. In contrast, reported case rates in Northern America are only one tenth and one twenty-fifth of those in the other two regions.

The death rates from whooping cough are similar in size in the two regions, namely 15.2 for South and 14.7 per 100,000 population for Middle America in 1964 (Figure 19). Even though information on deaths

Figure 18

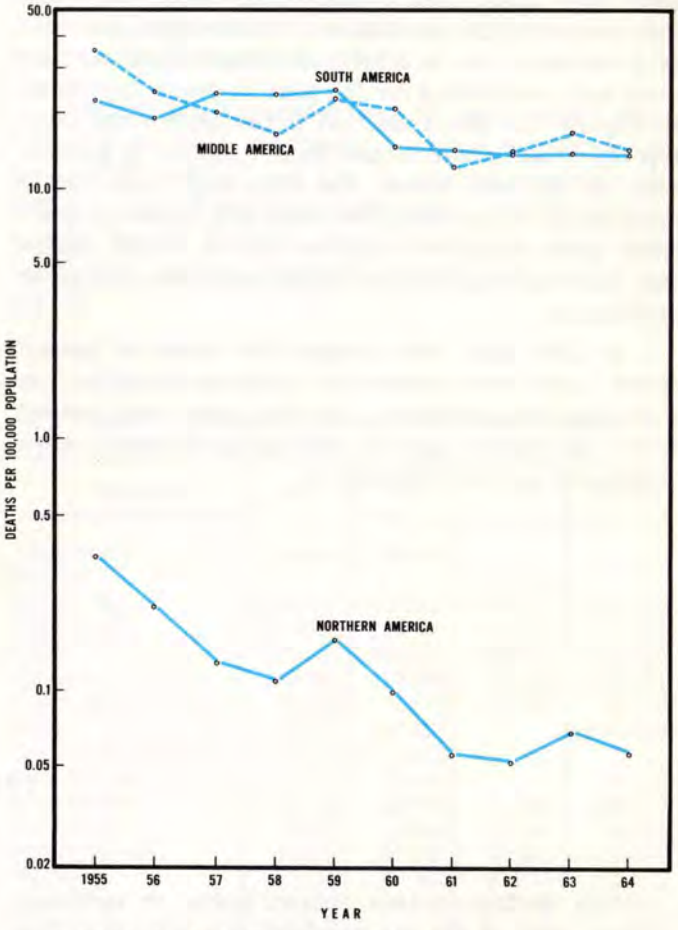
REPORTED CASES OF WHOOPING COUGH PER 100,000 POPULATION IN THREE REGIONS OF THE AMERICAS, 1955-1964



NOTE: Excluding Brazil and Ecuador.

Figure 19

DEATHS FROM WHOOPING COUGH PER 100,000 POPULATION IN THREE REGIONS OF THE AMERICAS, 1955-1964



NOTE: Excluding 1 country of Middle America and 3 of South America.

was available for only half of the population of Latin America in 1964 approximately 17,000 deaths from whooping cough were registered. In the same year in Northern America there were only 119 deaths from this disease.

The numbers of cases and deaths with rates per 100,000 population are provided for the four years in Table L.

Vaccination against whooping cough is usually given in combination with vaccination against diphtheria and tetanus through use of DPT vaccine. Thus the numbers of immunizations reported for diphtheria in Table 2 are also good indices of the size of the vaccination program against whooping cough. Reduction in morbidity and mortality is to be expected in many countries in view of the immunization programs being undertaken. However, since the disease is preventable it is imperative to ensure that immunization becomes more widely used throughout the region.

YAWS

The decline of yaws in the Americas has continued so that by the end of the period only 1,178 cases were reported (Table 13). However, no information for 1964 was received from Trinidad and Tobago and Surinam, two areas from which many cases have been reported in the earlier part of the period. In addition no data are available for Brazil where there are endemic areas of yaws.

In 1954 the largest number of cases was reported in Haiti (17,249). Following an extensive eradication program the cases dropped sharply and in 1964 only 86 cases were reported. Except for Brazil, Colombia, and Peru, the disease is concentrated in the Caribbean area. From the Dominican Republic, Jamaica, Trinidad, Venezuela, Dominica, St. Lucia and Surinam, more than 20 cases are reported annually. Programs are still needed to eliminate the disease and to measure the success of eradication.

Table 13. Reported Cases of Yaws by Country, 1957-1964

Country	1957	1958	1959	1960	1961	1962	1963	1964
Colombia (a)	1201	732	810	463	327	416	351	225
Costa Rica	1	-	-	-	-	-	-	-
Cuba	...	...	-	1	-	-	-	-
Dominican Republic	...	...	181	303	459	285	42	31
Haiti	1298	1361	860	336	358	271	≠ 81	≠ 86
Jamaica	*	*	20	275	528	317	169	215
Panama	65	21	-	2	4	...	5	8
Paraguay (b)	-	-	-	-	...	...	1	...
Peru (b)	194	184	102	...	74	41	32	19
Trinidad and Tobago	841	1036	1241	878	...	(c) 722	(c) 915	...
Venezuela (b)	647	426	250	146	197	373	133	140
Antigua	23	11	10	53	4	...	1	1
British Guiana	11	5	...	-	-	* 3	* 40	* 2
Dominica	225	236	223	204	...	40	54	≠ 22
Grenada	...	...	-	3	-	7	-	...
Montserrat	(d) 20	6	...	...	2	...	...	...
St. Kitts-Nevis and Anguilla	98	8	-	-	-	-	-	...
St. Lucia	270	71	140	64	125	415	592	≠ 429
St. Vincent	...	...	73	60	...	...	...	...
Surinam	644	799	...	...	...	488	*	*

(a) Reporting area until 1963 inclusive. (b) Reporting area. (c) Non-infectious, except 1 case in 1963. (d) Cases treated. * Disease not notifiable. ≠ Provisional data.

YELLOW FEVER

The increase in the number of reported cases of jungle yellow fever from 28 in 1956 and 30 in 1959 to 141 in 1963, 98 in 1964 and 79 in 1965 (Table 14) is evidence that yellow fever continues to be a threat to the continent.

Table 14. Reported Cases of Jungle Yellow Fever, by Country, 1955-1965

Country	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965 (a)
Total	39	28	80	61	30	34	82	52	141	98	79
Argentina	-	-	-	-	-	-	-	-	-	-	2
Bolivia	4	6	19	2	1	14	2	-	81	13	19
Brazil	8	2	10	26	4	1	2	1	-	13	14
Colombia	22	16	35	21	21	11	9	30	10	10	2
Guatemala	-	-	3	-	-	-	-	-	-	-	-
Panama	-	1	4	-	-	-	-	-	-	-	-
Peru	-	-	3	6	1	6	53	20	49	60	37
Trinidad and Tobago	-	-	-	-	2	-	-	-	-	-	-
Venezuela	5	3	6	6	1	2	14	1	1	2	5
British Guiana	-	-	-	-	-	-	2	-	-	-	-

(a) Provisional.

In 1963 outbreaks occurred in jungle areas of Bolivia and Peru. In 1964 the yellow fever virus showed a southward spread in Brazil from the Amazon river basin into the States of Goias and Mato Grosso. Human cases were reported in Central Mato Grosso and southwestern Goias in April and by the end of the year 12 confirmed fatal cases had occurred in nine localities extending almost to the Paraguayan border on the south. The previous reported invasion of Goias and Mato Grosso was recorded in 1957-1959. One additional confirmed case was reported from Roraima Territory in Northern Brazil.

In 1965, further southward movement of jungle yellow fever occurred in Brazil with cases in Goias, Mato Grosso and Minas Gerais and on into Argentina. Although the presence of suspected cases of jungle yellow fever in Argentina was not reported until 25 February 1966, the earliest cases (two) in Argentina are believed to have occurred in Obera Department, Misiones Province in December 1965. Fifty-three cases have been reported in Argentina in 1966 with 28 cases in the Department of Obera and 13 in the

Department of San Pedro in Misiones Province and 12 in Corrientes Province. Also, outbreaks have occurred in eastern and southern areas of Bolivia, with 59 reported cases.

In the first seven months of 1966, 135 cases of jungle yellow fever have been reported. In Argentina alone nearly half a million persons have been vaccinated in 1966.

This rapid movement of yellow fever in the jungle points to the need for continuing vaccination campaigns for populations living in or close to jungle areas or entering the jungle for development of highways and new agricultural areas.

In addition to the continued threat of jungle yellow fever the epidemics of dengue beginning in 1963 in the Caribbean and spreading southward and westward in Venezuela in 1964 and 1965 are dramatic evidence of the extension of the *Aëdes aegypti* mosquito, the vector of urban yellow fever. These epidemics demonstrate the reinfestation of areas previously free of this mosquito. Unless the *Aëdes aegypti* mosquito is eradicated, the threat of urban yellow fever continues in the Americas and especially in areas with jungle yellow fever.

The numbers of vaccinations against yellow fever for the years 1961–1964 are given in Table 15.

Table 15. Number of Vaccinations Against Yellow Fever, by Country, 1961-1964

Country	1961	1962	1963	1964
Argentina	733	551	...	...
Bolivia	...	...	39 472	...
Brazil	465 909	567 418	799 082	833 496
Canada	8 328	7 415	8 631	9 954
Colombia	137 023	103 268	30 236	37 750
El Salvador	41	36	25	...
Guatemala	267	45	69	146
Jamaica	61	110	...	...
Nicaragua	...	40	...	...
Panama	2 721	5 189	6 381	4 536
Paraguay	...	...	...	2 000
Peru	195 099	62 024	...	69 482
Trinidad and Tobago	1 440	1 706	...	...
United States	2 130 500	2 186 500	...	...
Venezuela	340 869	213 659	214 278	224 277
Barbados	269	203	...	307
British Honduras	733	...	...	...
Canal Zone	1 837	720	3 787	...
French Guiana	...	...	...	404
Martinique	105	79	...	...
Surinam	...	...	267	267

ZOONOSES

Because of the importance of zoonoses both in terms of diseases in the human population as well as in the animal population, information is collected routinely from Ministries of Health and other ministries such as the Ministry of Agriculture. In this section selected data on cases in the human population are given to indicate the magnitude of the situation as far as it is known.

Countries or areas are not included if only a few scattered cases (less than 5) are reported. Detailed information is provided in the annual publication *Reported Cases of Notifiable Diseases in the Americas* and also in the *Quadrennial Report of the Director*. Some of the zoonotic diseases such as rabies have been treated separately in this chapter.

Brucellosis (undulant fever) has a wide geographical distribution in the Americas. Countries in which at least 1,000 cases were reported in man in a year are Argentina, Mexico, Peru and the United States (Table 16). However, there is a marked decline in cases in the United States from 1,444 in 1955 to less than one third as many, 411 in 1964. This reduction and also the recent reduction in Canada are un-

Table 16. Reported Cases of Brucellosis (Undulant Fever) in Man by Country, 1955-1964

Country	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964
Argentina	3565	3398	2741	2747	1698	1362	1133	...	1146	2102
Canada	122	141	120	113	120	142	109	98	57	54
Chile	14	9	11	5	3	4	6	6	6	2
Colombia(a)	17	11	6	12	12	11	9	11	71	62
Costa Rica	2	9	6	3	2	16	...	-	1	4
Cuba	6	1	4	2	8	5	16	35	37	53
El Salvador (b)	6	6	11	8	16	31	12	5	9	3
Honduras	...	...	...	...	...	...	8	...	...	c)12
Mexico	1096	1218	921	1220	1579	1356	2001	1339	1121	1335
Panama	-	1	2	2	-	1	1	-	1	3
Paraguay(c)	...	...	...	-	-	-	6	2	6	8
Peru (c)	445	639	880	522	696	843	1433	963	848	833
United States	1444	1301	984	926	893	751	636	409	407	411
Uruguay	-	-	-	-	2	2	-	6	3	≠ 4
Venezuela(c)	14	17	16	19	4	12	15	3	6	7
Puerto Rico	1	3	-	1	-	1	-	-	1	-

(a) Reporting area until 1963 inclusive. (b) Reporting area until 1962 inclusive. (c) Reporting area. ≠ Provisional data.

doubtedly the result of active eradication programs. Although a decrease was noted in Argentina from 3,565 in 1955 to 1,146 in 1963, the number of cases in 1964 was large (2,102). Increases appear for Colombia, Cuba and Peru, which may be attributable to improved case reporting. The economic losses due to brucellosis are large in many countries of the Americas.

For the four years 1961-1964, the numbers of reported cases of anthrax, hydatidosis, leptospirosis and trypanosomiasis are given in Table 17.

Fourteen countries reported 5 or more cases of anthrax in this period. The largest numbers of cases were reported from Argentina, Chile, El Salvador and Mexico with over 100 cases per year in one or more years in this period. Although only limited data on deaths are available, for Chile and Mexico in 1964 there were 303 cases and 19 deaths which gives a case fatality rate of 6.3 per 100.

Cases of hydatidosis (echinococcosis) are reported by four countries in South America, namely Argentina, Chile, Peru and Uruguay. In Chile data are available on both cases and deaths for these four years and are as given below:

Year	Cases	Deaths	Deaths per 100 cases
1961	159	55	34.6
1962	239	45	18.8
1963	238	62	26.1
1964	145	41	28.3

The seriousness of hydatidosis is evident from the high case fatality rate of 26.0 deaths per 100 cases in Chile for this four-year period.

Cases of leptospirosis are reported principally from the United States, Jamaica and Barbados. The case fatality rate appears to be high in the United States for 231 cases and 28 deaths were reported in 1963 and 1964 or 12 deaths per 100 cases.

Chagas' disease or American trypanosomiasis is a much greater health problem than is evident from case reports. Although cases of trypanosomiasis are being reported in several countries including over 1,000 cases per year in Argentina, reports are not received from Brazil where several million people are estimated to be infected. The disease is widely distributed in many rural areas where conditions favor the vector-borne transmission of the causative agent, *Trypanosoma cruzi*. The wide distribution of reported cases and also of infection from surveys in the Americas was shown in the publication *Reported Cases of Notifiable Diseases in the Americas, 1964*. The long term chronic effects of the disease are of particular health importance. High frequencies of chronic cardiopathies have been associated with infection in Brazil, Argentina and Venezuela. More complete notification is needed to elucidate these and other problems which affect a large number of persons in the region.

Table 17. Reported Cases of Selected Zoonoses in Man, by Country, 1961-1964

Disease and Country	1961	1962	1963	1964
ANTHRAX				
Argentina	176	...	247	269
Chile	256	334	277	232
Colombia	a) 2	a) 9	a) 43	42
Costa Rica	7	-	4	12
El Salvador	a) 18	a) 7	98	114
Guatemala	10	...	*	*
Haiti	92	77	...	≠ 51
Mexico	...	174	120	71
Panama	-	-	16	3
Paraguay (a)	18	-	11	1
Peru (a)	67	60	40	58
United States	14	9	3	5
Uruguay	59	54	45	≠ 46
Venezuela (a)	14	7	1	9
HYDATIDOSIS				
Argentina	211	...	365	377
Chile	159	239	238	145
Peru (a)	147	159	121	134
Uruguay	354	389	321	≠ 251

Disease and Country	1961	1962	1963	1964
LEPTOSPIROSIS				
Argentina	2	...	4	3
Chile	*	-	10	2
Jamaica	9	10	27	23
United States	71	79	89	142
Venezuela (a)	5	2	-	-
Barbados	-	9	42	9
Puerto Rico	7	1	3	5
TRYPANOSOMIASIS				
Argentina	1525	1700	2239	1592
Ecuador	...	...	...	b) 35
El Salvador	a) 33	a) 15	32	60
Guatemala	157	...	86	305
Honduras	8	a) 8	a) -	a) 7
Panama	-	-	4	22
Paraguay (a)	10	10	29	...
Perú (a)	-	3	1	9
Uruguay	7	2	3	≠ 1
Venezuela (a)	190	245	337	423

Note: Table excludes countries with less than 5 cases. (a) Reporting area. (b) Hospital data. * Disease not notifiable. ≠ Provisional data.

TABLE A. DIPHTHERIA - REPORTED CASES AND DEATHS WITH RATES PER 100,000 POPULATION BY COUNTRY, 1961-1964

Country	Cases								Deaths							
	Number				Rate				Number				Rate			
	1961	1962	1963	1964	1961	1962	1963	1964	1961	1962	1963	1964	1961	1962	1963	1964
Argentina	3244	1295	3983	3118	15.4	6.1	18.4	14.2	...	a) 156	...	...	...	0.8	...	...
Bolivia	5	9	62	208	0.1	0.3	1.7	5.7	...	...	...	89	...	...	...	2.4
Brazil (b)	4100	...	3058	...	36.3	...	19.9	...	262	238	189	...	2.0	1.7	1.3	...
Canada	91	71	76	25	0.5	0.4	0.4	0.1	5	9	7	5	0.0	0.0	0.0	0.0
Chile	2702	2022	1520	1196	34.4	25.2	18.5	14.3	325	353	246	181	4.1	4.4	3.0	2.2
Colombia	c) 1065	c) 1021	c) 696	646	7.7	7.5	4.9	3.7	407	359	330	287	2.6	2.2	1.9	1.6
Costa Rica	152	61	88	95	12.4	4.8	6.5	6.8	42	38	23	30	3.4	3.0	1.7	2.2
Cuba	1335	1368	923	640	19.2	19.4	12.8	8.6	82	75	26	≠ 17	1.2	1.1	0.4	0.2
Dominican Republic	378	306	512	358	12.0	9.4	15.2	10.2	106	75	72	71	3.4	2.3	2.1	2.0
Ecuador	411	386	335	223	9.2	8.4	7.1	4.6	112	116	88	83	2.5	2.5	1.9	1.7
El Salvador	c) 52	c) 91	257	303	3.5	6.0	9.4	10.7	28	23	63	...	1.1	0.9	2.3	...
Guatemala	87	45	29	89	2.2	1.1	0.7	2.1	45	54	30	...	1.1	1.3	0.7	...
Haiti	54	29	≠ 28	≠ 19	1.3	0.7	0.6	0.4	d) 1	d) 1	...	...	...	...	...	...
Honduras	20	c) 11	c) 7	c) 5	1.1	1.2	0.7	0.4	9	6	16	10	0.5	0.3	0.8	0.5
Jamaica	20	80	108	21	1.2	4.9	6.4	1.2	7	...	8	3	0.4	...	0.5	0.2
Mexico	892	712	488	419	2.5	1.9	1.3	1.1	346	362	326	323	1.0	1.0	0.8	0.8
Nicaragua	24	7	10	12	1.7	0.5	0.6	0.8	4	4	4	1	0.3	0.3	0.3	0.1
Panama	48	123	126	92	4.4	11.0	10.9	7.8	10	8	9	18	0.9	0.7	0.8	1.5
Paraguay (c, e)	42	40	35	38	3.5	3.3	3.2	3.5	22	13	19	...	2.4	1.4	2.0	...
Peru (c, f)	57	38	24	47	1.2	0.7	0.5	0.9	24	32	28	48	0.6	0.7	0.6	1.0
Trinidad and Tobago	104	56	69	67	12.0	6.3	7.5	7.1	3	4	3	≠ 6	0.3	0.4	0.3	0.6
United States	617	444	314	293	0.3	0.2	0.2	0.2	68	41	45	42	0.0	0.0	0.0	0.0
Uruguay	83	67	105	≠ 207	3.2	2.6	4.0	7.7	7	...	8	...	0.3	...	0.3	...
Venezuela (c)	586	551	453	312	11.6	10.4	8.2	5.4	44	50	46	28	0.6	0.6	0.6	0.3
Antigua	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bahama Islands	1	2	-	-	0.8	1.6	-	-	-	...	-	-	...	-	-	-
Barbados	1	6	10	5	0.4	2.5	4.2	2.1	-	2	2	2	-	0.8	0.8	0.8
Bermuda	-	-	-	-	-	-	-	-	-	-	...	-	-	-	...	-
British Guiana	20	13	29	38	3.5	2.2	4.7	6.0	11	2	7	≠ 14	1.9	0.3	1.1	2.2
British Honduras	9	2	-	-	9.6	2.1	-	-	1	-	-	-	1.1	-	-	-
Canal Zone	1	-	-	≠ -	2.3	-	-	-	-	-	-	-	-	-	-	-
Cayman Islands	-	-	-	≠ -	-	-	-	-	-	-	-	-	-	-	-	-
Dominica	...	2	-	≠ 1	...	3.3	-	1.6	...	1	-	...	...	1.6	...	...
Falkland Islands	-	-	...	...	-	-	...	...	-	-	-	-	-	-	-	-
French Guiana	1	-	-	-	2.9	-	-	-	...	...	...	-	...	...	...	-
Grenada	-	-	...	...	-	-	...	...	-	-	-	...	-	-	-	...
Guadeloupe	1	2	12	5	0.4	0.7	4.0	1.6	-	-	...	-	-	-	...	-
Martinique	9	45	12	≠ 1	3.1	15.3	4.0	0.3	-	4	-	...	-	1.4	-	...
Montserrat	-	-	...	-	-	-	...	-	-	-	...	-	-	-	...	-
Netherlands Antilles	-	8	1	3	-	4.0	0.5	1.5	-	...	...	...	-	...	...	...
Puerto Rico	58	56	15	13	2.4	2.3	0.6	0.5	1	3	2	1	0.0	0.1	0.1	0.0
St. Kitts-Nevis and Anguilla	-	1	-	≠ 2	-	1.7	-	3.4	-	1	-	...	-	1.7	-	...
St. Lucia	-	-	12	≠ 1	-	-	12.8	1.1	-	2	1	...	-	2.2	1.1	...
St. Pierre and Miquelon	-	-	...	≠ -	-	-	...	-	-	-	-	-	-	-	-	-
St. Vincent	...	...	...	...	...	...	...	...	-	-	...	...	-	-	...	...
Surinam	6	c) 1	c) -	c) -	2.1	0.3	-	-	-	1	-	-	-	0.3	-	-
Turks and Caicos Islands	-	-	-	≠ -	-	-	-	-	...	...	-	...	...	...	-	...
Virgin Islands (UK)	-	-	...	...	-	-	...	...	-	...	...	...	-	...	...	...
Virgin Islands (US)	-	-	-	≠ -	-	-	-	-	-	-	-	-	-	-	-	-
Northern America	708	515	390	318	0.4	0.2	0.2	0.2	73	50	52	47	0.0	0.0	0.0	0.0
Middle America (g)	3246	3013	2707	2151	4.8	4.4	3.8	2.9	684	662	585	482	1.1	1.0	0.9	0.8
South America (h)	8222	6443	7242	6033	12.6	8.2	10.7	8.3	952	926	772	641	2.2	2.1	1.6	1.4

(a) Data exclude Cordoba Province. (b) Case data refer to State of Guanabara and capitals of 14 other states in 1961, to Federal District, States of Guanabara and Pernambuco and capitals of 10 other states in 1963; death data refer to State of São Paulo. (c) Reporting area, for case data. (d) Hospital deaths only. (e) Area of information, for death data. (f) Death data refer to districts with medical certification. (g) Excluding Haiti from death data. (h) Excluding Brazil from case data; Argentina, Brazil and Bolivia from death data. ≠ Provisional data.

TABLE B. INFECTIOUS ENCEPHALITIS - REPORTED CASES WITH RATES PER 100,000 POPULATION, BY COUNTRY, 1961-1964

Country	Number				Rate				Country	Number				Rate			
	1961	1962	1963	1964	1961	1962	1963	1964		1961	1962	1963	1964	1961	1962	1963	1964
Argentina	440	...	579	648	2.1	...	2.7	2.9	Peru (c)	28	67	53	146	0.6	1.3	1.1	2.7
Bolivia	2	4	1	-	0.1	0.1	0.0	-	Trinidad and Tobago	...	-	1	6	...	-	0.1	0.6
Brazil (a)	159	...	99	...	1.4	...	0.6	...	United States (e)	2 248	2 094	1 993	2 002	1.2	1.1	1.1	1.0
Canada (b)	1	4	57	5	0.0	0.0	0.3	0.0	Uruguay	22	29	36	≠ 17	0.9	1.1	1.4	0.6
Chile	148	141	83	120	1.9	1.8	1.0	1.4	Venezuela (c)	586	897	10 145	11 540	1.1	130.7	183.6	200.6
Colombia	c) 84	c)380	c)339	230	0.6	2.8	2.4	1.3									
Costa Rica	...	-	14	11	...	-	1.0	0.8									
Cuba	...	49	38	32	...	0.7	0.5	0.4	Bahama Islands	-	1	3	1	-	0.8	2.2	0.7
Ecuador	2	...	51	d)13	0.0	...	1.1	...	Bermuda	-	1	≠ -	-	-	2.2	-	-
El Salvador	c) -	c) 9	-	...	-	0.6	-	...	British Honduras	-	-	1	≠ -	-	-	1.0	-
Guatemala	...	5	2	11	...	0.1	0.0	0.3	Canal Zone	1	-	-	≠ -	2.3	-	-	-
Haiti	4	2	≠ -	≠ -	0.1	0.0	-	-	Cayman Islands	-	1	-	≠ -	-	(11.1)	-	-
Honduras (c)	8	c) 9	c)24	c) 18	0.4	0.9	2.4	1.4	Dominica	...	1	-	≠ -	...	1.6	-	-
Jamaica	4	11	2	5	0.2	0.7	0.1	0.3	Puerto Rico	-	-	18	1	-	-	0.7	0.0
Mexico	39	17	18	31	0.1	0.0	0.0	0.1	St. Kitts-Nevis and Anguilla	3	1	≠ -	-	5.1	1.7	-	-
Panama	1	2	6	8	0.1	0.2	0.5	0.7									
Paraguay (c)	17	29	39	29	1.4	2.4	3.5	2.6									

(a) State of Guanabara and capitals of 14 other States in 1961, Federal District States of Guanabara and Pernambuco and capitals of 10 other states in 1963. (b) Arthropod-borne encephalitis. (c) Reporting area. (e) Includes post-infectious encephalitis, except in 1964. ≠ Provisional data. ( ) Rate based on less than 10 cases in a population of less than 20,000.

TABLE C. LEPROSY - REPORTED CASES WITH RATES PER 100,000 POPULATION, BY COUNTRY, 1961-1964

Country	Number				Rate				Country	Number				Rate			
	1961	1962	1963	1964	1961	1962	1963	1964		1961	1962	1963	1964	1961	1962	1963	1964
Argentina	497	458	734	1 502	2.4	2.1	3.4	6.8	Venezuela (b)	296	266	249	183	5.9	5.0	4.5	3.2
Bolivia	19	21	18	5	0.5	0.6	0.5	0.1									
Brazil (a)	6 162	5 542	5 743	5 354	8.6	7.5	7.5	6.9	Antigua	1	...	1	2	1.8	...	1.7	3.3
Canada	1	1	3	2	0.0	0.0	0.0	0.0	Bahama Is.	...	-	2	c) 1	...	-	1.5	...
Colombia	b)778	b)561	b) 292	288	5.7	4.1	2.1	1.6	Barbados	-	-	1	1	-	-	0.4	0.4
Costa Rica	36	25	35	28	2.9	2.0	2.6	2.0	British Guiana	39	61	25	* 14	6.8	10.3	4.1	...
Cuba	122	291	159	156	1.8	4.1	2.2	2.1									
Dominican Republic	47	74	80	43	1.5	2.3	2.4	2.2	French Guiana	43	103	78	48	126.5	302.9	222.9	133.3
Ecuador	...	...	...	356	...	...	...	...	Guadeloupe	61	60	≠ 57	41	21.7	20.8	19.2	13.4
El Salvador	b) 32	b) 24	13	12	2.2	1.6	0.5	0.4	Martinique	57	55	24	≠ 46	19.7	18.7	7.9	14.8
Guatemala	4	8	8	100	0.1	0.2	0.2	2.3	Montserrat	-	...	...	1	-	...	...	(7.7)
Haiti	10	17	...	≠ 8	0.2	0.4	...	0.2	Netherlands Antilles	5	5	6	7	2.6	2.5	3.0	3.4
Honduras	105	b) 28	b) 22	b) 53	5.5	2.9	2.2	4.3	Puerto Rico	1	3	7	-	0.0	0.1	0.3	-
Jamaica	19	25	27	17	1.2	1.5	1.6	1.0	St. Kitts-Nevis and Anguilla	1	-	-	...	1.7	-	-	...
Mexico	114	219	294	1 132	0.3	0.6	0.8	2.9	St. Lucia	-	-	3	≠ 4	-	-	3.2	4.3
Nicaragua	...	...	31	10	...	...	2.0	0.6	St. Vincent	...	...	2	...	...	...	2.4	...
Panama	-	2	1	8	-	0.2	0.1	0.7	Surinam	147	171	b) 201	b)264	50.9	59.0	68.1	89.5
Paraguay (b)	392	531	425	339	32.9	43.5	38.6	30.8	Turks and Caicos Is.	18	-	-	≠ -	300.0	-	-	-
Peru	108	78	59	50	2.2	1.5	1.2	0.9	Virgin Islands(US)	-	1	1	...	-	2.9	2.5	...
Trinidad and Tobago	18	27	38	25	2.1	3.0	4.1	2.6									
United States	63	80	103	97	0.0	0.0	0.1	0.1									
Uruguay	29	34	19	≠ 19	1.1	1.3	0.7	0.7									

(a) New registered cases. Excluding 2 States in 1964. Source: Anuário Estatístico do Brasil. (b) Reporting area. (c) Hospital data. ≠ Provisional data. ( ) Rate based on less than 10 cases in a population of less than 20,000.
* Disease not notifiable.

TABLE D. MALARIA - REPORTED CASES AND DEATHS WITH RATES PER 100,000 POPULATION BY COUNTRY, 1961-1964

Country	Cases								Deaths							
	Number				Rate				Number				Rate			
	1961	1962	1963	1964	1961	1962	1963	1964	1961	1962	1963	1964	1961	1962	1963	1964
Argentina	4373	4501	825	a) 550	20.8	21.1	3.8	2.5	...	b) 19	...	...	...	0.1	...	...
Bolivia	517	315	215	73	14.8	8.9	6.0	2.0	...	...	...	...	...	...	...	...
Brazil (a, c)	45410	72060	111417	111278	63.2	97.3	145.8	141.2	11	5	14	...	0.1	0.0	0.1	...
Canada	1	-	1	2	0.0	-	0.0	0.0	-	1	1	1	-	0.0	0.0	0.0
Chile	-	d) 1	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-
Colombia	e) 23081	e) 21245	e) 16226	20340	167.9	155.6	114.8	116.3	1206	1202	1081	1107	7.6	7.3	6.4	6.3
Costa Rica (a)	1673	1583	1224	1210	136.6	124.3	91.1	87.2	12	8	5	7	1.0	0.6	0.4	0.5
Cuba	1119	3519	a) 833	a) 624	16.1	49.8	11.5	8.4	5	11	8	≠ 3	0.1	0.2	0.1	0.0
Dominican Republic	16222	10160	8027	6214	515.8	312.1	238.0	177.8	443	219	98	50	14.1	6.7	2.9	1.4
Ecuador	8402	a) 5557	a) 3857	a) 4694	188.6	121.0	81.5	96.2	515	446	342	275	11.6	9.7	7.2	5.6
El Salvador (a)	12563	15433	17846	25857	497.3	587.5	655.9	915.6	419	335	371	...	16.6	12.8	13.6	...
Guatemala (f)	4112	5563	a) 15116	a) 20401	104.7	137.3	362.0	473.9	71	76	137	...	1.8	1.9	3.3	...
Haiti	43927	36564	≠ 21569	≠ 20084	1033.8	841.3	484.9	441.3	g) 36	g) 26	...	...	...	...	...	...
Honduras	5796	e) 6750	a) 7077	a) 6673	305.7	446.7	349.7	319.0	288	255	207	151	15.2	13.0	10.2	7.2
Jamaica (f)	131	5	6	2	8.0	0.3	0.4	0.1	12	...	1	3	0.7	...	0.1	0.2
Mexico (f)	11759	13781	11267	a) 13342	32.6	37.0	29.3	33.7	139	70	27	27	0.4	0.2	0.1	0.1
Nicaragua (a)	8722	11359	11700	13016	600.3	759.3	759.2	815.0	535	451	361	388	36.8	30.1	23.4	24.3
Panama	3416	3871	2426	1766	312.8	345.0	210.4	149.0	65	45	62	39	6.0	4.0	5.4	3.3
Paraguay (h)	e) 1656	a) 5755	a) 3491	a) 8846	139.2	310.4	182.8	449.5	6	1	-	...	0.7	0.1	-	...
Peru (i)	2916	2195	1743	a) 1934	28.3	20.6	15.9	17.1	4	6	4	4	0.1	0.1	0.1	0.1
Trinidad and Tobago	3	-	-	a) 3	0.3	-	-	0.3	1	-	-	≠ -	0.1	-	-	-
United States (j)	73	118	99	93	0.0	0.1	0.1	0.0	3	12	7	3	0.0	0.0	0.0	0.0
Uruguay	-	1	d) 1	≠ -	-	0.0	0.0	-	-	...	-	...	-	...	-	...
Venezuela (k)	1488	898	a) 2390	5215	19.5	11.4	29.3	61.9	4	-	-	-	0.1	-	-	-
Antigua	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bahama Islands	8	4	3	4	6.6	3.1	2.2	2.8	...	-	-	-	...	-	-	-
Barbados	*	*	-	-	*	*	-	-	-	-	-	-	-	-	-	-
Bermuda	1	-	≠ -	-	2.2	-	-	-	-	-	...	-	-	-	...	-
British Guiana	235	355	495	a) 225	40.7	59.8	80.9	35.8	1	1	-	≠ 1	0.2	0.2	-	0.2
British Honduras (a)	23	20	17	35	24.5	20.6	17.0	34.0	1	-	-	-	1.1	-	-	-
Canal Zone	a) 25	12	4	≠ 9	58.1	26.7	8.0	16.7	-	-	-	-	-	-	-	-
Cayman Islands	-	-	-	≠ -	-	-	-	-	...	-	-	...	...	-	-	...
Dominica	...	-	-	≠ -	...	-	-	-	...	-	-	...	...	-	-	...
Falkland Islands	-	-	...	...	-	-	...	...	-	-	-	-	-	-	-	-
French Guiana	4	25	103	37	11.8	73.5	294.3	102.8	...	...	...	1	...	...	...	2.8
Grenada	-	-	-	...	-	-	-	...	-	-	-	...	-	-	-	...
Guadeloupe	-	-	a) 1	-	-	-	0.3	-	-	-	...	-	-	-	...	-
Martinique	-	-	-	≠ -	-	-	-	-	-	-	-	...	-	-	-	...
Montserrat	-	...	...	-	-	...	...	-	-	-	...	-	-	-	...	-
Netherlands Antilles	*	*	*	*	*	*	*	*	-	...	...	...	-	...	...	...
Puerto Rico	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
St. Kitts-Nevis and Anguilla	1	-	-	≠ -	1.7	-	-	-	-	-	-	...	-	-	-	...
St. Lucia (a)	1	4	7	4	1.1	4.3	7.4	4.3	-	-	-	...	-	-	-	...
St. Pierre and Miquelon	-	-	...	≠ -	-	-	...	-	-	-	-	-	-	-	-	-
St. Vincent	...	...	...	...	...	...	...	...	-	-	...	...	-	-	...	...
Surinam (a)	646	716	1882	1681	223.5	237.9	599.4	514.1	-	1	-	-	-	0.3	-	-
Turks and Caicos Is.	-	1	-	≠ -	-	(16.7)	-	-	...	...	-	...	...	...	-	...
Virgin Islands (UK)	-	-	...	...	-	-	...	...	-	...	...	...	-	...	...	...
Virgin Islands (US)	-	-	-	≠ -	-	-	-	-	-	-	-	-	-	-	-	-
Northern America	75	118	100	95	0.0	0.1	0.0	0.0	3	13	8	4	0.0	0.0	0.0	0.0
Middle America (l)	109 591	108 629	97 123	109 244	159.7	155.0	133.0	145.2	1991	1470	1289	668	3.1	2.3	1.9	1.1
South America (m)	88 729	113 623	142 645	154 873	60.9	76.2	93.0	96.4	1736	1657	1427	1388	3.9	3.8	3.0	3.1

(a) Confirmed cases. (b) Excluding Cordoba Province. (c) Death data refer to São Paulo State. (d) Imported case. (e) Reporting area. (f) Deaths exclude those not medically certified as follows: Guatemala - 4,029 in 1961, 4,268 in 1962; Jamaica - 164 in 1963; Mexico - 2,293 in 1961, 863 in 1962. (g) Hospital deaths. (h) Area of information for death data. (i) Districts with medical certification for death data. (j) Cases include those acquired outside the country. (k) Cases exclude those acquired outside the country: 269 in 1961, 312 in 1962, 463 in 1963, 669 in 1964. (l) Death data exclude Haiti, and also those not medically certified shown under (f). (m) Excluding Argentina, Brazil and Bolivia from death data. ≠ Provisional data. ( ) Rate based on less than 10 cases in a population of less than 20,000. * Disease not notifiable.

TABLE E. MEASLES - REPORTED CASES AND DEATHS WITH RATES PER 100,000 POPULATION, BY COUNTRY, 1961 - 1964

Country	Cases								Deaths							
	Number				Rate				Number				Rate			
	1961	1962	1963	1964	1961	1962	1963	1964	1961	1962	1963	1964	1961	1962	1963	1964
Argentina	13 102	12 906	16 428	53 018	62.4	60.4	75.7	240.8	...	a)284	...	...	...	1.5	...	...
Bolivia	28	390	213	415	0.8	11.0	5.9	11.4	...	...	...	...	...	...	...	...
Brazil (b)	3 703	...	5 486	...	32.8	...	35.7	...	745	815	832	...	5.6	6.0	5.9	...
Canada	*	*	*	*	*	*	*	*	96	81	73	58	0.5	0.4	0.4	0.3
Chile	38 469	37 649	28 543	35 941	489.6	468.9	347.4	428.3	1 822	2 455	2 243	3 264	23.2	30.6	27.3	38.9
Colombia	c)27 666	c)42 575	c)36 756	32 668	201.2	311.9	259.9	186.9	1 196	2 050	1 690	1 769	7.5	12.5	10.0	10.1
Costa Rica	1 097	2 977	3 806	3 088	89.6	233.7	283.2	222.6	65	255	176	205	5.3	20.0	13.1	14.8
Cuba	31	1 590	6 799	2 151	0.4	22.5	94.0	28.9	-	32	90	≠ 14	-	0.5	1.2	0.2
Dominican Republic	2 417	1 521	4 489	2 344	76.9	46.7	133.1	67.1	32	21	46	25	1.0	0.6	1.4	0.7
Ecuador	...	...	...	d) 900	...	...	...	...	1 791	1 804	1 690	2 048	40.2	39.3	35.7	42.0
El Salvador	c)3 595	c) 5 443	6 876	8 090	244.1	359.5	252.7	286.5	411	723	518	...	16.3	27.5	19.0	...
Guatemala	2 210	1 942	2 548	2 838	56.2	47.9	61.0	65.9	2 379	2 149	3 280	1 710	60.5	53.0	78.5	39.7
Haiti	1 128	855	...	≠ 332	26.5	19.7	...	7.3	d) -	d) -	...	...	...	...	...	...
Honduras	2 015	c) 1 571	c) 3 382	c)5 058	106.3	165.0	338.2	405.9	332	182	300	390	17.5	9.3	14.8	18.6
Jamaica	132	441	4 207	142	8.1	26.9	249.4	8.2	-	...	21	1	-	...	1.2	0.1
Mexico	44 825	54 558	53 864	73 180	124.2	146.5	140.2	184.6	5 951	5 876	7 387	7 908	16.5	15.8	19.2	19.9
Nicaragua	...	...	189	559	...	...	12.3	35.0	346	151	233	156	23.8	10.1	15.1	9.8
Panama	172	1 101	3 154	481	15.8	98.1	273.5	40.6	44	51	363	65	4.0	4.5	31.5	5.5
Paraguay (c, e)	489	1 442	555	740	41.1	118.2	50.5	67.3	7	45	13	...	0.8	4.9	1.4	...
Peru (c, f)	9 058	21 692	14 530	17 730	185.7	421.0	301.8	328.5	579	1 254	1 169	1 510	14.9	28.6	25.6	30.8
Trinidad and Tobago	* 581	* 130	* 2 799	* 285	...	...	...	...	-	-	8	2	-	-	0.9	0.2
United States	423 919	481 530	385 156	458 083	231.6	259.0	204.2	239.4	434	408	364	421	0.2	0.2	0.2	0.2
Uruguay	2 077	6 191	638	≠ 1 630	80.7	237.0	24.1	60.8	11	...	8	...	0.4	...	0.3	...
Venezuela (c)	21 095	30 257	36 798	32 627	417.8	573.3	665.9	567.2	207	271	377	380	2.7	3.4	4.6	4.5
Antigua	7	22	978	1	12.5	37.9	1657.6	1.7	-	-	4	-	-	-	6.8	-
Bahama Islands	...	1	-	d) 7	...	0.8	-	...	...	-	-	-	...	-	-	-
Barbados	*	*	*	*	*	*	*	*	-	-	4	-	-	-	1.7	-
Bermuda	234	6	≠ 7	35	520.0	13.0	14.9	72.9	-	-	...	-	-	-	...	-
British Guiana	308	334	1 623	8	53.4	56.2	265.2	1.3	-	3	20	≠ 5	-	0.5	3.3	0.8
British Honduras	11	-	371	50	11.7	-	371.0	48.5	-	-	1	-	-	-	1.0	-
Canal Zone	55	93	34	...	127.9	206.7	68.0	...	-	-	-	-	-	-	-	-
Cayman Islands	...	-	4	≠ 1	...	-	(44.4)	(11.1)	...	-	-	...	...	-	-	...
Dominica	...	7	1 178	≠ 715	...	11.5	1869.8	1117.2	...	-	4	...	...	-	6.3	-
Falkland Islands	-	-	...	...	-	-	...	...	-	-	-	-	-	-	-	-
French Guiana	2	17	-	8	5.9	50.0	-	22.2	...	...	...	-	...	...	...	-
Grenada	401	-	...	...	445.6	-	...	...	-	-	1	...	-	-	1.1	...
Guadeloupe	-	-	≠ 1	6	-	-	0.3	2.0	-	-	...	-	-	-	...	-
Martinique	33	70	19	≠ 6	11.4	23.8	6.3	1.9	-	-	-	...	-	-	-	...
Montserrat	-	...	...	1	-	...	...	7.7	-	-	-	-	-	-	...	-
Netherlands Antilles	*	*	*	*	*	*	*	*	-	...	...	...	-	...	...	...
Puerto Rico	1 937	4 865	1 528	7 535	80.4	197.8	60.6	292.3	21	28	7	42	0.9	1.1	0.3	1.6
St. Kitts-Nevis and Anguilla	853	5	681	≠ 2 540	1 445.8	8.3	116.4	4305.1	-	-	-	...	-	-	-	...
St. Lucia	3	-	1 344	...	3.4	-	1429.8	...	-	-	11	...	-	-	11.7	...
St. Pierre and Miquelon	-	-	...	...	-	-	...	...	-	-	-	-	-	-	-	-
St. Vincent	...	...	364	...	...	...	433.3	...	-	-	-	...	-	-	-	...
Surinam	*	*	*	*	*	*	*	*	-	1	-	-	-	0.3	-	-
Turks and Caicos Islands	-	1	-	≠ -	-	(16.7)	-	-	...	...	-	...	...	...	-	...
Virgin Islands (UK)	-	-	...	...	-	-	...	...	-	...	...	...	...	...	...	...
Virgin Islands (US)	135	...	23	...	397.1	...	57.5	...	1	1	-	-	2.9	2.9	-	-
Northern America (g)	424 153	481 536	385 163	458 118	231.6	259.0	204.1	239.3	530	489	437	479	0.3	0.2	0.2	0.2
Middle America (h)	61 057	77 063	95 839	109 118	93.7	116.5	144.2	149.7	9 582	9 469	12454	10518	14.9	14.6	18.2	15.6
South America (i)	112 294	153 453	136 084	174 785	185.8	249.6	218.2	260.3	5 613	7 883	7 210	8976	12.7	18.3	15.3	19.9

(a) Excluding Cordoba Province. (b) Case data refer to State of Guanabara and capitals of 14 other states in 1961, to Federal District, States of Guanabara and Pernambuco and capitals of 10 other states in 1963; death data refer to São Paulo State. (c) Reporting area, for case data. (d) Hospital data. (e) Area of information, for death data. (f) Districts with medical certification, for death data. (g) Excluding Canada from case data. (h) Excluding Trinidad and Tobago from case data; Haiti from death data. (i) Excluding Brazil and Ecuador from case data; Argentina, Bolivia and Brazil from death data.
* Disease not notifiable. ≠ Provisional data. ( ) Rate based on less than 10 cases in a population of less than 20,000.

TABLE F. POLIOMYELITIS, ACUTE - REPORTED CASES AND DEATHS WITH RATES PER 100,000 POPULATION BY COUNTRY, 1961-1964

Country	Cases								Deaths							
	Number				Rate				Number				Rate			
	1961	1962	1963	1964	1961	1962	1963	1964	1961	1962	1963	1964	1961	1962	1963	1964
Argentina (a)	1 197	1 082	955	557	5.7	5.1	4.4	2.5	...	b) 85	...	...	...	0.4	...	...
Bolivia	3	3	1	10	0.1	0.1	0.0	0.3	...	...	...	...	...	...	...	...
Brazil (c)	1 224	...	914	...	10.8	...	5.9	...	173	120	153	...	1.3	0.9	1.1	...
Canada (a)	189	89	123	19	1.0	0.5	0.6	0.1	11	7	16	5	0.1	0.0	0.1	0.0
Chile	648	441	115	363	8.2	5.5	1.4	4.3	102	108	53	64	1.3	1.3	0.6	0.8
Colombia	d) 170	d) 581	d) 397	755	1.2	4.3	2.8	4.3	35	68	59	83	0.2	0.4	0.3	0.5
Costa Rica	34	50	18	10	2.8	3.9	1.3	0.7	4	12	13	10	0.3	0.9	1.0	0.7
Cuba	348	46	1	1	5.0	0.7	0.0	0.0	26	7	-	≠ -	0.4	0.1	-	-
Dominican Republic	a) 17	29	a) 357	a) 17	0.5	0.9	10.6	0.5	9	8	45	8	0.3	0.2	1.3	0.2
Ecuador	97	49	a) 169	a) 89	2.2	1.1	3.6	1.8	36	22	39	31	0.8	0.5	0.8	0.6
El Salvador	d) 58	d) 37	a) 95	a) 20	3.9	2.4	3.5	0.7	8	4	6	...	0.3	0.2	0.2	...
Guatemala	147	111	176	74	3.7	2.7	4.2	1.7	38	29	6	...	1.0	0.7	0.1	...
Haiti (a)	25	12	≠ 5	≠ 23	0.6	0.3	0.1	0.5	e) -	e) -	...	...	...	...	...	...
Honduras	48	d) 10	a,d) 27	a,d) 38	2.5	1.1	2.7	3.0	9	12	9	17	0.5	0.6	0.4	0.8
Jamaica	16	25	15	57	1.0	1.5	0.9	3.3	3	...	-	2	0.2	...	-	0.1
Mexico	a) 740	a) 483	486	a) 404	2.1	1.3	1.3	1.0	186	200	175	232	0.5	0.5	0.5	0.6
Nicaragua (a)	70	13	151	47	4.8	0.9	9.8	2.9	5	2	-	-	0.3	0.1	-	-
Panama	27	65	13	20	2.5	5.8	1.1	1.7	1	2	-	1	0.1	0.2	-	0.1
Paraguay (d, f)	39	25	67	40	3.3	2.0	6.1	3.6	10	8	14	...	1.1	0.9	1.5	...
Peru (d, g)	373	598	581	553	7.6	11.6	12.1	10.2	52	82	98	110	1.3	1.9	2.1	2.2
Trinidad and Tobago	3	12	15	4	0.3	1.3	1.6	0.4	2	-	4	≠ -	0.2	-	0.4	-
United States	1 312	910	449	122	0.7	0.5	0.2	0.1	90	60	41	17	0.0	0.0	0.0	0.0
Uruguay	51	50	2	≠ 22	2.0	1.9	0.1	0.8	3	...	1	...	0.1	...	0.0	...
Venezuela (a, d)	370	393	316	226	7.3	7.4	5.7	3.9	52	46	34	27	0.7	0.6	0.4	0.3
Antigua	-	2	-	-	-	3.4	-	-	-	-	-	-	-	-	-	-
Bahama Islands	2	2	1	a) 53	1.6	1.6	0.7	37.6	...	-	-	2	...	-	-	1.4
Barbados	-	7	79	-	-	3.0	33.1	-	-	1	4	-	-	0.4	1.7	-
Bermuda	-	2	≠ -	-	-	4.3	-	-	-	-	...	-	-	-	...	-
British Guiana	2	a) 182	311	-	0.3	30.6	50.8	-	1	1	16	≠ -	0.2	0.2	2.6	-
British Honduras	1	1	-	-	1.1	1.0	-	-	1	-	1	-	1.1	-	1.0	-
Canal Zone	1	-	-	≠ -	2.3	-	-	-	1	-	-	-	2.3	-	-	-
Cayman Islands	-	-	-	≠ -	-	-	-	-	...	-	-	...	...	-	-	...
Dominica	-	-	-	≠ a) 1	-	-	-	1.6	...	1	-	...	...	1.6	-	...
Falkland Islands	-	-	...	...	-	-	...	...	-	-	-	-	-	-	-	-
French Guiana	-	-	-	-	-	-	-	-	...	...	...	-	...	...	...	-
Grenada	-	-	-	...	-	-	-	...	-	-	-	...	-	-	-	...
Guadeloupe	-	6	≠ -	-	-	2.1	-	-	-	2	...	-	-	0.7	...	-
Martinique	-	7	5	≠ -	-	2.4	1.7	-	-	-	-	...	-	-	-	...
Montserrat	-	...	...	-	-	...	...	-	-	-	...	-	-	-	...	-
Netherlands Antilles	7	1	-	-	3.6	0.5	-	-	-	...	...	...	-	...	...	...
Puerto Rico	7	13	5	-	0.3	0.5	0.2	-	2	3	2	2	0.1	0.1	0.1	0.1
St. Kitts-Nevis and Anguilla	1	-	2	≠ -	1.7	-	3.3	-	-	-	-	...	-	-	-	...
St. Lucia	-	1	-	≠ -	-	1.1	-	-	-	-	-	...	-	-	-	...
St. Pierre and Miquelon	-	-	...	≠ -	-	-	...	-	-	-	-	-	-	-	-	-
St. Vincent	...	...	...	...	...	...	...	...	-	-	...	...	-	-	...	...
Surinam (a)	-	d) 3	d) 40	d) -	-	1.0	13.6	-	-	-	-	-	-	-	-	-
Turks and Caicos Is.	-	-	-	≠ -	-	-	-	-	...	...	-	...	...	...	-	...
Virgin Islands (UK)	-	-	...	-	-	-	...	...	-	...	...	...	-	...	...	...
Virgin Islands (US)	-	-	-	≠ -	-	-	-	-	-	-	-	-	-	-	-	-
Northern America	1 501	1 001	572	141	0.7	0.5	0.3	0.1	101	67	57	22	0.1	0.0	0.0	0.0
Middle America (h)	1 532	933	1 451	769	2.3	1.4	2.0	1.0	295	283	265	274	0.5	0.4	0.4	0.4
South America (i)	2 950	3 407	2 954	2 615	4.5	5.1	4.4	3.6	291	335	314	315	0.7	0.8	0.7	0.7

(a) Case data refer to paralytic poliomyelitis. (b) Excluding Cordoba Province. (c) Case data refer to State of Guanabara and capitals of 14 other states in 1961, to Federal District, States of Guanabara and Pernambuco and capitals of 10 other states in 1963; death data refer to São Paulo State. (d) Reporting area, for case data. (e) Hospital data. (f) Area of information, for death data. (g) Districts with medical certification, for death data. (h) Excluding Haiti from death data. (i) Excluding Brazil from case data; Argentina, Bolivia and Brazil from death data. ≠ Provisional data.

TABLE G. SYPHILIS - REPORTED CASES AND DEATHS WITH RATES PER 100,000 POPULATION, BY COUNTRY
1961-1964

Country	Cases								Deaths							
	Number				Rate				Number				Rate			
	1961	1962	1963	1964	1961	1962	1963	1964	1961	1962	1963	1964	1961	1962	1963	1964
Argentina	4397	5149	6149	6195	20.9	24.1	28.4	28.1	...	a)302	...	...	...	1.6	...	...
Bolivia	b) 133	80	b) 90	b) 124	3.8	2.3	2.5	3.4	...	...	...	...	...	...	...	...
Brazil (c)	...	...	...	...	...	...	...	...	362	335	281	...	2.7	2.5	2.0	...
Canada	2311	2432	2785	2771	12.6	13.1	14.7	14.4	160	129	117	91	0.9	0.7	0.6	0.5
Chile	* 3705	* 3106	* 3046	* 3502	...	...	...	...	195	153	125	149	2.5	1.9	1.5	1.8
Colombia	d)10166	d)12232	de)9789	e)14992	73.9	89.6	69.2	85.8	210	195	190	199	1.3	1.2	1.1	1.1
Costa Rica	597	1200	1287	1170	48.7	94.2	95.8	84.4	15	8	12	18	1.2	0.6	0.9	1.3
Cuba	482	805	1691	1863	6.9	11.4	23.4	25.1	134	113	114	≠118	1.9	1.6	1.6	1.6
Dominican Republic	12040	10494	7113	12639	382.8	322.4	210.9	361.7	121	62	59	39	3.8	1.9	1.7	1.1
Ecuador	...	...	...	f) 228	...	...	...	...	45	48	50	31	1.0	1.0	1.1	0.6
El Salvador	d) 5984	d) 6552	7797	8349	406.2	432.8	286.5	295.6	88	90	22	...	3.5	3.4	0.8	...
Guatemala	906	816	801	1186	23.1	20.1	19.2	27.5	9	4	4	...	0.2	0.1	0.1	...
Haiti	4944	5201	≠ 3405	≠ 3172	116.4	119.7	76.6	69.7	f) 1	f) -	...	...	...	...	...	...
Honduras	2285	d) 2345	d) 1619	d) 1981	120.5	246.3	161.9	159.0	5	6	8	5	0.3	0.3	0.4	0.2
Jamaica	9748	2776	2298	1774	596.2	169.1	136.2	102.7	135	...	102	100	8.3	...	6.0	5.8
Mexico	19254	18219	20066	17697	53.3	48.9	52.2	44.6	525	497	442	487	1.5	1.3	1.2	1.2
Nicaragua	1514	1537	3100	1029	104.2	102.7	201.2	64.4	1	-	4	-	0.1	-	0.3	-
Panama	151	370	200	239	13.8	33.0	17.3	20.2	21	7	11	15	1.9	0.6	1.0	1.3
Paraguay (d, g)	1722	1835	1616	2008	144.7	150.4	146.9	182.5	28	23	31	...	3.1	2.5	3.2	...
Peru (d, h)	3475	3872	3679	3320	71.3	75.1	76.4	61.5	39	52	52	40	1.0	1.2	1.1	0.8
Trinidad and Tobago	...	327	385	e)* 371	...	36.6	41.8	...	43	41	40	≠ 35	5.0	4.6	4.3	3.7
United States	124658	126245	124137	114314	68.1	67.9	65.8	59.7	2850	2811	2666	2619	1.6	1.5	1.4	1.4
Uruguay	234	203	161	≠ 273	9.1	7.8	6.1	10.2	95	...	71	...	3.7	...	2.7	...
Venezuela (d)	9920	9127	9480	9533	196.5	172.9	171.6	165.7	154	180	150	136	2.0	2.3	1.8	1.6
Antigua	256	...	188	104	457.1	...	318.6	173.3	18	17	17	9	32.1	29.3	28.8	15.0
Bahama Islands	19	14	30	92	15.6	10.9	22.4	65.2	...	1	...	6	...	0.8	...	4.3
Barbados	*	*	*	*	*	*	*	*	28	29	27	24	12.0	12.3	11.3	9.9
Bermuda	10	5	≠ 23	12	22.2	10.9	48.9	25.0	1	1	...	2	2.2	2.2	...	4.2
British Guiana	* 334	* 415	* 800	* 236	...	...	...	...	-	-	1	...	-	-	0.2	...
British Honduras	659	648	...	790	701.1	668.0	...	767.0	-	-	1	2	-	-	1.0	1.9
Canal Zone	24	17	10	69	55.8	37.8	20.0	127.8	-	-	-	2	-	-	-	3.7
Cayman Islands	1	3	1	≠ -	(11.1)	(33.3)	(11.1)	-	...	-	...	...	...	-	...	...
Dominica	...	55	114	≠ 77	...	90.2	181.0	120.3	...	4	6	...	...	6.6	9.5	...
Falkland Islands	-	-	...	...	-	-	...	...	-	-	-	-	-	-	-	-
French Guiana	84	98	48	54	247.1	288.2	137.1	150.0	...	...	...	-	...	...	...	-
Grenada	687	...	529	...	763.3	...	575.0	...	7	2	5	...	7.8	2.2	5.4	...
Guadeloupe	644	530	...	460	229.2	183.4	...	150.3	51	1	...	2	18.1	0.3	...	0.7
Martinique	26	9	-	≠i) 357	9.0	3.1	-	115.2	-	-	...	...	-	-	...	...
Montserrat	24	-	...	11	184.6	-	...	84.6	1	-	...	-	7.7		...	-
Netherlands Antilles	*	*	*	*	*	*	*	*	4	...	...	...	2.1	...	...	...
Puerto Rico	1180	1056	1401	1581	49.0	42.9	55.6	61.3	49	36	34	38	2.0	1.5	1.3	1.5
St. Kitts - Nevis and Anguilla	28	22	12	≠ 5	47.5	36.7	19.7	8.5	2	1	-	...	3.4	1.7	-	...
St. Lucia	391	668	149	≠ 196	439.3	726.1	158.5	213.0	4	3	5	...	4.5	3.3	5.3	...
St. Pierre and Miquelon	-	-	...	≠ -	-	-	...	-	-	-	-	-	-	-	-	-
St. Vincent	...	...	12	...	...	...	14.3	...	2	5	-	...	2.4	6.1	-	...
Surinam (h)	...	*	* 374	d) 259	...	*	...	87.8	11	6	6	10	3.8	2.0	1.9	3.1
Turks and Caicos Is.	4	1	3	≠ -	(66.7)	(16.7)	(50.0)	-	...	...	-	...	...	...	-	...
Virgin Islands (UK)	-	-	...	...	-	-	...	...	-	...	...	...	-	...	...	...
Virgin Islands (US)	175	481	284	454	514.7	1374.3	710.0	1107.3	-	1	3	-	-	2.9	7.5	-
Northern America	126979	128682	126945	117097	63.1	62.9	61.1	55.6	3011	2941	2783	2712	1.5	1.4	1.3	1.3
Middle America (j)	62018	54142	52491	55295	93.0	79.1	73.4	75.5	1263	928	916	900	1.9	1.4	1.3	1.4
South America (k)	30131	32596	31012	36499	58.0	61.7	57.9	62.8	777	657	676	565	1.8	1.5	1.4	1.3

(a) Excluding Cordoba Province. (b) Early syphilis. (c) Death data refer to São Paulo State. (d) Reporting area, for case data. (e) Congenital and early syphilis. (f) Hospital data. (g) Area of information, for death data. (h) Districts with medical certification, for death data. (i) Including cases of yaws. (j) Excluding Haiti from death data. (k) Excluding Brazil, Chile, Ecuador, British Guiana and Surinam from case data; Argentina, Bolivia and Brazil from death data.
* Disease not notifiable. ≠ Provisional data. ( ) Rate based on less than 10 cases in a population of less than 20,000.

TABLE H.. TETANUS - DEATHS WITH RATES PER 100,000 POPULATION, BY COUNTRY, 1955-1964

Country	Number										Rate									
	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964
Argentina	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bolivia	...	6	...	...	...	...	...	...	...	...	...	0.2	...	...	...	...	...	...	...	...
Brazil (São Paulo State)	...	...	...	...	...	...	1 460	1 439	1 422	...	...	...	...	...	...	...	11.1	10.5	10.1	...
Canada	14	5	7	9	4	5	8	5	6	9	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Chile	60	56	53	46	52	57	42	33	31	49	0.9	0.8	0.7	0.6	0.7	0.7	0.5	0.4	0.4	0.6
Colombia	1063	352	478	1 248	1 385	1 392	1 711	2 106	2 328	2 056	8.1	2.6	3.4	8.6	9.3	9.0	10.8	12.8	13.7	11.8
Costa Rica	222	190	184	221	239	255	235	204	205	205	23.3	19.2	17.8	20.5	21.2	21.8	19.2	16.0	15.3	14.8
Cuba	...	...	...	...	274	311	...	...	358	...	...	...	...	...	4.1	4.6	...	...	4.9	...
Dominican Republic	...	...	...	...	...	...	...	...	526	587	...	...	...	...	...	...	...	...	15.6	16.8
Ecuador	708	929	776	876	1 000	1 058	1 077	1 485	1 594	1 728	19.1	24.3	19.7	21.5	23.9	24.5	24.2	32.3	33.7	35.4
El Salvador	343	340	260	311	450	484	524	555	535	...	16.1	15.5	11.5	13.4	18.9	19.7	20.7	21.1	19.7	...
Guatemala	79	83	82	99	133	130	251	259	308	280	2.4	2.5	2.4	2.8	3.6	3.4	6.4	6.4	7.4	6.5
Haiti (a)	106	...	...	...	250	227	249	166	...	...	...	...	...	...	...	...	...	...	...	...
Honduras	71	59	61	48	51	69	106	111	141	126	4.5	3.6	3.6	2.8	2.9	3.8	5.6	5.7	7.0	6.0
Jamaica	55	56	...	...	...	...	129	...	111	97	3.9	3.8	...	...	...	...	7.9	...	6.6	5.6
Mexico	1 955	1 995	2 037	2 085	2 498	2 517	2 635	2 550	2 340	2 361	6.5	6.4	6.4	6.3	7.4	7.2	7.3	6.8	6.1	6.0
Nicaragua	...	308	352	357	400	365	373	398	367	345	...	24.5	27.2	26.8	29.2	25.9	25.7	26.6	23.8	21.6
Panama	172	187	183	170	180	202	215	193	200	224	18.6	19.6	18.7	16.9	17.4	19.0	19.7	17.2	17.3	18.9
Paraguay (b)	...	168	77	235	249	227	242	204	196	...	...	20.8	9.3	27.8	28.8	25.9	26.9	22.0	20.5	...
Peru (c)	...	...	32	178	101	292	271	306	378	356	...	...	1.2	5.7	2.8	7.3	7.0	7.0	8.3	7.3
Trinidad and Tobago	43	35	32	51	51	50	56	50	48	...	6.0	4.7	4.2	6.5	6.2	6.0	6.5	5.6	5.2	...
United States	265	246	279	308	283	231	242	215	210	179	0.2	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1
Uruguay	37	...	...	36	28	35	23	...	18	...	1.6	...	...	1.5	1.1	1.4	0.9	...	0.7	...
Venezuela	621	595	564	539	530	507	498	464	479	437	10.1	9.3	8.5	7.8	7.4	6.9	6.5	5.9	5.9	5.2
Antigua	1	2	1	4	5	2	2	-	6	3	2.0	3.9	1.9	7.5	9.3	3.6	3.6	-	10.2	5.0
Bahama Islands	7	-	-	12	6	9	...	8	...	13	7.6	-	-	11.3	5.4	7.8	...	6.2	...	9.2
Barbados	22	21	17	23	18	17	18	20	16	18	9.8	9.3	7.5	10.1	7.8	7.3	7.7	8.5	6.7	7.4
Bermuda	2	2	6	3	...	...	-	-	-	-	5.0	4.9	14.3	7.0	...	...	-	-	-	-
British Guiana	22	23	8	15	19	11	18	12	15	...	4.5	4.6	1.6	2.8	3.5	2.0	3.1	2.0	2.5	...
British Honduras	9	2	7	2	4	8	17	7	8	8	11.5	2.5	8.4	2.3	4.5	8.8	18.1	7.2	8.0	7.8
Canal Zone	...	-	...	...	...	-	-	-	-	-	...	-	...	...	...	-	-	-	-	-
Cayman Islands	...	...	...	...	...	...	...	-	...	...	...	...	...	...	...	....	...	-	...	...
Dominica	2	4	2	4	3	8	10	3	8	...	3.6	7.1	3.5	6.9	5.1	13.3	16.7	4.9	12.7	...
Falkland Islands	...	...	...	...	-	-	-	-	-	-	...	...	...	...	-	-	-	-	-	-
French Guiana	7	2	5	2	6	5	2	-	...	3	24.1	6.9	16.7	6.5	18.8	15.2	5.9	-	...	8.3
Grenada	6	...	...	...	8	8	5	5	-	...	7.2	...	...	...	9.1	9.0	5.6	5.5	-	...
Guadeloupe	...	...	3	4	10	7	31	23	...	11	...	...	1.2	1.6	3.8	2.6	11.0	8.0	...	3.6
Martinique	...	13	16	9	13	23	19	11	...	...	...	5.2	6.2	3.4	4.7	8.2	6.6	3.7	...	...
Montserrat	...	2	...	...	...	-	2	-	...	-	...	14.3	...	...	...	-	15.4	-	...	-
Netherlands Antilles	...	...	...	...	...	2	4	...	...	...	...	...	...	...	...	1.1	2.1	...	...	...
Puerto Rico	68	69	81	60	61	53	67	65	47	65	3.0	3.1	3.6	2.6	2.6	2.2	2.8	2.6	1.9	2.5
St. Kitts-Nevis and Anguilla	4	-	3	3	4	-	2	2	1	...	7.5	-	5.6	5.5	7.1	-	3.4	3.3	1.6	...
St. Lucia	3	3	12	15	26	9	8	13	12	...	3.8	3.7	14.5	17.9	30.6	10.5	9.0	14.1	12.8	...
St. Pierre and Miquelon	...	...	...	...	...	-	-	-	-	-	...	...	...	...	...	-	-	-	-	-
St. Vincent	-	...	...	...	...	...	...	-	...	...	-	...	...	...	...	...	...	-	...	...
Surinam	12	...	...	16	12	13	15	13	22	26	5.4	...	...	6.3	4.5	4.7	5.2	4.3	7.0	8.0
Turks and Caicos Islands	...	...	...	...	...	...	-	...	-	...	...	...	...	...	...	...	-	...	-	...
Virgin Islands (UK)	-	...	...	...	...	-	-	...	...	...	-	...	...	...	...	-	-	...	...	...
Virgin Islands (US)	1	-	1	1	2	2	2	1	1	-	3.6	-	3.4	3.3	6.5	6.2	5.9	2.9	2.5	...
Northern America	281	253	292	320	287	236	250	220	216	188	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1
Middle America (d)	3 063	3 369	3 334	3 479	4 162	4 218	4 707	4 478	4 354	3 756	7.0	7.2	7.1	7.2	8.4	8.2	8.6	8.2	7.6	6.8
South America (e)	2 530	2 125	1 993	3 191	3 382	3 597	3 899	4 623	5 061	4 655	7.7	6.6	5.6	8.0	8.1	8.3	8.8	10.7	10.7	10.5

(a) Hospital data. (b) Area of information. (c) Principal cities 1957-1960; districts with medical certification 1961-1964.
(d) Excluding Cuba, Dominican Republic, Haiti and Netherlands Antilles. (e) Excluding Argentina, Bolivia and Brazil.

TABLE I. TUBERCULOSIS - REPORTED CASES WITH RATES PER 100,000 POPULATION, BY COUNTRY, 1957-1964

Country	Number								Rate							
	1957	1958	1959	1960	1961	1962	1963	1964	1957	1958	1959	1960	1961	1962	1963	1964
Argentina	19647	16508	17387	18865	19098	18000	24060	21101	100.2	82.6	85.5	91.3	90.9	84.3	110.9	95.8
Bolivia	596	522	1779	1136	1244	1714	a) 1365	a) 1471	18.0	15.5	52.2	32.9	35.5	48.3	37.9	40.3
Brazil (b)	13735	7986	14079	9943	11837	...	a) 25752	...	204.2	115.7	138.2	100.8	158.9	...	186.3	...
Canada (c)	7662	7215	6579	6345	5966	6284	5705	4541	45.9	42.1	37.5	35.4	32.7	33.8	30.1	23.6
Chile	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Colombia (d)	13787	14579	13858	14392	13961	14362	a) 13455	a) 13128	114.6	119.3	110.1	106.5	101.5	105.2	95.2	75.1
Costa Rica	605	560	649	624	492	602	a) 567	≠ 501	58.6	52.0	57.6	53.3	40.2	47.3	42.2	36.1
Cuba	1838	1177	1849	1856	2625	2725	2768	3909	28.7	18.0	27.6	27.2	37.8	38.6	38.3	52.6
Dominica Republic	2184	2199	2189	2122	1197	1060	2180	993	80.1	77.8	74.8	70.0	38.1	32.6	64.6	28.4
Ecuador	4699	5463	4692	5223	5758	5082	...	e) 2562	119.2	134.4	112.0	120.9	129.3	110.7	...	...
El Salvador (f)	3011	2918	3872	5251	5388	4581	6035	4544	262.7	231.2	294.0	358.2	365.8	302.6	221.8	160.9
Guatemala	1942	1153	3649	3802	3362	3495	3647	3714	55.8	32.2	98.7	99.8	85.6	86.3	87.3	86.3
Haiti	1188	2278	3067	2860	3332	3875	≠ 4557	≠ 3862	30.5	57.2	75.4	68.8	78.4	89.2	102.4	84.9
Honduras (g)	...	1439	1609	4566	1985	2157	a) 951	a) 2601	...	83.4	90.4	248.6	104.7	226.6	95.1	208.7
Jamaica	701	574	838	629	495	335	310	362	46.7	37.2	52.9	38.9	30.3	20.4	18.4	20.9
México	10392	11157	11348	12417	13801	16242	17866	a) 15834	32.6	33.9	33.5	35.5	38.2	43.6	46.5	39.9
Nicaragua	1014	1330	744	581	707	391	344	1241	78.5	100.0	54.3	41.2	48.7	26.1	22.3	77.7
Panama	1878	1385	1673	1487	1104	1423	1330	1549	192.0	137.7	162.0	140.0	101.1	126.8	115.4	130.7
Paraguay (h)	1381	1206	1126	1113	920	1223	1344	1447	135.3	107.6	65.2	63.0	77.3	100.2	122.2	131.5
Peru (h)	22552	19336	22796	19485	21503	24005	21460	24041	472.8	397.5	425.3	348.4	440.9	465.8	445.7	445.4
Trinidad and Tobago	380	281	298	243	264	398	384	312	49.7	35.6	36.5	28.9	30.4	44.5	41.6	32.9
United States (c)	67149	63534	57535	55494	53727	53788	54062	50874	39.2	36.5	32.5	30.8	29.3	28.9	28.7	26.6
Uruguay	3164	3134	2134	1928	2044	1836	2226	≠ 1693	130.2	127.2	85.4	76.0	79.4	70.3	84.0	63.1
Venezuela (h)	7211	7494	7887	8722	8487	8138	7529	7121	200.3	201.2	204.3	217.7	168.1	154.2	136.2	123.8
Antigua	16	22	28	8	6	2	1	4	30.8	41.5	51.9	14.5	10.7	3.4	1.7	6.7
Bahama Islands	117	107	124	187	122	156	296	145	115.8	100.9	111.7	161.2	100.0	121.9	220.0	102.8
Barbados	79	72	68	43	47	74	72	79	35.0	31.6	29.4	18.4	20.1	31.4	30.1	32.6
Bermuda	2	11	7	12	22	10	≠ 17	16	4.8	25.6	16.3	27.3	48.9	21.7	36.2	33.3
British Guiana	192	202	172	186	172	212	184	195	37.3	38.0	31.3	33.0	29.8	35.7	30.1	31.0
British Honduras	56	74	38	72	54	58	95	74	67.5	86.0	43.2	79.1	57.4	59.8	95.0	71.8
Canal Zone	26	28	16	8	15	21	16	≠ 17	50.0	65.1	38.1	19.0	34.9	46.7	32.0	31.5
Cayman Islands	...	...	...	...	3	3	2	≠ -	...	...	...	...	33.3	33.3	22.2	-
Dominica	85	83	94	166	...	161	145	≠ 82	149.1	143.1	159.3	276.7	...	263.9	230.2	128.1
Falkland Islands	3	4	3	3	-	6	...	...	150.0	200.0	150.0	150.0	-	300.0	...	...
French Guiana	21	14	...	...	37	26	40	27	70.0	45.2	...	...	108.8	76.5	114.3	75.0
Grenada	...	...	34	45	37	29	21	...	...	...	38.6	50.6	41.1	31.9	22.8	...
Guadeloupe	298	234	459	241	106	208	...	187	110.2	90.7	173.2	88.3	37.7	72.0	...	61.1
Martinique	215	271	225	190	149	151	123	≠ 103	83.0	101.9	82.1	67.6	51.6	51.4	40.7	33.2
Montserrat	6	7	...	...	9	4	...	3	42.9	50.0	...	...	69.2	30.8	...	23.1
Netherlands Antilles	45	24	52	30	23	33	a) 23	8	24.3	12.8	27.7	15.8	11.9	16.7	11.4	3.9
Puerto Rico	3120	2800	2487	2137	c) 1812	c) 1816	c) 1852	c) 1685	138.1	121.8	107.1	90.5	75.2	73.9	73.5	65.4
St. Kitts-Nevis and Anguilla	22	27	70	47	23	8	18	≠ 16	40.7	49.1	125.0	82.5	39.0	13.3	29.5	27.1
St. Lucia	118	120	75	67	59	53	74	≠ 44	142.2	142.9	88.2	77.9	66.3	57.6	78.7	47.8
St. Pierre and Miquelon	10	15	17	9	7	17	...	≠ 10	200.0	300.0	340.0	180.0	140.0	340.0	...	200.0
St. Vincent	29	15	37	35	...	...	17	...	38.2	19.5	46.8	43.8	...	...	20.2	...
Surinam	119	135	187	126	204	143	148	162	48.8	53.1	70.6	45.4	70.6	49.3	50.2	54 9
Turks and Caicos Islands	...	...	...	...	2	-	1	≠ -	...	...	...	...	33.3	-	16.7	-
Virgin Islands (UK)	...	...	2	2	2	2	...	...	...	...	28.6	28.6	25.0	25.0	...	...
Virgin Islands (US)	8	9	15	6	12	4	c) 7	≠ 3	27.6	30.0	48.4	18.8	35.3	11.4	17.5	7.3
Northern America	74823	70775	64138	61860	59722	60099	59784	55441	39.8	37.0	32.9	31.3	29.7	29.4	28.8	26.3
Middle America	29373	30344	35609	39722	37233	40067	43702	41872	49.9	48.6	55.4	59.9	54.7	58.1	60.6	56.1
South America (i)	73372	68597	72021	71179	73428	74747	71811	70386	142.4	130.4	131.5	125.6	128.1	128.2	131.9	119.2

(a) Respiratory tuberculosis (001-008). (b) Incomplete data for State of Guanabara and capitals of several other states with exceptions. (c) Newly reported active cases. (d) Reporting area except in 1964. (e) Hospital data. (f) Reporting area until 1962 inclusive. (g) Reporting area beginning 1962. (h) Reporting area. (i) Se excluyen Brasil y Chile. * Disease not notifiable. ≠ Provisional data.

TABLE J. TUBERCULOSIS - DEATHS WITH RATES PER 100,000 POPULATION, BY COUNTRY, 1957-1964

	Number								Rate							
	1957	1958	1959	1960	1961	1962	1963	1964	1957	1958	1959	1960	1961	1962	1963	1964
Argentina	...	...	3 524	3 363	...	2 844	...	...	...	...	17.3	16.2	...	13.3	...	...
Bolivia	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Brazil (a)	8 522	7 973	8 434	...	4 023	1 892	...	...	87.4	79.7	84.2	...	52.7	79.1	...	...
Canada	1 183	1 027	959	823	769	785	756	670	7.1	6.0	5.5	4.6	4.2	4.2	4.0	3.5
Chile	4 110	3 776	4 073	4 032	4 112	3 906	4 407	3 853	57.6	51.6	54.3	52.4	52.3	48.6	53.6	45.9
Colombia	3 614	3 662	3 841	4 074	4 066	4 260	4 111	3 840	25.8	25.3	25.7	26.4	25.6	25.9	24.3	22.0
Costa Rica	217	165	163	151	105	151	134	169	21.0	15.3	14.5	12.9	8.6	11.9	10.0	12.2
Cuba	1 175	1 076	1 146	1 054	1 204	1 402	1 406	1 133	18.3	16.4	17.1	15.4	17.4	19.8	19.4	15.2
Dominican Republic	614	476	512	467	457	354	271	266	22.5	16.8	17.5	15.4	14.5	10.9	8.0	7.6
Ecuador	1 420	1 454	1 220	1 290	1 201	1 279	1 213	1 153	36.0	35.8	29.1	29.9	27.0	27.9	25.6	23.6
El Salvador	406	432	384	408	372	373	417	...	18.0	18.6	16.1	16.6	14.7	14.2	15.3	...
Guatemala	1 272	1 306	1 207	1 266	1 237	1 261	1 291	...	36.6	36.4	32.7	33.2	31.5	31.1	30.9	...
Haiti	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Honduras	286	244	297	265	236	271	223	191	17.1	14.1	16.7	14.4	12.4	13.8	11.0	9.1
Jamaica	...	185	...	...	143	...	117	92	...	12.0	...	...	8.7	...	6.9	5.3
Mexico	9 494	9 399	9 168	9 719	9 403	9 799	9 648	9 535	29.8	28.6	27.0	27.8	26.1	26.3	25.1	24.1
Nicaragua	72	97	113	123	104	128	98	92	5.6	7.3	8.2	8.7	7.2	8.6	6.4	5.8
Panamá	267	266	238	288	233	252	246	285	27.3	26.4	23.0	27.1	21.3	22.5	21.3	24.0
Paraguay (b)	219	220	244	292	275	275	232	...	26.6	26.1	28.2	33.3	30.6	29.7	24.3	...
Peru (c)	3 224	2 627	3 182	3 083	3 129	3 164	3 338	3 246	118.5	83.6	89.4	77.0	80.6	72.1	73.0	66.1
Trinidad and Tobago	139	110	116	95	86	48	74	70	18.2	13.9	14.2	11.3	9.9	5.4	8.0	7.4
United States	13 390	12 417	11 474	10 866	9 938	9 506	9 311	8 303	7.8	7.1	6.5	6.0	5.4	5.1	4.9	4.3
Uruguay	599	519	507	453	449	...	455	...	24.6	21.1	20.3	17.9	17.4	...	17.2	...
Venezuela	1 731	1 547	1 466	1 411	1 312	1 255	1 227	1 236	26.1	22.5	20.6	19.2	17.2	15.9	15.1	14.7
Antigua	12	7	9	3	9	7	2	4	23.1	13.2	16.7	5.5	16.1	12.1	3.4	6.7
Bahama Islands	13	20	12	22	...	9	...	8	12.9	18.9	10.8	19.0	...	7.0	...	6.0
Barbados	25	18	16	16	13	17	11	14	11.1	7.9	6.9	6.8	5.6	7.2	4.6	5.8
Bermuda	-	2	1	1	1	1	...	2	-	4.7	2.3	2.3	2.2	2.2	...	4.2
British Guiana	139	77	66	57	47	36	50	...	27.0	14.5	12.0	10.1	8.1	6.1	8.2	...
British Honduras	14	14	21	16	8	10	12	12	16.9	16.3	23.9	17.6	8.5	10.3	12.0	11.6
Canal Zone	2	1	1	-	-	2	-	2	3.8	2.3	2.4	-	-	4.4	-	3.7
Cayman Islands	...	...	...	...	...	-	...	...	...	...	...	...	...	-	...	...
Dominica	27	32	19	29	...	19	28	...	47.4	55.2	32.2	48.3	...	31.1	44.4	...
Falkland Islands	-	2	-	-	-	-	...	...	-	100.0	-	-	-	-	...	...
French Guiana	7	12	8	11	11	...	...	9	23.3	38.7	25.0	33.3	32.4	...	...	25.0
Grenada	18	5	7	10	6	11	5	...	21.2	5.8	8.0	11.2	6.7	12.1	5.4	...
Guadeloupe	73	38	55	59	68	58	...	42	29.2	14.7	20.8	21.6	24.2	20.1	...	13.7
Martinique	96	108	76	92	75	56	...	...	37.1	40.6	27.7	32.7	26.0	19.0	...	...
Montserrat	6	4	...	5	2	2	...	3	42.9	28.6	...	41.7	15.4	15.4	...	23.1
Netherlands Antilles	3	4	5	...	1	...	...	...	1.6	2.1	2.7	...	0.5	...	...	...
Puerto Rico	741	667	679	689	633	582	517	498	32.8	29.0	29.2	29.2	26.3	23.7	20.5	19.3
St. Kitts-Nevis and Anguilla	6	11	14	14	7	11	8	...	11.1	20.0	25.0	24.6	11.9	18.3	13.1	...
St. Lucia	48	41	39	15	12	11	9	...	57.8	48.8	45.9	17.4	13.5	12.0	9.6	...
St. Pierre and Miquelon	2	3	5	1	-	3	3	1	40.0	60.0	100.0	20.0	-	60.0	60.0	20.0
St. Vicent	...	...	...	...	7	6	1	...	...	...	...	...	8.5	7.3	1.2	...
Surinam	37	30	20	22	23	6	21	18	15.2	11.8	7.5	7.9	8.0	2.0	6.7	5.5
Turks and Caicos Islands	...	...	...	...	-	-	1	...	...	...	...	...	-	-	16.7	...
Virgin Islands (UK)	1	-	-	2	-	-	...	...	14.3	-	-	28.6	-	-	...	...
Virgin Islands (US)	4	3	2	6	1	2	1	1	13.8	10.0	6.5	18.8	2.9	5.7	2.5	2.4
Northern America	14 575	13 449	12 439	11 691	10708	10295	10070	8976	7.8	7.0	6.4	5.9	5.3	5.0	4.9	4.3
Middle America (d)	15 031	14 544	14 299	14 814	14278	14842	14401	12325	26.8	25.2	24.0	24.2	22.7	22.8	21.7	20.1
South America (e)	15 100	13 926	14 627	14 725	14625	14181	15054	13355	39.2	34.8	35.2	34.2	33.2	32.9	31.9	29.6

(a) State of Guanabara and capitals of other states with exceptions. (b) Area of information. (c) Principal cities in 1957-1960; districts with medical certification 1961-1964. (d) Excluding Haiti and Jamaica. (e) Excluding Argentina, Bolivia and Brazil.

TABLE K. TYPHOID FEVER - REPORTED CASES AND DEATHS WITH RATES PER 100,000 POPULATION, BY COUNTRY, 1961-1964

Country	Cases								Deaths							
	Number				Rate				Number				Rate			
	1961	1962	1963	1964	1961	1962	1963	1964	1961	1962	1963	1964	1961	1962	1963	1964
Argentina (a)	1716	1038	2012	1545	8.2	4.9	9.3	7.0	...	bc)76	...	...	...	0.4	...	...
Bolivia	118	116	62	131	3.4	3.3	1.7	3.6	...	...	...	...	...	...	...	...
Brazil (a, d)	5922	...	4965	...	52.4	...	32.3	...	30	30	33	...	0.2	0.2	0.2	...
Canada (a)	266	276	147	195	1.5	1.5	0.8	1.0	2	2	1	2	0.0	0.0	0.0	0.0
Chile	a) 4618	3688	a) 4185	4597	58.8	45.9	50.9	54.8	195	230	190	172	2.5	2.9	2.3	2.0
Colombia (a)	e)11047	e)13810	e)11971	12055	80.3	101.2	84.7	69.0	602	659	605	530	3.8	4.0	3.6	3.0
Costa Rica	99	58	85	77	8.1	4.6	6.3	5.6	7	10	12	12	0.6	0.8	0.9	0.9
Cuba	948	1007	420	1158	13.7	14.2	5.8	15.6	57	49	21	...	0.8	0.7	0.3	...
Dominican Republic	555	622	1166	525	17.6	19.1	34.6	15.0	123	116	82	42	3.9	3.6	2.4	1.2
Ecuador	2880	a) 3117	a) 3010	a)2181	64.7	67.9	63.6	44.7	746	659	541	109	16.7	14.4	11.4	2.2
El Salvador	e) 909	e) 1353	1116	1279	61.7	89.4	41.0	45.3	30	49	169	...	1.2	1.9	6.2	...
Guatemala	887	732	879	1115	22.6	18.1	21.0	25.9	348	290	351	...	8.9	7.2	8.4	...
Haiti	264	493	≠ 395	≠ 443	6.2	11.3	8.9	9.7	f) 24	f) 40	...	...	...	...	...	...
Honduras	411	e) 368	a, e) 646	ae)1027	21.7	38.7	64.6	82.4	90	61	58	82	4.7	3.1	2.9	3.9
Jamaica	144	163	259	214	8.8	9.9	15.4	12.4	21	...	70	13	1.3	...	4.1	0.8
Mexico	6203	6138	5980	5568	17.2	16.5	15.6	14.0	2341	2242	1957	1870	6.5	6.0	5.1	4.7
Nicaragua	291	286	335	174	20.0	19.1	21.7	10.9	151	110	98	79	10.4	7.4	6.4	4.9
Panama	12	49	11	36	1.1	4.4	1.0	3.0	3	2	3	1	0.3	0.2	0.3	0.1
Paraguay (a, e, g)	84	66	89	51	7.1	5.4	8.1	4.6	4	6	3	...	0.4	0.6	0.3	...
Peru (a, e, h)	4743	4318	5074	5191	97.3	83.8	104.8	96.2	131	87	132	174	3.4	2.0	2.9	3.5
Trinidad and Tobago	119	84	62	42	13.7	9.4	6.7	4.4	7	1	3	≠c)2	0.8	0.1	0.3	0.2
United States	814	608	566	501	0.4	0.3	0.3	0.3	17	15	21	10	0.0	0.0	0.0	0.0
Uruguay	415	303	246	≠ 229	16.1	11.6	9.3	8.3	15	...	3	...	0.6	...	0.1	...
Venezuela (a, e)	857	691	522	530	17.0	13.1	9.4	9.2	24	25	20	20	0.3	0.3	0.2	0.2
Antigua (a)	10	32	9	2	17.9	55.2	15.3	3.3	2	1	1	-	3.6	1.7	1.7	-
Bahama Islands	19	17	10	16	15.6	13.3	7.5	11.3	...	1	-	-	...	0.8	-	-
Barbados	15	6	12	22	6.4	2.5	5.0	9.1	-	1	1	2	-	0.4	0.4	0.8
Bermuda	-	-	≠ 2	1	-	-	4.3	2.1	-	-	...	1	-	-	...	2.1
British Guiana	413	308	228	280	71.6	51.9	37.3	44.5	17	11	10	≠ 14	2.9	1.9	1.6	2.2
British Honduras	17	10	46	5	18.1	10.3	46.0	4.9	3	2	2	1	3.2	2.1	2.0	1.0
Canal Zone	3	-	-	≠ 2	7.0	-	-	3.7	-	-	-	-	-	-	-	-
Cayman Islands	2	-	-	≠ -	(22.2)	-	-	-	...	-	-	...	...	-	-	...
Dominica (a)	43	76	c) 69	≠ 121	71.7	124.6	109.5	189.1	i) 1	i) 5	5	...	1.7	8.2	7.9	...
Falkland Islands	-	-	...	...	-	-	...	...	-	-	-	-	-	-	-	-
French Guiana	c) 19	9	5	11	55.9	26.5	14.3	30.6	...	...	...	-	...	...	...	-
Grenada	10	1	6	...	11.1	1.1	6.5	...	1	-	c) 2	...	1.1	-	2.2	...
Guadeloupe	20	10	≠ 17	1	7.1	3.5	5.7	0.3	6	2	...	1	2.1	0.7	...	0.3
Martinique (a)	262	169	218	≠ 91	90.7	57.5	72.2	29.4	i) 6	i) 6	6	...	2.1	2.0	2.0	...
Montserrat	18	9	...	2	138.5	(69.2)	...	(15.4)	-	-	...	1	-	-	...	7.7
Netherlands Antilles	8	1	5	3	4.1	0.5	2.5	1.5	2	...	...	...	1.0	...	...	...
Puerto Rico	23	18	17	12	1.0	0.7	0.7	0.5	1	-	1	1	0.0	-	0.0	0.0
St. Kitts-Nevis and Anguilla	6	3	-	≠ -	10.2	5.0	-	-	1	2	-	...	1.7	3.3	-	...
St. Lucia	154	34	a) 30	≠ 40	173.0	37.0	31.9	43.5	13	3	i) 1	...	14.6	3.3	1.1	...
St. Pierre and Miquelon	-	-	...	≠ -	-	-	...	-	-	-	-	-	-	-	-	-
St. Vincent	...	...	15	...	...	...	17.9	...	-	2	-	...	-	2.4	-	...
Surinam	26	e) 12	e) 14	e) 73	9.0	4.1	4.7	24.7	4	-	1	2	1.4	-	0.3	0.6
Turks and Caicos Is.	a) 1	-	-	≠ -	(16.7)	-	-	-	...	...	-	...	...	...	-	...
Virgin Islands (UK)	-	2	...	...	-	(25.0)	...	...	-	...	...	...	-	...	...	...
Virgin Islands (US)	2	1	-	≠ -	5.9	2.9	-	-	-	-	-	-	-	-	-	-
Northern America	1080	884	714	697	0.5	0.4	0.3	0.3	19	17	22	17	0.0	0.0	0.0	0.0
Middle America (j)	11455	11742	11808	11975	16.8	17.0	16.3	16.3	3211	2955	2843	2107	5.0	4.5	4.2	3.8
South America (k)	26936	27661	27391	27009	41.4	41.7	40.6	37.3	1738	1677	1505	1021	3.9	3.9	3.2	2.3

(a) Case data include paratyphoid fever. (b) Excluding Cordoba Province. (c) Including paratyphoid fever and other salmonella infections. (d) Case data refer to State of Guanabara and capitals of 14 other states in 1961, to Federal District, States of Guanabara and Pernambuco and capitals of 10 other states in 1963; death data refer to State of São Paulo. (e) Reporting area for case data. (f) Hospital data. (g) Area of information, for death data. (h) Districts with medical certification, for death data. (i) Including paratyphoid fever. (j) Excluding Haiti from death data. (k) Excluding Brazil from case data; Argentina, Bolivia and Brazil from death data. ≠ Provisional data. ( ) Rate based on less than 10 cases in a population of less than 20,000.

TABLE L. WHOOPING COUGH - REPORTED CASES AND DEATHS WITH RATES PER 100,000 POPULATION, BY COUNTRY, 1961-1964

Country	Cases								Deaths							
	Number				Rate				Number				Rate			
	1961	1962	1963	1964	1961	1962	1963	1964	1961	1962	1963	1964	1961	1962	1963	1964
Argentina	25 180	10 246	19 890	40 711	119.8	48.0	91.7	184.9	...	a) 196	...	...	...	1.0	...	...
Bolivia	364	511	307	144	10.4	14.4	8.5	3.9	...	...	...	...	...	...	...	...
Brazil (b)	5 708	...	3 953	...	77.9	...	25.7	...	245	207	158	...	1.9	1.5	1.1	...
Canada	5 478	8076	6 136	4 844	30.0	43.4	32.4	25.1	36	24	28	26	0.2	0.1	0.1	0.1
Chile	2 571	2 352	6 462	5 279	32.7	29.3	78.6	62.9	199	185	371	297	2.5	2.3	4.5	3.5
Colombia	c) 19 221	c) 28 990	c) 28520	32 435	139.8	212.3	201.7	185.5	1 976	2 371	3 029	2 754	12.4	14.4	17.9	15.8
Costa Rica	1053	1 104	3 353	1 529	86.0	86.7	249.5	110.2	70	66	108	94	5.7	5.2	8.0	6.8
Cuba	146	151	93	328	2.1	2.1	1.3	4.4	21	6	3	≠ 6	0.3	0.1	0.0	0.1
Dominican Republic	3098	1 507	2 973	4686	98.5	46.3	88.2	134.1	24	15	21	43	0.8	0.5	0.6	1.2
Ecuador	...	...	...	d) 276	...	...	...	...	3 104	3 650	4 402	3 091	69.7	79.5	93.0	63.3
El Salvador	c) 1 721	c) 3049	3 709	3 677	116.8	201.4	136.3	130.2	337	435	483	...	13.3	16.6	17.8	...
Guatemala	2 725	2 322	2 185	2 355	69.4	57.3	52.3	54.7	2 902	3 675	3 209	2 593	73.9	90.7	76.8	60.2
Haiti	1 377	3 621	≠ 2 196	≠ 1018	32.4	83.3	49.4	22.4	d) -	d) 1	...	...	...	...	...	...
Honduras	3 641	c) 3 702	c) 3 312	c) 4 231	192.0	388.9	331.2	339.6	532	300	536	288	28.1	15.3	26.5	13.8
Jamaica	162	3 157	3 203	651	9.9	192.3	189.9	37.7	4	...	90	11	0.2	...	5.3	0.6
Mexico	46 089	30 562	42 884	39 119	127.7	82.1	111.6	98.7	5 452	4 738	5 299	6 627	15.1	12.7	13.8	16.7
Nicaragua	425	188	54	556	29.2	12.6	3.5	34.8	152	148	83	115	10.5	9.9	5.4	7.2
Panama	312	1023	554	1001	28.6	91.2	48.0	84.5	146	48	56	94	13.4	4.3	4.9	7.9
Paraguay (c, e)	520	1577	1790	1601	43.7	129.3	162.7	145.5	14	23	32	...	1.6	2.5	3.4	...
Peru (c, f)	10 891	9295	19 911	17 914	223.3	180.4	413.5	331.9	174	136	276	326	4.5	3.1	6.0	6.6
Trinidad and Tobago	354	632	849	221	40.8	70.7	92.1	...	-	1	1	≠ 1	-	0.1	0.1	0.1
United States	11 468	17 749	17 135	13005	6.3	9.5	9.1	6.8	76	83	115	93	0.0	0.0	0.1	0.0
Uruguay	449	331	2 714	≠ 717	17.4	12.7	102.5	26.7	14	...	64	...	0.5	...	2.4	...
Venezuela (c)	7 172	6 263	9 490	39 201	142.0	118.7	171.7	681.5	61	51	57	392	0.8	0.6	0.7	4.7
Antigua	-	1086	28	-	-	1872.4	47.5	-	-	1	-	-	-	1.7	-	-
Bahama Islands	-	-	4	10	-	-	3.0	7.1	...	-	-	-	...	-	-	-
Barbados	*	*	*	*	*	*	*	*	5	2	5	1	2.1	0.8	2.1	0.4
Bermuda	-	-	-	-	-	-	-	-	-	-	...	-	-	-	...	-
British Guiana	*	596	570	1	*	100.3	93.1	...	-	4	18	≠ 10	-	0.7	2.9	1.6
British Honduras	43	104	-	-	45.7	107.2	-	-	1	2	-	-	1.1	2.1	-	-
Canal Zone	2	-	-	≠ -	4.7	-	-	-	-	-	-	-	-	-	-	-
Cayman Islands	-	-	-	≠ -	-	-	-	-	...	-	-	...	...	-	-	...
Dominica	...	475	4 422	≠ 4	...	778.7	7019.0	6.2	...	1	57	...	...	1.6	90.5	...
Falkland Islands	-	-	...	...	-	-	...	...	-	-	-	-	-	-	-	-
French Guiana	-	22	38	-	-	64.7	108.6	-	...	...	...	-	...	...	...	-
Grenada	759	...	...	...	843.3	...	...	...	4	-	1	...	4.4	-	1.1	...
Guadeloupe	-	5	-	-	-	1.7	-	-	-	-	...	1	-	-	...	0.3
Martinique	7	92	4	≠ 5	2.4	31.3	1.3	1.6	4	3	1	...	1.4	1.0	0.3	...
Montserrat	-	...	...	2	-	...	...	(15.4)	-	-	...	-	-	-	...	-
Netherlands Antilles	*	*	*	*	*	*	*	*	-	...	...	...	-	...	...	...
Puerto Rico	294	676	748	406	12.2	27.5	29.7	15.7	7	25	29	19	0.3	1.0	1.2	0.7
St. Kitts-Nevis and Anguilla	2	-	-	≠ 5	3.4	-	-	8.5	-	-	-	...	-	-	-	...
St. Lucia	1	3 401	8	≠ 1	1.1	3696.7	8.5	1.1	-	42	5	...	-	45.7	5.3	...
St. Pierre and Miquelon	-	-	...	≠ -	-	-	...	-	-	-	-	-	-	-	-	-
St. Vincent	...	...	7	...	...	...	8.3	...	43	-	-	...	52.4	-	-	...
Surinam	*	*	*	*	*	*	*	*	-	1	6	-	-	0.3	1.9	-
Turks and Caicos Is.	-	-	-	≠ -	-	-	-	-	...	...	-	...	...	...	-	...
Virgin Islands (UK)	-	-	...	...	-	-	...	...	-	...	...	...	-	...	...	...
Virgin Islands (US)	-	-	10	≠ -	-	-	25.0	-	-	-	-	-	-	-	-	-
Northern America	16 946	25 825	23 271	17 849	8.4	12.6	11.2	8.5	112	107	143	119	0.1	0.1	0.1	0.1
Middle America (g)	62 211	56 857	70 596	59 584	92.1	82.9	98.3	81.3	9704	9508	9987	9893	15.0	14.6	14.6	14.7
South America (h)	66 368	60 193	89 692	138002	110.9	97.9	143.8	207.5	5542	6421	8255	6870	12.6	14.9	17.5	15.2

(a) Excluding Cordoba Province. (b) Case data refer to State of Guanabara and capitals of 13 other states in 1961, to Federal District, States of Guanabara and Pernambuco and capitals of 10 other states in 1963; death data refer to State of São Paulo. (c) Reporting area, for case data. (d) Hospital data. (e) Area of information for death data. (f) Districts with medical certification, for death data. (g) Excluding Haiti from death data. (h) Excluding Brazil and Ecuador from case data; Argentina, Bolivia and Brazil from death data. * Disease not notifiable. ≠ Provisional data. ( ) Rate based on less than 10 cases in a population of less than 20,000.

CHAPTER IV

HEALTH SERVICES

Information on the facilities for providing health services as well as the activities carried out by local, regional and national health departments is important for planning of health programs. However, to obtain the necessary data for definition of the existing situation is difficult because of the lack of standard procedures for reporting on facilities, for determining the population to which the services are available and accessible and for measuring the services rendered. In Part B of the questionnaire for the Third Report on the World Health Situation data were requested on total general government expenditures as well as those on health. Also included in that report was a table on out-patient clinics, health centers, and other establishments for out-patient care and the patients receiving care as well as total visits. A third table covers the specialized services. These three tables are the principal source of data for this Chapter. Nevertheless annual reports from national health services have also been used to supplement these data.

Health services are rendered by hospitals as well as by health centers and posts. The amount of information which the countries are supplying to PAHO/WHO in annual reports regarding hospitals and in special reports on hospitals is increasing. Thus the hospital facilities, their utilization and hospital morbidity are the subject of Chapter V.

Through the impetus given to health planning in the last five years greater attention is being focussed on health services and on hospital services. Efforts are being directed to measuring services rendered according to diseases and conditions requiring medical attention as well as to the prevention and eradication of certain diseases. Thus for the first time this Chapter contains data on the diagnoses of the patients attending out-patient clinics and health centers. The experiences were large ones; in El Salvador 692,887 persons (245.4 per 1,000 population) received out-patient care in 1964 and in Peru, 4,723,164 (418.1 per 1,000).

In Part A of the questionnaire of the Third Report on the World Health Situation the Ministry of Health of each country was asked to report the major social, cultural and economic developments affecting the health situation as well as to give other information of the health activities. In this Chapter a short summary of these changes is presented.

EXPENDITURES FOR HEALTH SERVICES

The data requested on government consumption expenditures include 1) expenditures for all purposes and at all levels, and 2) the general government health expenditures at the central, intermediate and local levels. The central government health expenditures should be those of the Ministry or Department of Health and of other ministries and departments providing medical and health care. Similar data were obtained in the Second Report on the World Health Situation although the questionnaire for the Third Report was more explicit and definitions were detailed. For many countries the data for 1960 and 1964 appear to be comparable and are used to indicate the changes that have occurred. The inclusions in 1960 were described in a previous report.(1) The expenditures at the three levels for 1963 or 1964 are given in Table 1 and the inclusions at the central level are described. The data for 1960 and around 1964 are compared in Table 2. A few explanations may assist in the interpretation of the data. In a few instances data have been taken from other reports.

1/ *Summary of Four Year Reports on Health Conditions in the Americas, 1957-1960*, PAHO, Sc. Pub. No. 64, 1962.

Table 1. Total Government Expenditures and Expenditures for Health, by Country Around 1964

Area	Year	Total (National currency)	Health					
			Total		Central		Intermediate	Local
			Amount	Per cent	Amount	Per cent		
Argentina	1964	138 080 700 000	7 916 200 000	5.7	7 916 200 000	5.7	...	...
Canada	1963-64	8 168 000 000	1 365 000 000	16.7	538 000 000	6.6	748 000 000	79 000 000
Colombia	1964	5 186 384 253	533 011 845	10.3	205 348 248	4.0	273 379 446	54 284 151
Costa Rica	1963	489 383 000	122 645 879	25.1	109 471 378	22.5	1 444 920	11 729 581
Cuba	1964	1 376 200 000	133 400 000	9.7	133 400 000	9.7	-	-
Ecuador	1965	...	153 061 000	...	...	...	...	...
El Salvador	1963	149 342 000	26 532 009	17.8	26 532 009	17.8	...	...
Guatemala	1963-64	81 452 000	14 629 300	18.0	10 332 400	12.7	4 113 500	183 400
Haiti	1964	123 400 000	17 100 000	13.9	...	...	...	...
Honduras	1963	84 786 300	10 158 800	12.0	6 898 300	8.1	3 260 500	-
Jamaica	1963	...	5 621 619	...	5 055 310	...	-	566 309
Mexico	1965	37 008 080 000	2 773 779 000	7.5	2 773 779 000	7.5	...	...
Nicaragua	1965	...	a) 39 000 000	...	...	...	...	...
Panama	1964	66 169 128	11 014 516	16.6	11 014 516	16.6	...	...
Paraguay	1963	...	588 953 000	...	588 953 000	...	...	...
Peru	1962	11 291 165 000	1 174 366 840	10.4	...	...	...	...
Trinidad (b)	1963	200 200 000	22 700 000	11.3	19 400 000	9.7	-	3 300 000
United States	1963	113 210 000 000	7 624 000 000	6.7	3 739 000 000	3.3	3 885 000 000	
Uruguay (c)	1963	...	...	13.3	...	...	...	...
Venezuela	1964	5 467 200 000	1 131 800 000	20.7	868 200 000	15.9	177 100 000	86 500 000
Barbados	1964	37 817 890	5 488 524	14.5	3 981 655	10.5	-	1 506 869
British Guiana	1963	36 206 000	9 421 000	26.0	7 914 000	21.9	626 000	881 000
Puerto Rico	1963	315 470 000	70 315 000	22.3	55 137 000	17.5	-	15 178 000
Surinam	1964	89 800 000	8 363 000	9.3	...	...	...	...

(a) Approximate. (b) Tobago not included. (c) Informes Nacionales, Uruguay, IV Meeting of IA-ECOSOC, 1966.

In Argentina in 1964 expenditures for health were given only for the central government. Of the total 7,916.2 million pesos, 5,849.6 millions were of the Ministry of Health and 2,066.6 millions of other ministries.

Data were not available for Bolivia around 1964; however in 1960, Bolivia was reported to spend 11.1 per cent of the total budget on public health and social security.

Likewise, for Brazil recent figures were not available. Of the total government expenditures at the three levels, federal, state and "municipio" in Brazil in 1960, 5.1 per cent was for medical-health services.

In Canada of the 538 millions spent in 1963-1964 for health at the central level, 53 millions were for ministries or departments other than the Department of National Health and Welfare. The figure for the provincial level includes medical aid and hospitalization under Workmen's Compensation and that for the local (municipal) level is an estimate.

For Chile, *A Study of Health Costs* of WHO showed that 17.1 per cent of the general government expenditures in 1959 was for health. Comparable data were not obtained for 1964.

The health expenditures given for Colombia for 1964 in Table 1 are for approximately 80 per cent of the Colombian population. Funds which are invested for care of 5 per cent of the population under Social Security, "Cajas de Previsión Social," and medical services of other ministries and agencies are not included here.

The two major expenditures at the central level in Costa Rica in 1963 are 49,782,950 colones for the functioning of establishments of medical care dependent on the Ministry of Public Health and 49,607,647 colones for investments of the "Caja Costarricense del Seguro Social". The increases of the first from 22,568,930 colones and the second from 9,366,735 in 1951 were reported. The population entitled to medical services under Social Security increased from 82,157 in 1951 to 294,847 in 1963.

In Cuba the expenditures for health in 1964 are at the central level in the Ministry of Health and do not include those of the Army nor of other agencies and institutions.

No new data are available for the Dominican Republic and the percentage of the total government expenditures for health is not known.

The expenditures for health reported by Ecuador increased from 75,888,000 sucres in 1963 to 153,061,000 in 1965; however, the total government expenditures are not known.

In El Salvador the central expenditures for health in 1963 include 5,014,549 colones of the Institute of Social Security and other agencies.

For Guatemala data are given for three levels with approximate figures for the intermediate and local levels. No expenditures were indicated for ministries other than those of health.

The budget of Haiti for public health in 1964 was given as 3,416,000 in U.S. dollars.

In 1963 in Honduras 5,132.5 million lempiras transferred from the central government for the functioning of hospitals, social security, water and sewage supplies, etc. are included in the central level.

The expenditures for health in Jamaica in 1963 at the central level were 5,055,310 pounds, 927,100 of which were included for other ministries. In addition local health expenditures were 566,309 pounds which brought the total to 5,621,619 pounds.

In Mexico for 1965 the expenditures for health at the central level are divided into those for the Ministry of Health and Welfare, 906,504,000 pesos, and the Social Security System, 1,867,275,000 pesos.

For Nicaragua only an approximate figure of 39 million cordobas for health in 1965 was available.

For Panama the total expenditures for health were 11,014,516 in 1964 without specification of inclusions.

For Paraguay the total expenditure for health, 588,953,000 guaranies in 1963 includes expenditures for the Ministry of Health (274,101,000) and for the Institute of Social "Previsión" (314,852,000). The expenditures of 174,716,000 at the intermediate level for the health regions are included in those for the Ministry of Health. As the total government expenditures are not known, the percentage for health could not be calculated.

Data for 1962 are used for Peru and give the expenditures of the Ministry of Public Health and Social Welfare. This includes funds of the Ministry to the "Fondo Nacional de Salud y Bienestar Social", "Caja Nacional del Seguro Social del Empleado", "Beneficencias", hospitals and private institutions.

In Trinidad the expenditure for health in 1963 of 22,700,000 West Indies dollars contains 3.3 million dollars at the local level. Expenditures for refuse disposal and general environmental sanitation are included.

Of the health expenditures for the United States in 1963, 3,739 millions are expenditures at the central level for all agencies and 3,885 millions are state and local expenditures. The data include all health expenditures from public funds or under public laws including medical care of veterans, military personnel and their dependents; tax supported hospitals and medical facilities, medical care expenditures under government programs of public assistance, maternal and child health, crippled children's programs, medical vocational rehabilitation, public school health services, government expenditures for construction of medical facilities, etc.

From a report of Uruguay to the meeting of the Economic and Social Council (IA-ECOSOC) in Buenos Aires in March 1966, the figure of 13.3 per cent was given as the percentage for health of the total public expenditures in 1963. The expenditures in U.S. dollars per capita were 43.87 in 1963.

In Venezuela the expenditures in 1964 are at central, intermediate and local levels with nearly two-thirds of the central expenditures, 557.1 million of bolivares, for the Ministry of Health and Social Wel-

Table 2. Expenditures for Health in National Currency and U.S. Dollars Around 1960 and 1964

Country	Around 1960				Around 1964			
	Year	National currency	U.S. Dollars		Year	National currency	U.S. Dollars	
			Amount	Per capita			Amount	Per capita
Argentina	...	...	...	...	1964	7 916 200 000	52 460 000	2.38
Bolivia	1960	47 430 465 000	3 991 000	1.16		...	...	...
Brazil	1960	27 030 786 000	131 768 000	1.88		...	...	...
Canada	1960-61	934 000 000	937 562 000	51.83	1963-64	1 365 000 000	1 262 800 000	66.12
Chile	1960	64 980 000	61 709 000	8.09		...	...	...
Colombia	1960	252 243 000	34 888 000	2.47	1964	533 012 000	41 577 000	2.38
Costa Rica	1960	60 471 000	9 817 000	8.38	1963	122 646 000	18 443 000	13.72
Cuba	1960	51 200 000	51 200 000	7.53	1964	133 400 000	133 400 000	17.94
Dominican Republic	1960	13 289 000	13 289 000	4.44		...	...	...
Ecuador		...	...	...	1965	153 061 000	8 265 000	1.63
El Salvador		...	...	...	1963	26 532 000	10 613 000	10.61
Guatemala		...	...	...	1963-64	14 629 000	14 629 000	3.45
Haiti	1958-59	18 998 000	3 800 000	0.94	1964-65	17 100 000	3 416 000	0.74
Honduras	1960	7 761 000	3 880 000	1.99	1963	10 159 000	5 079 000	2.51
Jamaica	1960	...	...	...	1963	5 622 000	15 742 000	9.33
Mexico	1960	1 248 940 000	99 915 000	2.86	1965	2 773 779 000	221 904 000	5.42
Nicaragua	1960-61	32 702 000	4 511 000	3.15	1965*	a) 39 000 000	5 532 000	3.35
Panama	1960	10 241 000	10 241 000	9.70	1964	11 015 000	11 015 000	9.29
Paraguay	1962	161 774 000	1 284 000	0.73	1963	588 953 000	4 674 000	2.45
Peru	1960	1 141 307 000	42 650 000	3.93	1962	1 174 367 000	43 788 000	4.12
Trinidad and Tobago		...	...	...	1963	22 700 000	13 244 000	14.38
United States	1959	5 280 749 000	5 280 749 000	29.81	1963	7 624 000 000	7 624 000 000	40.41
Uruguay (b)	1960	...	...	36.22	1963	...	...	43.87
Venezuela	1960-61	474 791 000	141 729 000	18.93	1964	1 131 800 000	251 511 000	29.85
Barbados	1960-61	2 762 000	1 611 000	6.88	1964	5 489 000	3 202 000	13.23
British Guiana		...	...	...	1963	9 421 000	5 496 000	9.00
Puerto Rico		...	...	...	1963	70 315 000	70 315 000	27.90
Surinam	1960	7 025 000	3 725 000	13.45	1964	8 363 000	4 434 000	13.56

(a) Approximate. (b) Informes Nacionales, Uruguay, IV Meeting of IA-ECOSOC, 1966.

fare and 311.1 for other ministries and institutes.

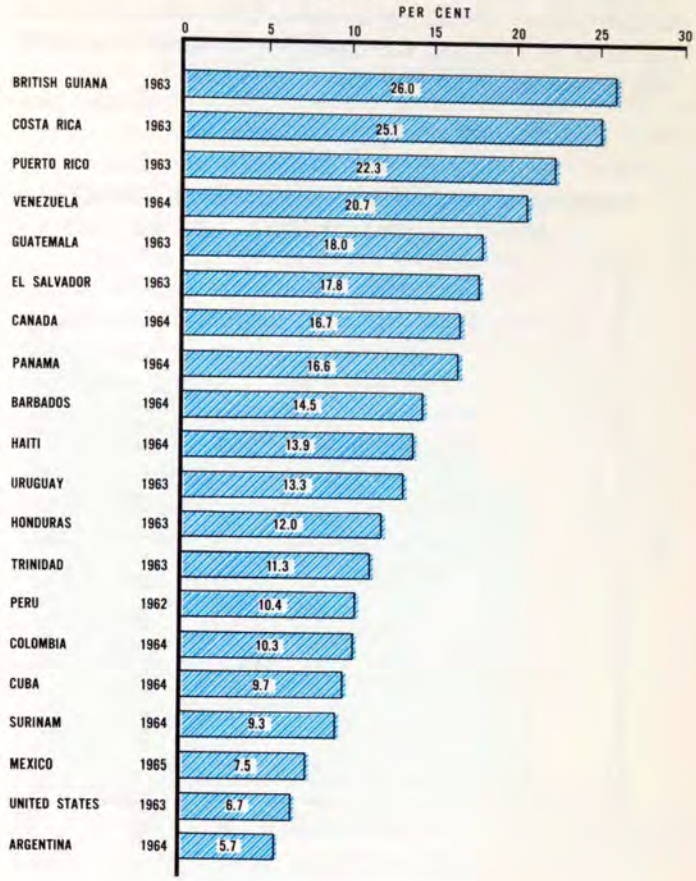
In addition to data for the countries, information on expenditures which were provided by four large areas, Barbados, British Guiana, Puerto Rico and Surinam are given in the table. Expenditures were included for local as well as central levels in the first three. In addition British Guiana listed expenses at the intermediate level. For Surinam only a total for the country was stated.

On the basis of the information supplied percentages of the total government expenditures for health have been calculated and are shown in Figure 1 for 20 areas. The range is from 5.7 per cent to 26.0 per cent which is determined in part by the types and sources of expenditures included in the individual countries and by the medical and hospital care systems of the countries.

In Table 2 the expenditures in health around 1960 are shown as well as those around 1964. These have been converted to U.S. dollars and the expenditure per capita compared for the two periods. Although the reporting may have improved in general, the per capita expenditures increased in 13 and decreased in three.

Figure 1

PERCENTAGE OF TOTAL GOVERNMENT EXPENDITURES ON HEALTH BY COUNTRY, 1964



PROVISION OF HEALTH SERVICES

One of the goals of health programs is to extend services to the entire population. Health services, both preventive and curative, are provided through health centers and rural health and medical posts, out-patient clinics of hospitals and independent dispensaries.

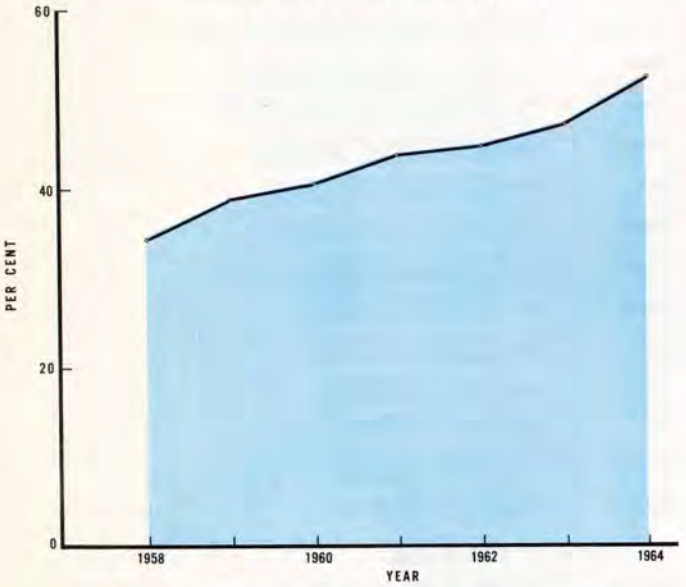
The coverage, that is the extent to which health services are available to the entire population, is difficult to measure. No standard definition is being followed. A few examples of the coverage of health services are given to illustrate the situation and describe the coverage in a few countries.

A report of the Ministry of Public Health and Social Assistance of Honduras gives the population covered through the services of health establishments of that agency from 1958 to 1964. In 1958, the population covered numbered 590,704 or 34.2 per cent of the population of the country while by 1964 the popu-

lation covered was 1,094,140 or over half of the population of Honduras. The marked changes in this short period of 6 years are shown in Figure 2. The number of establishments, centers, subcenters and health posts, rendering these services increased from 28 to 66 in 1964 and the number with their own building increased from 6 to 39.

Figure 2

PERCENTAGE OF POPULATION COVERED BY HEALTH SERVICES OF MINISTRY OF HEALTH, HONDURAS, 1958-1964



In Canada, the pattern of providing health services is through local public health units under a full-time medical officer. In 1963 there were 223 such units with a full-time medical officer of health and staffed by public health nurses, sanitary inspectors and other health personnel. Of these, 193 had a staff of 2,937 covering 9.7 million population and 30 city health departments employed 2,373 for 6.0 millions. Altogether 15.7 million people or 82 per cent of the 1963 population of 18.9 millions were served by full-time local health services. The Indian and Northern Health Services of the Directorate of the Federal Medical Services operates 83 health centers, 44 nursing stations and 41 health stations in remote or sparsely populated areas.

Health services were accessible to 71 per cent of the population of Peru in 1964 according to the *Plan Nacional de Salud, 1966-1970*. The population to whom services are accessible is defined as the part of the population in a territorial "circumscripción" covered by health services which can reach these services utilizing the usual means of transportation in the zone within two hours. The accessible population varies between 100 per cent in the Province of Callao and 36 per cent for the health unit of Cajamarca. The health unit of Cajamarca serves the Department of Cajamarca excluding the Provinces of Jaén and Santa Cruz.

Although the coverage by health services is not known for all countries, data regarding the health facilities and the services rendered by them give some measurements of the coverage which are useful for planning. Information is presented on the health centers, health and medical posts and out-patient clinics and dispensaries and the services of these units to the population excluding the in-patient care in hospitals. The number of health establishments in 23 countries and in five of the other large areas of over 100,000 population are given in Table 3. The total

Table 3. Health Establishments with Outpatient Services, by Country, 1964

Country	Total	Health centers and posts	Clinics and dispensaries	Other
Argentina (a)	250	109	127	14
Bolivia	155	140	13	2
Brazil (b)	...	3 588	...	...
Canada (c)	1 231	391	840	-
Chile	763	(d) 478	285	-
Colombia	1 473	1 002	414	57
Costa Rica	94	87	-	7
Cuba	462	-	391	71
Dominican Republic (e)	186	125	60	1
Ecuador (f)	266	34	232	-
El Salvador	92	70	12	10
Guatemala (c)	81	47	24	10
Haiti (e)	171	14	157	-
Honduras	85	64	11	10
Jamaica (c)	164	79	85	-
Mexico	...	2 592	...	...
Nicaragua (c)	174	117	50	7
Panama	52	30	22	-
Paraguay	292	260	32	-
Peru (c)	1 126	545	564	17
Trinidad and Tobago	110	5	105	-
United States (c)	9 454	2 065	5 937	1 452
Venezuela	590	486	104	-
Barbados	21	9	12	-
British Guiana (c)	71	37	24	10
British Honduras	34	26	8	-
Puerto Rico	143	44	99	-
Surinam	84	2	82	-

(a) Ministry of Public Health and Social Welfare only. (b) Data from Report of 1964 Malaria Seminar. (c) 1963. (d) Medical posts in rural areas. (e) 1962. (f) Information from Smallpox Survey 1965.

number of units for out-patient care varied widely as well as the types of units providing such care. For example, in Venezuela of the 590 units serving 8,427,000 people (one for each 14,000) there were 462 posts of medical assistance, "medicaturas rurales", which rendered both preventive and curative care for small units of around 2,000. Twenty-four health centers provided integrated services of preventive and curative medicine and hospitalization. Seventy-eight were dispensaries of Social Security and 26 out-patient departments of general hospitals of the Ministry.

In the United States in 1963, 9,454 units served 188,658,000 persons or one for 20,000. Nineteen Latin American countries and five other areas reported 6,939 units. Based on a population of 112,000,000 there is one unit per 16,000. However, in reports from several countries the data do not appear to be complete as they refer to the establishments dependent on the Ministry of Health. In some of the countries the coverage of these health units is concentrated in the larger communities and does not extend to the entire rural population.

In Chile the out-patient clinics of hospitals serve the population of the hospital area since promotion, restoration and protection of health are integrated and rendered by hospitals in the health areas of the 13 "zonas de salud". In addition 478 medical posts situated in the rural areas provide vaccinations, medical care and other activities for the promotion of health.

In Costa Rica the health services by the Ministry of Health and the "Caja del Seguro Social" are estimated to cover 60 per cent of the total population. The coverage of mobile units which serve rural populations without health establishments extends to 280,000 inhabitants with basic services of promotion of health, preventive and curative services.

In El Salvador, in addition to 9 health centers, 53 health units and 8 health posts, there are 10 mobile units operating at 62 different posts. Guatemala is divided into four regions and each region has a number of health centers and, for decentralized action, health posts situated in small nuclei of population to bring medical and health care to the rural areas of all the country. Honduras reported 61 health centers, subcenters and maternal and child health clinics, 3 posts and 10 mobile units in addition to 11 out-patient clinics.

The health program of the "Secretaría de Salubridad y Asistencia" in Mexico is carried out through three services, one of the Federal District, another of the States and Territories and a third the Centers of Rural Social Welfare. The total number of these establishments is 2,592. In addition, social security systems provide health services.

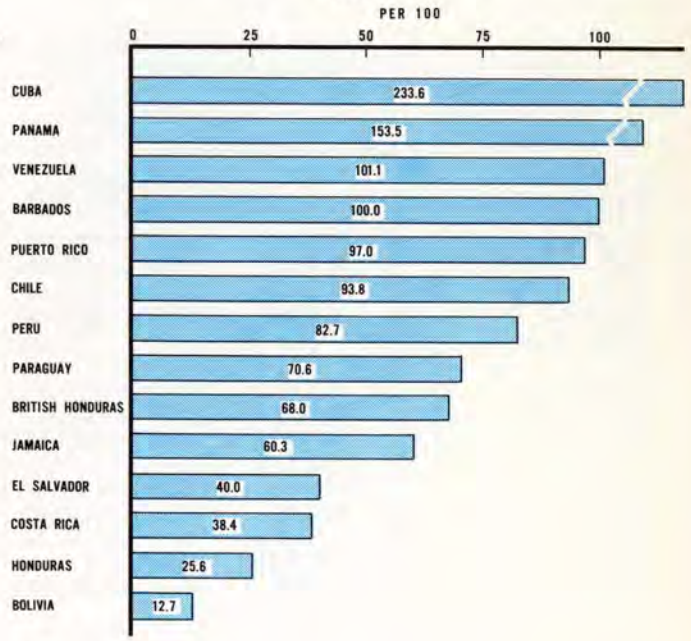
The system of health services in Paraguay, divided in five regions, covers approximately 60 per cent of the population. The "Plan Bienal de Obras de Salud (1965-1966)" in Peru includes the construction and equipment of seven health centers, 50 medical posts and 50 health posts.

In the United States the number of health centers and auxiliary public health facilities was 2,065 in 1963. The additional facilities reported are 5,937 diagnostic and treatment centers which are hospital out-patient departments and 1,452 rehabilitation facilities.

The number of persons served and the visits to health centers and clinics were given for some of the countries (Table 4). Although the recording of this information is probably incomplete, the data indicate the large volume of services required and being rendered to the population. The numbers of visits per 100 population are shown in Figure 3. In ten of these countries there were at least 50 visits per 100 population. In Cuba, Panama, Venezuela and Barbados, these out-patient visits numbered at least one per person per year. In Chile an increase in these serv-

Figure 3

CLINIC VISITS PER 100 POPULATION BY COUNTRY
1964



ices is occurring; for example in 1956 clinic visits numbered 5,927,000 or 85 per 100 people and in 1964, 7,872,000 or 94 per 100.

Data were also provided on special services such as maternal and child health centers, mental and dental health clinics. Although a separate form was provided for reporting of these specialized services, probably in some countries the numbers of patients receiving specialized services are included in the totals in Table 4. Tables 5, 6, 7 and 8 give some information regarding the size of these programs and also the growth of the dental and mental health programs from 1960 to 1964.

The ratios of the number of pregnant women and the infants under one year receiving care at maternal and child health clinics to live births are shown in Table 5 to indicate the extent of these programs. These ratios are high for Trinidad, Barbados and British Honduras indicating that high proportions of pregnant women receive prenatal care in these clinics and health centers. The ratios for Paraguay are high, in part due to incomplete reporting of births. In nine countries or other areas reporting, the number of pregnant women receiving care exceeded the number of infants receiving care. Figure 4 shows the numbers of infants receiving clinic services per 100 live births. The variation was great from 81.1 to 10.5 per 100 live births.

Figure 4

INFANTS UNDER ONE YEAR RECEIVING CLINIC SERVICES PER 100 LIVE BIRTHS, BY COUNTRY, 1964

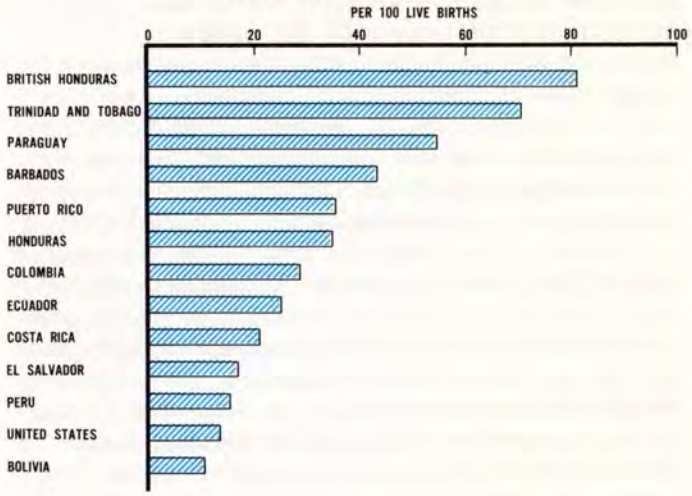


Table 4. Number of Persons Attending Health Establishments, Total Visits and Ratios per 100 Population by Country, 1964

Country	Persons				Visits			
	Total		Health centers and posts	Clinics, dispensaries and other	Total		Health centers and posts	Clinics, dispensaries and other
	Number	Per 100			Number	Per 100		
Argentina (a)	1 131 056	5.1	346 577	684 479	2 748 518	12.5	755 912	1 992 606
Bolivia	213 063	5.8	154 359	58 704	464 895	12.7	376 839	88 056
Chile	...	...	...	...	7 871 928	93.8	...	...
Colombia	5 614 358	32.1	2 917 509	2 696 849	...	...	...	...
Costa Rica	...	...	...	...	532 919	38.4	447 124	85 795
Cuba	...	...	...	...	17 363 995	233.6	-	17 363 995
El Salvador	b) 692 887	24.5	...	...	1 129 134	40.0	577 486	551 648
Guatemala (c)	224 697	5.4	137 568	87 129	...	...	...	...
Honduras	267 960	12.8	267 960	-	d) 536 099	25.6	536 099	-
Jamaica (c)	...	...	...	...	1 016 921	60.3	385 653	631 268
Mexico	4 990 446	12.6	4 362 681	627 761	...	...	...	...
Panama	948 917	80.1	122 845	826 072	1 818 690	153.5	233 404	1 582 286
Paraguay	...	...	...	...	1 389 428	70.6	1 255 506	133 922
Peru	e) 4 723 164	41.8	...	...	e) 9 340 953	82.7	...	...
Venezuela	3 488 230	41.4	2 364 898	f) 1 123 382	8 520 561	101.1	2 624 633	5 895 928
Barbados	...	...	...	...	242 007	100.0	106 960	135 047
British Honduras	...	...	...	...	69 997	68.0	25 158	46 839
Puerto Rico	...	...	...	...	2 501 730	97.0	971 234	1 630 496

(a) Ministry of Social Welfare and Public Health only. (b) Diagnóstico de Consultas y Egresos de Pacientes, Ministry of Public Health, El Salvador, 1964. (c) 1963. (d) Primer Informe Semestral Evaluativo, Ministry of Public Health and Social Welfare, Honduras, 1965. (e) Plan Nacional de Salud, 1966-1970, Ministry of Public Health and Social Welfare, Perú, 1965. (f) Patients of Social Security clinics are not included.

Table 5. Maternal and Child Health Centers and Services Around 1964

Area	Year	Maternal health			Child health				
		Centers	Pregnant women receiving services		Centers	Infants (under 1 year) receiving services		Children 1-5 years receiving services	
			Number	Per 100 live births		Number	Per 100 live births	Number	Per infant receiving services
Argentina (a)	1964	188	56000	11.8	280	62000	13.1	156000	2.5
Bolivia	1964	16	4615	5.6	16	8661	10.5	26427	3.1
Colombia	1964	...	180182	27.0	...	192739	28.9	195496	1.0
Costa Rica	1964	75	18000	27.7	73	14000	21.5	35000	2.5
Cuba	1964	94	...	...	48	...	...	...	...
Ecuador	1963	28	7838	3.5	28	56427	25.1	97308	1.7
El Salvador	1964	135	33572	25.3	135	22512	17.0	16409	0.7
Guatemala	1963	68	29287	14.8	68	...	...	b) 55084	...
Honduras	1964	61	16520	16.4	61	35212	35.0	60974	1.7
Jamaica	1963	241	20805	31.1	248	...	...	b) 25483	...
Panama	1964	40	11848	24.9	40	...	...	...	...
Paraguay	1964	265	40595	79.8	265	27905	54.9	29019	1.0
Peru	1963	87	96542	25.3	87	59065	15.5	72452	1.2
Trinidad and Tobago	1963	85	27148	82.5	85	23132	70.3	11610	0.5
United States	1963	...	211446	5.2	...	567314	13.8	c) 660205	1.2
Venezuela	1964	549	116617	32.7	549	d) 51558	14.5	e) 15923	...
Barbados	1964	12	4962	76.3	12	2831	43.5	...	...
British Guiana	1964	165	...	...	165	...	...	...	...
British Honduras	1964	26	3842	84.1	107	3705	81.1	...	...
Puerto Rico	1964	f) 76	40200	51.5	f) 89	27724	35.5	34607	1.2
Surinam	1964	5	2794	...	15	4704	...	5494	1.2

(a) Ministry of Social Welfare and Public Health. (b) Under 6 years. (c) 1-4 years. (d) Under 2 years. (e) 2-6 years. (f) Government only.

The number of children from one through five years of age receiving care was related to the number of infants who received attention also. Although death rates are excessive in this period of childhood in Latin America the number of young children receiving care was very small in relation to the number of children in the age group.

Although the questionnaire for the Second Report on the World Health Situation requested information on mental health clinics and services, only limited data were given for 1960. However, in the recent Third Report, data were provided for 14 countries and four other areas (Table 6). Of these only five reported on the numbers of persons receiving services in both years; in these the number increased from 65,656 in 1960 to 131,575 in 1964.

According to the data received from these reports a substantial increase has occurred in dental clinics and the numbers of persons treated (Table 7). The increase in 14 Latin American countries was from 3.2 million in 1960 to 4.9 million persons treated in 1964 (Figure 5). Reporting of information in this field

Table 6. Mental Health Clinics and Services Around 1960 and 1964

Country	1960		1964	
	Clinics	Persons receiving services	Clinics	Persons receiving services
Argentina (a)	...	...	12	6186
Bolivia	...	...	4	445
Canada	b) 87	45136	c) 130	63000
Chile	...	7376	8	d) 7296
Cuba	2	...	18	42147
El Salvador	...	...	1	10829
Guatemala	...	...	c) 1	788
Honduras	...	...	1	e) 4563
Jamaica	...	...	c) 2	...
Mexico	...	...	73	41517
Panama	2	...	2	e) 14358
Paraguay	1	445	2	3074
Trinidad	...	...	c) 6	926
Venezuela	8	12315	27	57510
Barbados	1	b) 384	1	695
British Guiana	2	88	4	...
Puerto Rico	...	...	f) 17	7836
Surinam	...	...	1	...

(a) Ministry of Social Welfare and Public Health. (b) 1959. (c) 1963. (d) Hospitalized. (e) Consultations. (f) Government only.

has undoubtedly improved but an increase has occurred in services rendered.

The numbers of public health laboratories and examinations made are provided in these reports from countries. Table 8 summarizes the data received for 1957, 1960 and 1963 or 1964. In nearly all countries an increase occurred and in several such as Cuba, El Salvador and Honduras there were large increases in the numbers of examinations. The increase in laboratory examinations in this short period of time is shown in Figure 6.

Figure 5

PERSONS TREATED IN DENTAL CLINICS IN THIRTEEN COUNTRIES IN LATIN AMERICA, 1960 AND 1964

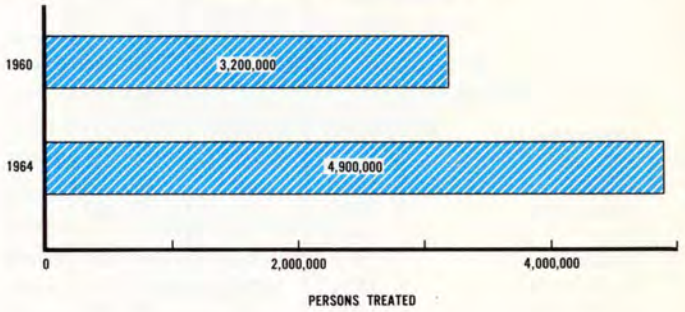


Table 7. Dental Health Clinics and Services Around 1960 and 1964

Area	1960		1964	
	Number of clinics	Persons treated	Number of clinics	Persons treated
Argentina (a)	...	...	4	59 485
Bolivia	6	...	10	22 442
Chile	...	b) 2 008 476	264	b) 2 059 340
Colombia	c) 345	469 349	d) 349	1 169 949
Costa Rica	26	48 099	16	80 056
Cuba	8	...	659	1 090 800
Dominican Republic	2	4 430	...	...
Ecuador	...	b) 42 310	d) 28	22 549
El Salvador	34	45 804	36	98 391
Guatemala	11	3 872	d) 21	27 485
Haiti	...	b) 44 915	...	...
Honduras	...	c) 2 791	22	22 401
Jamaica	c) 37	b) 116 893	d) 54	147 253
Mexico	120	177 828	192	420 460
Panama	...	b) 20 001	29	285 007
Paraguay	138	31 703	133	77 920
Peru	71	114 465	d) 64	...
Trinidad	...	...	d) 45	78 323
United States	...	...	178	e) 59 115 576
Venezuela	58	190 270	138	315 059
Barbados	...	...	3	12 764
British Guiana	...	63 622	7	...
British Honduras	...	...	1	...
Puerto Rico	...	c) 20 038	63	f) 134 980
Surinam	7	19 820	1	19 459

(a) Ministry of Social Welfare and Public Health. (b) Attentions. (c) 1959. (d) 1963. (e) 1962. (f) Government only, visits.

Figure 6

NUMBER OF LABORATORY EXAMINATIONS IN ELEVEN COUNTRIES REPORTING IN 1957, 1960 AND 1964

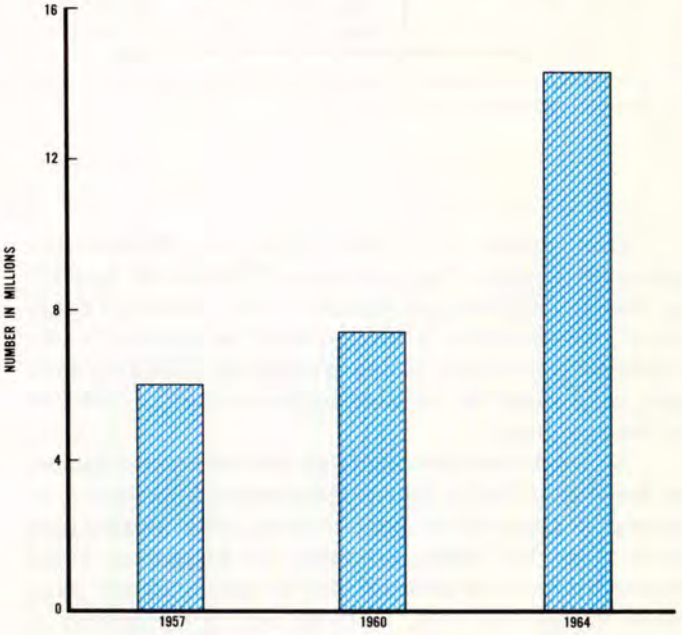


Table 8. Number of Public Health Laboratories and Examinations, 1957, 1960 and 1964

Country	1957		1960		Around 1964		
	Laboratories	Examinations	Laboratories	Examinations	Year	Laboratories	Examinations
Bolivia	...	...	...	...	1964	4	...
Canada	38	5 872 182	41	6 109 485	1963	45	...
Chile	...	2 708 319	...	3 256 030	1964	118	3 837 711
Colombia	3	5 968	20	516 825		...	...
Costa Rica	26	366 159	26	435 717	1964	25	411 385
Cuba	...	56 402	...	146 391	1963	449	4 894 686
Dominican Republic	1	139 127	1	219 474		...	...
Ecuador	23	305 570	23	429 318		...	...
El Salvador	17	245 085	19	245 124	1964	29	784 467
Guatemala	12	106 706	12	101 077		...	...
Haiti	15	82 895	15	125 099		...	...
Honduras	...	97 196	...	122 587	1964	34	278 447
Jamaica	...	...	...	...	1963	1	487 609
Mexico	121	798 209	136	1 319 904	1964	780	1 479 383
Nicaragua	54	90 578	34	260 358		...	...
Panama	1	75 122	14	82 372	1964	36	256 590
Paraguay	1	84 163	1	47 271	1964	28	167 764
Peru	2	247 991	2	218 758	1963	...	425 331
United States	182	...	182	...	1964	482	28 640 054
Venezuela	59	1 276 774	62	1 490 552	1964	94	1 764 067
Barbados	1	17 183	1	45 236	1964	1	43 206
British Guiana	7	113 874	7	180 027	1964	5	...
British Honduras	...	....	...	...	1964	...	38 850
Puerto Rico	...	...	...	...	1964	a) 83	2 141 960
Surinam	...	...	...	...	1964	1	...

(a) Government only.

DIAGNOSES OF CLINIC PATIENTS

In 1964 for two countries, El Salvador and Peru, the numbers of persons receiving services in out-patient clinics or health centers according to the diagnoses of illness or condition requiring attention were given in published reports.(1) For El Salvador 23 causes or groups of diagnoses were used; for Peru 25 groups of causes included many of these same groups of diagnoses but in addition one group was termed "well" indicating that preventive care was also included. In Peru a large number of pregnant women, 149,955, received prenatal care at these clinics. In both countries each person was counted only once as indicated by entries of first visits in El Salvador and "consultantes" in Peru. Thus the data in Table 9 show the number of persons receiving clinic care. In Peru 9,340,953 clinic visits were made by 4,723,164 persons or on the average 2 visits per year. The visits to health centers and out-patient clinics numbered 83 per 100 population.

For some of the infectious diseases the numbers are large; for example, in Peru 115,833 patients attended the clinics for tuberculosis. The group of acute respiratory diseases was the cause of the largest number of patients attending these clinics in both El Salvador and Peru. In Peru the second most frequent reason for attendance at clinics was dental conditions. In the same publications of these two countries, tables are provided on the hospitalization for patients in these diagnostic groups. For example, in El Salvador there were 6,497 clinic patients with malaria and 1,834 patients who had been ill with malaria were discharged from hospitals. These data of patients receiving out-patient care by diagnosis, as well as the hospitalization by diagnosis as given in Chapter V, are valuable for planning of health programs and evaluation of progress.

Table 9. Clinic Patients by Diagnosis with Rates per 1,000 Population in El Salvador and Peru, 1964

Diagnosis	El Salvador		Peru	
	Number	Rate	Number	Rate
All Causes	692 887	245.4	4 723 164	418.1
Infectious and parasitic diseases - Total	150 896	53.4	551 490	48.8
Tuberculosis	7 638	2.7	115 833	10.3
Syphilis	6 593	2.3	38 795	3.4
Typhoid and paratyphoid fever	845	0.3	13 010	1.2
Tetanus	400	0.1	...	...
Dysentery and gastro-enteritis	75 045	26.6	217 106	19.2
Scarlet fever and strepto-coccal sore throat	54	0.0	...	...
Diphtheria	300	0.1	883	0.1
Whooping cough	2 522	0.9	31 858	2.8
Leprosy	...	...	2 404	0.2
Smallpox	-	-	310	0.0
Meningitis	66	0.0	...	...
Measles	5 542	2.0	29 213	2.6
Poliomyelitis	58	0.0	3 120	0.3
Typhus and other Rickettsial diseases	106	0.0	58	0.0
Malaria	6 497	2.3	1 274	0.1
All other	45 230	16.0	97 626	8.6
Tumors	6 687	2.4	42 234	3.7
Mental diseases	...	...	27 831	2.5
Cardiovascular diseases	8 588	3.0	a,b)98 391	8.7
Acute respiratory diseases	125 751	44.5	735 469	65.1
Dental diseases and conditions	...	...	679 264	60.1
Complications of pregnancy, delivery and puerperium	21 850	7.7	37 799	3.3
Normal pregnancy and delivery			149 955	13.3
Congenital malformations	1 281	0.5	...	...
Birth injuries, asphyxia and infections of newborn	1 802	0.6	3 630	0.3
Other diseases of early infancy	1 820	0.6	85 919	7.6
Accidents and violence	36 579	13.0	372 192	32.9
All other causes	283 114	100.3	1 070 832	94.8
Ill defined causes	54 519	19.3	374 850	33.2
Well person	...	...	493 308	43.7

1/ *Diagnóstico de Consultas y Egresos de Pacientes, 1964*, Dirección General de Salud, El Salvador and *Plan Nacional de Salud 1966-1970*, Ministerio de Salud Pública y Asistencia Social, Perú.

MAJOR SOCIAL, CULTURAL AND ECONOMIC EVENTS AND CHANGES IN HEALTH SERVICES

The countries were asked to review the national health activities giving (a) the important trends in the social, cultural and economic fields and associated developments in health services during the past decade and (b) an account of changes in health services during the four-year period 1961-64. Many of the countries provided comprehensive accounts of these developments from which a brief summary has been abstracted. In a few instances no account was available of these events since only the statistical section of the report was completed.

Argentina

In Argentina there has been a strengthening of the concepts of integration of social, curative and public health aspects of modern medicine and the community role of the hospital and its responsibility for the restoration and protection of health, medical and health education, and research in medicine and public health administration.

The actions in raising the technical level and performance of services were undertaken primarily in the national governmental administration of services and institutions; in planning and technical assistance (information and vital and health statistics, needs and resources, activities of establishments, budget, personnel, health policy); medical care establishments (orientation of policy, administration and organization, personnel, buildings and installations); medical and health services personnel (quantitative and qualitative inadequacy and distribution); budgets (inadequate information, need for program budget).

Particular mention should be made of the following: the national census of health resources and services, register of medical care and health establishments, centers which assist isolated communities and clinical, pathological, anatomy, and radiology laboratories which constitute an important source of statistical information and basic data; the reorganization of the Bureau of Statistics and Health Economics and the promotion at the provincial level of the compilation and utilization of statistical information according to the national standard; the project for reforming the technical and administrative system with the creation of the Community Medical Care Service; the investigation on hospital costs, on investment of funds and yield from the investments made; the program for the supply of potable water to rural communities under 3,000 inhabitants; the program entrusted to the National Water and Rural Sewage Service; extension of the malaria eradication campaign; completion of the *Aëdes aegypti* eradication campaign; study of the project for strengthening the Pan American Zoonoses Center; creation of the National Hemorrhagic Fever Research Commission; continuation of the communicable diseases control campaign; the pilot tuberculosis control demonstration area in the province of Buenos Aires; re-organization of the federal health delegations and organizations; programming and intensifying individual and collective health activities and community organization; technical and economic regulations under the pharmaceutical products law; draft laws on foodstuffs, the practice of medicine, and auxiliary professions.

Canada

The Royal Commission on Health Services was appointed by an Order in Council dated June 20, 1961, "to inquire into and report upon the existing facilities and the future need for health services for the people of Canada and the resources to provide such services, and to recommend such measures, consistent with the constitutional division of legislative powers in Canada, as the Commissioners believe will ensure that the best possible health care is available to all Canadians...."

The Report of the Royal Commission (Volume I) was published about mid-1964, followed by Volume II and two special studies dealing with medical education and medical manpower in Canada, respectively.

In 1962 the Cabinet authorized, subject to Treasury Board approval, the extension of the Civil Service Health Division's operations by the establishment of a nursing counsellor service through health units, similar to the pattern already established in Ottawa, to large centres and areas having substantial concentrations of federal government employees.

In maternal and child health 1960 saw the first interdisciplinary conference, the Canadian Conference on Children, which was held at St. Adele, Quebec. Plans are going forward for the Second Canadian Conference on Children in Quebec City in November 1965.

Acts were passed respecting the Vocational Rehabilitation of Disabled Persons and the Co-ordination of Rehabilitation Service, to amend the Blind Persons Act and to amend the Old Age Assistance Act.

Sponsored by the Canadian Mental Health Association, a major five-year study of psychiatric services in Canada was completed in 1963. In the same year the study was published in book form under the title "More for the Mind".

Chile

The principal social, cultural and economic changes in the decade ending in 1964 may be summarized as follows: 1) the population growth continued at a rate of about 2.5 per cent per annum; this figure is rather high and is tending to increase still further because the mortality rate is slowly dropping whereas the birth rate has remained practically stationary; 2) the migration of the rural population to the cities continued to increase, and the previous figures have already been reversed since at the time of this report almost 65 per cent of the population is urban; 3) this urban migration, added to the ease of communications of all types, has led to a rise in the average educational level as is seen in the decrease in illiteracy; 4) in their desire to increase available resources and utilize them in a more coordinated manner the Government during this ten year period prepared a ten-year national economic development plan which was studied by the Development Corporation; 5) part of the development plan provides the Government with large funds for special activities for the benefit of the working classes and induces private persons to construct low cost housing; 6) the struggle against inflation constitutes one of the basic programs of the present Government which has established centralized and coordinated machinery for dealing with all the aspects and consequences of this problem.

The following characterized the health services in the ten-year period under consideration: 1) the National Health Service had to adapt its structures to the objectives and subsequently to strengthen them; authority and responsibility has been transferred to the local level; 2) the inflationary process, which reached such a high level in the last two years of the ten-year period, produced a marked drop in per capita distribution of hard money and the total budget rose at a lower rate than population growth, with the obvious consequences for the operation of health services; 3) the mass vaccination campaigns constituted one of the positive features of the last ten years and provided an example of the importance of adequate motivation and of the possibilities opened up by community cooperation.

Colombia

The ten-year period 1954-1964 saw the following changes and important events which were directly or indirectly related to the health of the country: 1) the movement of the population from rural areas to the cities seeking new sources of employment provided by the growing industrialization of the country, basic educational and welfare resources, and greater security; 2) as a result of lack of planning in manpower utilization there was a shortage of manpower in the rural areas and an excess in the industrial centers, resulting in a drop in agricultural production and a rise in unemployment in the cities; 3) the urbanization resulting from the population movement produced an imbalance between urban planning and growth of the cities and this situation engendered serious environmental sanitation and housing problems; 4) a rise in the birth rate while the mortality rate declined resulted in the current population explosion; 5) from 1958 onwards the national smallpox vaccination campaign brought about a sharp drop in morbidity and mortality which has reached a point where the disease has now been practically eradicated; 6) the malaria campaign reduced the incidence of the disease and led to the incorporation of vast areas of Colombia into the national economy; 7) the Ministry of Public Health was reorganized by Decree No. 3224 of 1963 and its new organization was based primarily on two elements: one, good administration by dividing the work between a number of sections which could be easily controlled by the supervisor; and two, the integration of preventive and curative functions by a merger of the former divisions of medical assistance and sanitation into a single division, the medical care division.

Costa Rica

The Costa Rican economy has many characteristics proper to a developing country; for the 1950-1962 period they may be grouped as follows: 1) high economic growth but at an irregular pace; 2) dependence on the external sector, in particular on exports which are of a markedly fluctuating nature; 3) a high rate of population growth; 4) concentration of population and socio-economic activity in the central plateau; 5) growing influence of the Government sector in promoting investments and carrying out projects.

Added to the fluctuating nature of growth, and dependence upon the external sector, is the high rate of population increase which amounts to 3.7 per cent per annum and which, if it continues to rise, will increase the population from 1,356,000 in the 1963 census to double that figure within a period of 19 years. Costa Rica has a young population; the birth rate is high and both infant and general mortality are falling. Because the population is young it costs the nation a great deal in terms of social development.

Problems were aggravated as a result of the volcanic eruptions in 1963 and 1964 which affected the most populous and economically active region in the country, the central plateau.

The 1963 census revealed that 34.5 per cent of housing units were in good condition and 33.8 per cent in poor condition. The situation is worse in the rural areas. Ten per cent of these housing units lack house connections and more than 60 per cent obtain water from wells or sources which are not sanitary. Sanitary facilities are lacking in 25.3 per cent of the homes and in 50 per cent of them the facilities do not meet minimum conditions.

Cuba

In order to analyze the effect of the principal social, cultural and economic changes, as well as other important events, on the country's health conditions during the ten-year period, this decade must be divided into two completely different historical periods: the first, from 1954 to 1958; and the second, from 1959 to 1964.

In the five years from 1954 to 1958 health conditions remained stagnant. Health care of the population was not a task centralized by the Government; medical services were few and far between, understaffed and without sufficient funds; private medical institutions, although they also left much to be desired, were better than those of the public health service.

In 1959 the social structure underwent a profound and far-reaching change. Living standards rose gradually year after year. Family income grew ostensibly; there was a large increase in the quantity of food consumed and it was better distributed throughout the country; houses are gradually being provided for the most needy families and for the areas of greatest economic development, recreational and sports activities have been promoted as never before by their variety and their mass and collective character and lastly the level of public health has risen markedly.

Public health functions became the responsibility of the State under the direction of the Ministry of Public Health. The practice of medicine in the state sector has become in this second period a social function and therefore free of any profit motive. Medical services are being increasingly provided with the equipment and techniques necessary for the advancement of medical science. Conditions are being created for scientific research and for the training of highly qualified personnel in various fields of medicine, etc. Hospital and out-patient services have increased and their distribution throughout the country has improved. All professional and technical health personnel are full time and their numbers are increasing annually. In public health, preventive medicine has made the greatest advances. Poliomyelitis has been practically eliminated as an epidemiological phenomenon. Infectious and contagious diseases such as gastroenteritis, tuberculosis, typhoid fever, malaria and venereal diseases are gradually decreasing year after year. The improvement is reflected in both the morbidity and the mortality rates.

El Salvador

The changes in these activities relate to four different governments which held office from 1960 to July 1962. The following factors have contributed to health improvement: changes in the tax laws and in the labor laws; expansion of the services of the Salvadorean Institute of Social Security; Industrial Development Law; creation of a Council for Economic and Social Planning; establishment of the Central American Common Market, establishment of the National Water Supply and Sewerage Administration;

improved agricultural and industrial production; increase in the network of roads and in electrical power, increase in the number of schools and teachers (the education budget is the largest of all sectors - 18 per cent of the total budget); re-organization of the Ministry of Health; creation of the Planning Department, increase in health establishments, a program budget, and an investment plan for 25 units and 25 health posts and 3 hospitals; establishment of standards and targets, general use of medical records, improvement in the medical records services, integration of preventive and curative services in health centers, units, and posts and tuberculosis, tetanus and smallpox vaccination programs in hospitals.

Guatemala

Since 1954 great impetus has been given to pilot programs as well as to the construction of health centers in rural areas. A health demonstration area was set up in the city of Amatitlan and subsequently extended its coverage to include the departments of Escuintla and Suchitepequez. With the advice and assistance of the Pan American Health Organization and UNICEF, training was provided for doctors, nurses, nursing auxiliaries, laboratory aides, and health inspectors. Plans were drawn up to ascertain community response and the best way of using available community resources.

In 1955, in accordance with international commitments, the national malaria eradication program was initiated. Subsequently the SNEM (National Malaria Eradication Service) was organized and carried out its task in conjunction with the services of the other countries of the Central American region. In recent years it has been faced with the serious problem of vector resistance to insecticides which has caused basic changes in malaria control.

In the last three years the production of biological products (smallpox, typhoid and rabies vaccines) has been expanded and currently covers the Central American area. The Preparatory School was converted into a School of Public Health and, with the assistance of UNICEF, provides specialization courses for public health personnel. The Government has initiated a broad health center and health post construction plan with a view to ensuring conditions appropriate to optimum efficiency, and a plan for improving health services is under way.

Haiti

The decree of 9 March 1962 established the present organization of the Department of Public Health and Population. The Department is under the direction of the Minister of Public Health and Population who functions at the highest level. The Department has four major services: the Service of the Secretary of Public Health and Population; the Service of the General Public Health Directorate; the Medical School and the Population Service.

Honduras

The changes which have occurred were as follows: 1) the extension of the public health services to the rural areas as a definite trend and no longer in a sporadic manner as in the past; 2) active community participation in the programs through the motivation of national leaders and with the assistance of PAHO/WHO; 3) the penetration of rural areas by means of mobile units, for example the tuberculosis and leprosy program and medical care and social promotion units; 4) the adoption by the Government of a health planning policy in the form of a national health plan 1958-1963, the two year health plan 1963-1965 and the five year health plan 1965-1969; 5) the Social Security Institute of Honduras was created as a decentralized agency and began work in 1962; 6) the National Water Supply and Sewerage Service established in 1961 began work in 1962; 7) the integration of preventive and curative services was begun in 1964 in two geographical areas.

Jamaica

The year 1955 marked the beginning of a transition period in the political development when internal self-government was granted. This led to the adoption of a Ministerial system in which the responsibility for the health of the country was transferred from the British Government to the elected Government which delegated the responsibility for health to the Minister of Health. Significant changes in the administrative arrangements resulted. Where formerly there was a department of medical services headed by a Director of Medical Services who was responsible to the Gov-

ernor through the Colonial Secretary, the Minister assumed the responsibility and a new post of Permanent Secretary to the Minister was created. In 1962, Jamaica gained total independence and this system of administration of the Ministry of Health continued. The two major developments were: (a) the policy of decentralization of the administration of the hospitals, and (b) the re-organization of the Ministry of Health with the assistance of a management consultant.

Mexico

Among the very important changes that have occurred in Mexico during the period 1955-1964 was the very large population increase at an average rate of 3 per cent per annum. The largest increase was in the country's principal cities particularly in the northern region along the United States border. Illiteracy has fallen considerably despite the obstacles faced by the Government such as the enormous annual increase in the number of students. Despite the population explosion Mexico is one of the few countries in the western hemisphere where food production increased more than population. The progress made in food processing, with all the positive results attending it, deserves mention. As a whole the country has benefited from the far-reaching industrial advances. In the beginning this industrial development was centered primarily in Mexico City but during the course of the decade it has been extended to numerous areas of the country. Industrial development was paralleled by development in electrical power, roads and railways. Agriculture has been stimulated by various projects, some of which received international assistance.

The two outstanding changes in health services were as follows: 1) the merger of the former Department of Social Welfare and Federal Department of Public Health into the Department of Health and Welfare was consolidated; 2) the advance of the social security systems of the country which currently cover more than 9 million persons. The Mexican Social Security Institute, the Institute of Social Security and Services for Government Workers and the Military Social Service and other smaller subsidiary systems provide health services of great importance; not only do they offer medical and hospital care but also preventive medicine and health education.

The training of public health personnel was improved by the establishment of specialized programs such as medical and health administration, infectious diseases and epidemiology, public health nutrition, etc. Great efforts have been made during these ten years to improve and increase the training of auxiliary personnel in various health fields.

Very notable progress was made in hospital organization and in the number of available beds; for historical reasons and despite its national revenue and the size of its population, Mexico had one of the lowest beds per population and physicians per population ratios in Latin America.

Nicaragua

The most important trend in social matters was the public declaration of the President of his interest in giving first place in the national budget to education and health. This resulted in a considerable increase in the funds allotted to the Ministry of Health and to other health institutions.

The most significant changes that occurred in the health field were as follows: 1) The new law on the Ministry of Health of 24 April 1964; 2) the creation of a health planning and evaluation section; 3) full-time work of the technical sections of the Ministry of Health; 4) the preparation of a National Health Plan 1964-1965; 5) foundation of the Medical Association; 6) construction of new peripheral clinics of the National Institute of Social Security; 7) projects for building hospitals and increasing the number of beds for 1966.

Panama

During the decade ending 31 December 1964 the country has experienced rapid growth. There has been a marked population explosion in the suburbs of the capital. Industry has increased and is now the second largest contributor after agriculture and stock raising to the gross domestic product at 1960 market prices in thousands of balboas. The gross national product per capita increased from 396 balboas in 1960 to 470 in 1964. The events of January produced a slight contraction but did not diminish the GNP. The contraction was primarily attributable to the fall in public consumer expenditures, which declined from 67,866 thousands in 1963 to 62,261 thousand balboas in 1964 whereas the private expenditure rose from 398,361 thousands in 1963 to 441,400 thousands in 1964. Public investments also decreased but private investments increased slightly.

Paraguay

In the last 10 years Paraguay has adopted numerous economic and social measures which constitute the necessary framework for initiating a dynamic advance in overall development. The most significant of these measures are as follows: political stability by means of the gradual acceptance of democratic principles; initiation of 1957 of the malaria eradication campaign; installation of a water supply network for the capital (1959); establishment of the Food and Nutrition Education Program through coordinated program of the Ministries of Public Health and Social Welfare, Education and Religion and Agriculture and Livestock; adoption of a program budget to facilitate control and analysis of the allocation of available resources by the Government Sector (1963); creation of the following: National Development Bank to encourage domestic production of goods (1961), Housing Institute (1962), Planning Unit for some sectors, Rural Welfare Institute responsible for planning the agrarian reform laws and promoting the opening up of new agricultural and stock raising settlements (1963), new professional and technical administrative training facilities such as the Faculty of Agronomy and Veterinary Science, the School of Public Administration, the Center for In-Service Training of Personnel (1958 onwards).

In the field of education there was a marked rise in the number of schools, teachers and students, both at the grade school level and at the high school and university level. Schools for educational rehabilitation of the blind and of deaf mutes were also established.

The following changes occurred in the Health Services and in the Administration during the years 1961-1964: 1) in 1961 the functions of the Regional Directors and the organization of "Type A" Health Centers were approved; 2) creation of the Intra-Ministerial Planning Unit; 3) in 1963 the regional health divisions were reorganized by setting up programming areas for the purpose of facilitating planning, management and co-ordination of health activities; 4) in 1963 a Department of Social Affairs was created and attached to the Planning Unit and given the following functions: a) to study social problems and propose a solution to them; b) aspects of social legislation; 5) in 1964 the Planning Unit, in conjunction with the executive services, worked out a plan for the development and improvement of health institutions and programs, and a plan for the development of medical care services in the Caaguazú-Alto Paraná area; 6) in 1964 program budgeting was begun; 7) in 1961 sprayings against malaria were discontinued since little noteworthy change had been made in the epidemiological situation, evaluation activities have been maintained and control measures have been undertaken; 8) in 1964 as a preparatory stage for the development of the Communicable Disease Control Program, short training courses were initiated for physicians, nurses, midwives, statisticians and nursing auxiliaries; 9) in 1964 a training program for persons looking after children living in institutions attached to the Ministry of Public Health and Social Welfare was organized as a result of an agreement between the Ministry of Public Health and Social Welfare and UNICEF.

Peru

The National Health Plan was developed for the next ten years in accordance with the general policy of the development of the country. For the five years 1966-1970 the objectives and goals of the Health Plan for the improvement of the levels of health and provision of services, with measurement units for evaluation, were established for each of the 19 programmed regions as well as for the national level. A permanent system is being established so that planning is a dynamic and permanent process, which is guaranteed by the law of the National System of Planning of the Economic and Social Development. The preparation of a 10-year plan will be initiated in 1968. In order to reduce the deficit in water and sewerage service in the country, several programs have been organized for the construction and extension of these basic services in accordance with "El Programa de Inversiones Públicas 1964-1966." In the period 1962-1964 the National Health and Social Welfare Fund implemented the "Plan Nacional Hospitalario" for the construction and equipping of 12 hospitals with 1,708 beds.

United States

From the viewpoint of public health, the most significant social and economic development in the United States during the 1955-1964 decade has been the rapid increase in total population (18 per cent), the greater proportion of older people, the continuing trend toward greater concentration of the population in urban areas and continuing economic growth. Between the decennial censuses of 1950 and 1960, the proportion of people 65 years of age and over in the total population had grown from 8.1 per cent to 9.2 per cent, and the proportion of people living in rural areas had declined from 36 per cent to 30 per cent. These trends continued through 1964. The gross

national product of expenditure, in 1964 prices, increased 41 per cent and personal consumption expenditure increased 46 per cent in the ten years ending with 1964.

The decade brought great expansion of medical research, a continuing decline in the importance of communicable disease as a cause of disability or death accompanied by a greater prevalence of chronic and degenerative diseases, and growing attention to environmental hazards. Programs that provide federal grants for research facilities and training, facilities and services for the care of the chronically ill, and training for health personnel were either initiated or greatly expanded. The U. S. National Health Survey was established to collect, analyze and publish data to show the extent of illness and disability in the population, the amounts and types of services received for illness and impairment, and the economic and other impact of such conditions.

In the period (1961-1964) there has been an intensification of the attack on air pollution and water pollution. To assure greater safety in drugs, a new law strengthens Federal control. It broadens factory inspection authority with respect to prescription drugs, requires adequate safety and quality controls in drug manufacture, requires that new drugs be cleared for efficacy (as well as safety) before they are marketed, etc.

In the field of medical care services, a new program was begun to improve health and medical services in communities through support of research, technical assistance, and demonstration projects. Its emphasis is on the establishment and coordination of out-of-hospital services for the aged and chronically ill. Health services for maternal and child care, provided through the Children's Bureau were expanded substantially. A major advance was the establishment of a Federal program of assistance to communities for the benefit of the mentally retarded and the mentally ill. Expenditures for medical and health related research have risen steadily, and in 1964 reached the highest point in the country's history.

Venezuela

Structural changes were made in the Ministry of Health and Social Welfare in 1965 creating at a high level the General Direction whose functions are to coordinate the programs of the Ministry. Within this General Direction was created the "Unidad Sectorial de Planificación".

British Guiana

During the period the country gained self-governing status under the British Government. Whereas before a Colonial Secretary was responsible for the administration of the services (agriculture, medicine, education, local government, etc.), under the new system political representatives of the population have been given ministerial status and as such are responsible for policy. The country is now on the eve of gaining independence.

British Honduras

The Government is presently pursuing its "Seven Year Development Plan" which is aimed at bringing about substantial improvement in the economy of the territory by 1970. The main emphasis is laid on developing an agriculture based economy assisted by small industries. Major developments to date have been extension of the sugar cane and citrus farming. Fisheries and beef cattle industries are also being studied with a view to making them major money earners. Legislation has been enacted to attract investors through favorable tax and other concessions. Action has been taken to develop water supply systems in urban areas and a water provision and sewage disposal program for rural areas is now in progress.

The major social development during the period 1955-64 has been the initiation of the "Village Council" system in rural areas. Although they have no legal powers, these councils are in reality a continuation of the local government system and are the bodies which initiate projects and through which development programs are taken to rural communities.

Grenada

In 1955 the island suffered disastrous effects from a hurricane with destruction of cocoa and nutmeg plantations - the staple export products - and also extensive destruction of homes and water supplies.

From a position in which the territory was able to balance its budget it became necessary to seek and obtain financial assistance from the United Kingdom in the form of a grant-in-aid. Despite variation in the export prices of cocoa and nutmeg, both controlled entirely outside of the territory, the economy of the island has been improving steadily with replanting and

rejuvenation of cocoa and nutmeg plantations, while the introduction of banana as an export crop beginning soon after the hurricane has done much to provide ready cash to farmers and therefore to improve individual income.

Puerto Rico

Gigantic strides have been made in the field of public health and medical care. The health program has embraced malaria control, the building of pure water supply and modern sewage disposal systems in cities and towns throughout the island. It has included rural sanitation campaigns and the operation of a network of urban clinics and health centers which provide inoculation and immunization against preventable diseases, basic medical care, and instruction in hygiene, nutrition, and prenatal and child care. A school lunch program has been carried on with federal assistance and serving children throughout the elementary school system. Still another important measure has been the maintenance of milk stations serving needy children under three years of age.

The number of physicians has more than doubled in the past decade, partly as a result of the establishment of a medical school in the University of Puerto Rico. In 1964 there were around 2,500 physicians as compared with 1,322 in 1954; the ratio of physicians to population has risen in this decade from one per 2,149 to one for every 1,307.

Some of the striking results of this approach to public health are these: 1) the average life span has risen to 69 years in 1964; 2) in 1952 the mortality rate began a slow but continuous downward trend which is due to the intense and steady fight against infective and parasitic diseases, specially tuberculosis, syphilis, malaria and uncinariasis; 3) infant mortality has declined to 51.7 per 1,000 live births in 1964; 4) malaria has been wiped out as a health problem.

Puerto Rico has had and still has a serious shortage of adequate housing. Today urban housing programs are the responsibility of the urban renewal and housing corporation. Its programs are not merely providing dwelling units, but they are creating communities or neighborhoods in which families of differing income levels can live. The program involved the construction of multiple-unit low-rent public housing with rents ranging from about $6.50 to $40 a month; single-family, low-income units which involve aided, self-help on the part of the occupants; middle income dwellings in a wide range of types and price levels; and upper income housing. In the past decade or so some 15,000 Puerto Rican rural families have moved into their own self-built homes and lately the rate of construction has reached 3,500 homes a year.

CHAPTER V

HOSPITAL SERVICES

The countries of the Americas devote between six and 25 per cent of the total government expenditures on health. One of the largest and a very important item of the budget is for hospital services with its size related to the structure of the system of public and private hospitals in the country and also to the insurance systems utilized by the population. The expenditures are large since hospital care includes medical and nursing services, highly specialized equipment for diagnosis and treatment and diverse laboratory services.

The demand for hospital services depends on the health status of the population and on the consciousness of sick individuals of the need for receiving hospital care. The number of patients admitted to medical institutions is determined in part by the capacity of the institutions in the region. An increase in the demand for hospital services will create difficulties if the numbers of hospital beds are not increased in accordance with the demand. Many sick persons requiring medical care will be unable to receive it unless there is planning for hospital facilities.

The need of obtaining data for planning health programs and determining the requirements of hospital services is evident. Also long range estimations are essential to plan for the installation of new hospital beds. But the objectives of hospital statistics are not only for planning but also, at the national level, for evaluation of services and to provide data on hospital morbidity. This latter information on the types of illnesses facilitates the design of programs of prevention. At the local level the value of information for each individual hospital is evident; hospital statistics enable the hospital administrator to control the operation of the hospital in relation to the costs for services and activities. Finally such data in summarized form give the physicians basic facts regarding their professional work.

In spite of the benefits to be gained from hospital statistics and the recognition of their value by national health services the data often have deficiencies in quantity and in quality. The information available from various sources such as the questionnaires of PAHO/WHO and the annual reports of countries have been utilized for this chapter.

Data are provided on hospital facilities, that is the type and number of hospitals and beds available in the Americas, and their availability in urban and rural areas as well. The rates of utilization are given for several countries which furnished the basic data. Also detailed information for seven countries show the diseases and conditions requiring hospital care together with patient days of care and morbidity in relation to the population. Analysis of this latter material indicates the usefulness of hospital morbidity statistics in defining health problems.

HOSPITAL FACILITIES

The numbers of hospitals and beds by type for the countries of the Americas are given in Tables A and B. Table 1 which contains data by regions within the Americas permits evaluation of the changes which have occurred from 1960 to 1964. In these tables general hospitals refer to those stated as general and also those for other short-stay care including hospitals for the acute infectious diseases and for maternity and pediatrics. The specialized hospitals are those for tuberculosis, leprosy, mental diseases and others for long-stay care such as for rehabilitation and chronic diseases. For 1960, the number of hospitals in Latin

Table 1. Hospitals and Beds with Rates per 1,000 Population in the Regions of the Americas, 1960 and 1964

Region	1960						1964					
	Hospitals		Beds				Hospitals		Beds			
	Total	General (a)	Total		General (a)		Total	General (a)	Total		General (a)	
			Number	Rate	Number	Rate			Number	Rate	Number	Rate
Northern America	8 150	6 673	1 792 939	9.0	830 370	4.2	8 514	7 189	1 902 604	9.0	950 090	4.5
Latin America	8 199	7 290	684 597	3.2	451 600	2.1	9 919	8 986	764 271	3.2	536 900	2.3
Middle America	1 826	1 650	151 962	2.3	98 800	1.5	2 778	2 576	213 449	2.8	156 800	2.1
South America	6 373	5 640	532 635	3.7	352 800	2.4	7 141	6 410	550 822	3.4	380 100	2.3

(a) Estimations were made for general hospitals and beds in 1960 in Brazil and Mexico and in 1964 in Bolivia, Mexico and Peru.

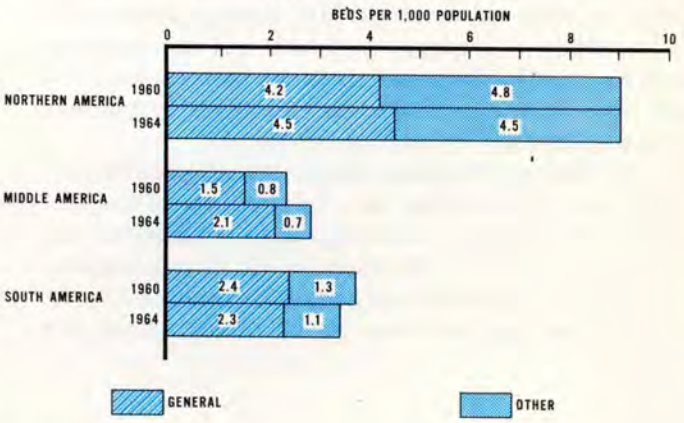
America was 8,199 and the number of available beds was 684,597 of which approximately 7,290 hospitals and 451,600 beds were in general and other short-stay hospitals.

In Northern America, although the number of hospitals was slightly less — 8,150 for all hospitals and 6,673 for general hospitals — the numbers of total beds and general hospital beds were much larger than in Latin America. The total beds in Northern America numbered 1,792,939 of which 830,370 or 46.3 per cent were in general hospitals (including short-stay hospitals). Although the number of hospitals and hospital beds increased to larger numbers in 1964, in Northern America the increase in hospital beds served only to maintain the rate of 9.0 beds per 1,000 population. However, the number of general hospital beds increased from 4.2 to 4.5 per 1,000 population. The decrease in hospitals and beds for chronic diseases was principally for tuberculosis. The number of such beds in 1960 was 77,134 and in 1964, 48,214.

In Middle and South America combined, the total number of beds per 1,000 population remained the same for the two periods, namely 3.2 per 1,000. In Middle America the number of beds per 1,000 population increased from 2.3 to 2.8. A major part of this increase occurred in Mexico where a recent paper[1] states there were 84,680 beds in 1963 as compared to 58,226 in 1958. In Mexico, hospitals and many health centers with beds have been constructed.[2] However, the distribution of the beds in the country is not available by type and thus estimates have been made for the summary table. Also the distributions of beds by type were not known in Bolivia and Peru around 1964. In South America the increase of the population was greater than the increase in hospital beds and thus the rate declined from 3.7 to 3.4 per 1,000 population. The slight changes in the beds per 1,000 population in the three regions of the Americas from 1960 to 1964 can be seen in Figure 1.

Figure 1

TOTAL AND GENERAL HOSPITAL BEDS PER 1,000 POPULATION IN THE THREE REGIONS OF THE AMERICAS, 1960 AND 1964



1/ *Salud Pública de Mexíco*, Dirección General de Bioestadística, Vol. VI, No. 6, 1964.

2/ *Dependencias Aplicativas*, Dirección General de Servicios Coordinados de Salud Pública en Estados y Territorios, October 1965.

In Tables A and B for a few countries data for a previous year were used, such as in Argentina, Bolivia and Brazil where the most recent figure available was for 1962. In the tables the year to which the numbers of hospitals and hospital beds refer is given. Since complete information was not available, the hospital facilities of Middle and South America have been slightly underestimated.

From the data in Tables A and B and Figure 2 the total number of hospital beds per 1,000 population for the countries of the Americas can be appraised. Of the countries Canada has the largest number of beds in relation to population, namely 10.5; this is followed by the United States with 8.9 and Uruguay 6.4 per 1,000 population. Although Haiti appeared with the smallest number per 1,000, namely 0.7, this may be due to incomplete information.

In Table 2 and Figure 3 is shown the provision of hospital facilities for two divisions within the countries: 1) the capitals and cities of 500,000 population or the provinces, states or departments which contain these cities and 2) the remainders of the countries which are predominantly the rural areas. The differences in hospital facilities is dramatic; for example in Costa Rica the number of hospital beds in the Province of San Jose was 7.7 per 1,000 population while in the remainder of the country 2.6. In Guatemala the difference is even greater, for Guatemala City 7.6 in contrast to 1.4 per 1,000 population for the essentially rural part of the country.

Figure 2

TOTAL AND GENERAL HOSPITAL BEDS PER 1,000 POPULATION BY COUNTRY, 1964

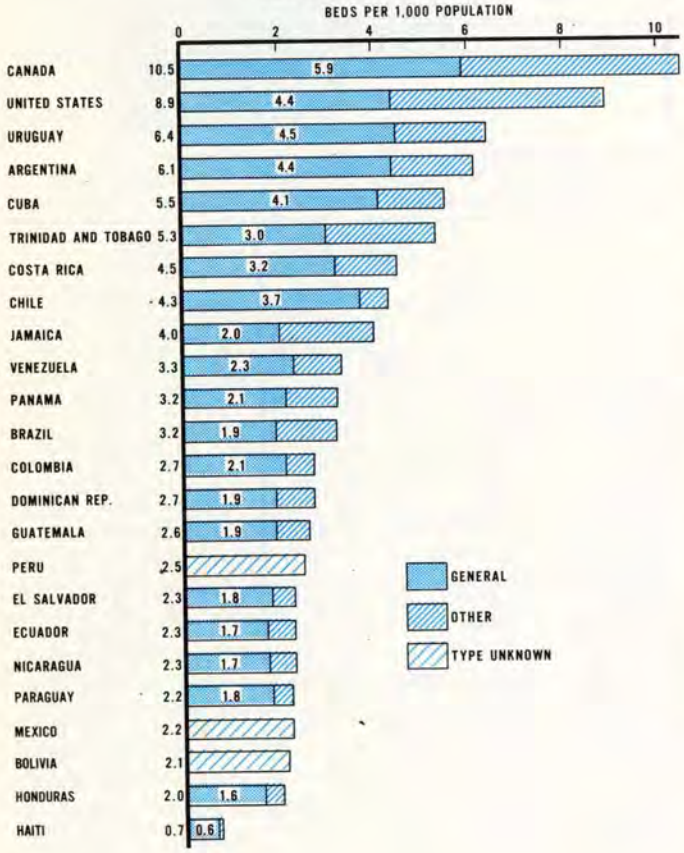


Table 2. Hospital Beds with Rates per 1,000 Population in Capitals and Large Cities and the Remainder of Fifteen Countries Around 1964

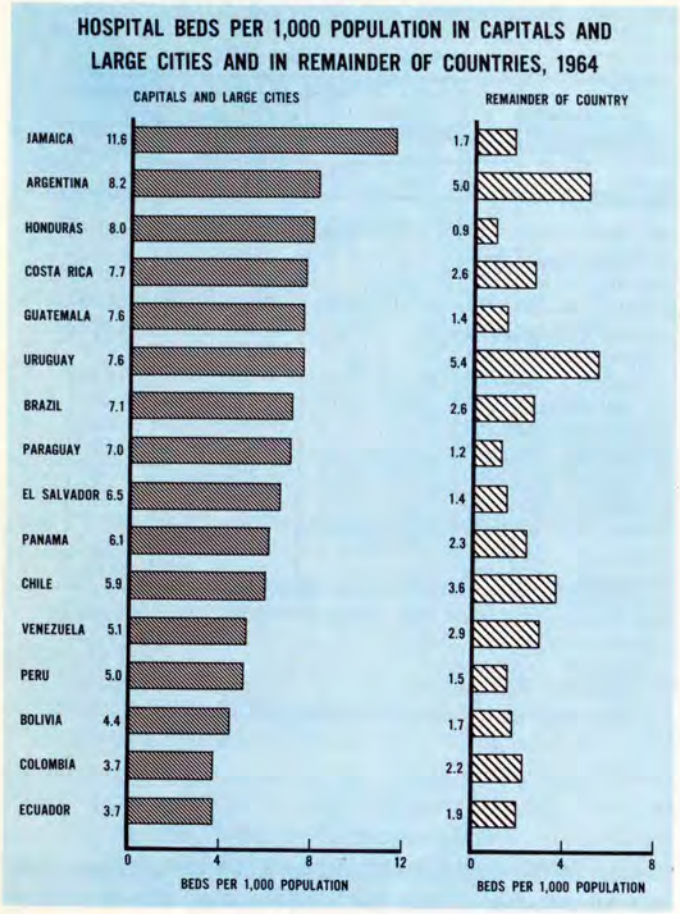
Country	Year	Total		Capitals and large cities		Remainder of country	
		Number	Rate	Number	Rate	Number	Rate
Argentina (a)	1962	129 435	6.1	57 639	8.2	71 196	5.0
Bolivia (b)	1962	7 371	2.1	2 028	4.4	5 343	1.7
Brazil (c)	1962	236 930	3.2	69 826	7.1	167 104	2.6
Chile (b)	1964	36 290	4.3	16 334	5.9	19 956	3.6
Colombia (a)	1964	46 507	2.7	21 620	3.7	24 887	2.2
Costa Rica (b)	1964	6 186	4.5	3 877	7.7	2 309	2.6
Ecuador (b)	1964	11 199	2.3	3 880	3.7	7 319	1.9
El Salvador (d)	1963	6 375	2.3	3 249	6.5	3 126	1.4
Guatemala (b)	1964	11 053	2.6	6 221	7.6	4 832	1.4
Honduras (b)	1964	4 155	2.0	2 516	8.0	1 639	0.9
Jamaica (d)	1964	6 907	4.0	4 662	11.6	2 245	1.7
Paraguay (d)	1964	4 297	2.2	2 330	7.0	1 967	1.2
Peru (b)	1962	23 850	2.2	10 998	5.0	12 852	1.5
Uruguay (b)	1963	16 935	6.4	9 244	7.6	7 691	5.4
Venezuela (e)	1964	27 873	3.3	8 710	5.1	19 163	2.9

(a) Federal district and Departments or Provinces with cities of over 500,000 population. (b) Department or Province with capital city. (c) Federal district and cities of over 500,000 population. (d) Metropolitan area of capital city. (e) Federal District and District of Sucre.

Information was available on ownership of hospitals for 19 countries (Table 3). The usual distinction made was between public establishments and those of the private sector. In general public establishments were reported as government hospitals and a division of this group is not possible at this time. In some countries hospitals which are "Beneficencia" are not government hospitals although they receive funds from the government for the financing of the hospital.

In Peru the following distribution of 256 hospitals with the total and average number of beds was given:

Figure 3



	Hospitals	Beds	Average beds per hospital
Ministry of Public Health and Social Welfare.....	53	9 612	181.4
Armed Forces....	9	2 240	248.9
"Seguro Social Empleado".....	2	985	492.5
"Seguro Social Obrero".....	13	2 708	208.3
"Beneficencia"....	64	8 974	140.2
Private Sector....	115	3 594	31.3

In Table 3 the 141 hospitals in the first five groups are treated as governmental.

In all except four of these countries, Bolivia, Brazil, Canada and the United States, over three-fourths of the beds are in the hospitals termed governmental (Figure 4). The proportions of hospitals in the private sector are larger than the proportions of beds in these hospitals since usually the private hospitals are small.

For health and hospital planning knowledge of the size of the hospitals would be valuable. Such data are not available for the continent. However, based on the numbers of hospitals and beds the average sizes of government and private hospitals have been obtained (Table 4).

The average number of beds in the government hospitals varied widely from less than 100 beds in five countries to over 200 in Brazil, Guatemala, Honduras and Uruguay and to 445 in the United States. Likewise the average number of beds in private hospitals varied from 6 beds in Paraguay and 13 beds in Ecuador to over 100 beds in Canada, the United States and Uruguay. Although the average number of beds in hospitals in Paraguay was only 30, eight hospitals had over 100 beds and nearly half of the beds were in these eight hospitals. Of the 143 hospitals, 115 had fewer than 26 beds. The inclusion or exclusion of small hospitals in the figures in these tables probably accounts for some of the variation. For example, in some countries health centers with a few beds are included as hospitals while in other countries they are not. Unfortunately there is no standard definition in use for a hospital.

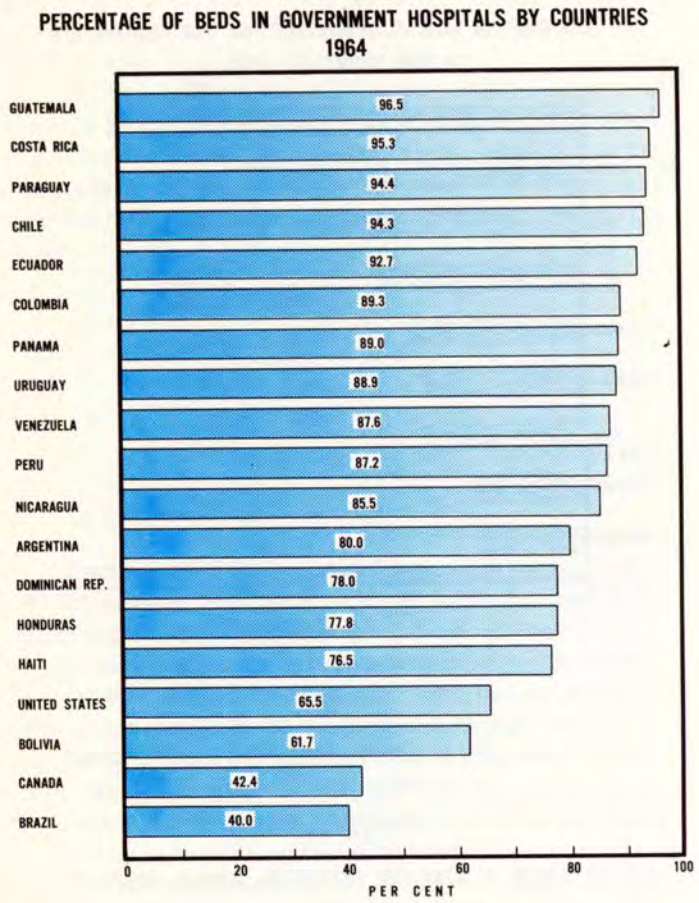
Occupancy rates and diagnostic and treatment facilities vary according to the size of the hospital. Small hospitals usually have low occupancy rates and rela-

Table 3. Number and Percentage of Hospitals and Beds of Government Ownership by Country, 1964

Country	Year	Hospitals			Beds		
		Total	Governmental		Total	Governmental	
			Number	Per cent		Number	Per cent
Argentina	1962	2 253	1 291	57.3	129 435	103 569	80.0
Bolivia	1962	107	62	57.9	7 371	4 547	61.7
Brazil	1962	2 806	425	15.1	236 930	94 740	40.0
Canada	1963	1 346	494	36.6	202 306	85 835	42.4
Chile	1964	347	285	82.1	36 290	34 239	94.3
Colombia	1964	628	492	78.3	46 507	41 541	89.3
Costa Rica	1964	49	40	81.6	6 186	5 896	95.3
Dominican Republic	1964	103	75	72.8	9 283	7 244	78.0
Ecuador	1964	161	98	60.9	11 199	10 380	92.7
Guatemala	1964	46	41	89.1	11 053	10 666	96.5
Haiti (a)	1965	36	15	41.7	3 035	2 322	76.5
Honduras	1964	32	12	37.5	4 155	3 231	77.8
Nicaragua	1965	39	25	64.1	3 753	3 209	85.5
Panama	1964	28	17	60.7	3 804	3 385	89.0
Paraguay	1964	143	105	73.4	4 297	4 056	94.4
Peru	1964	256	141	55.1	28 113	24 519	87.2
United States	1964	7 127	2 496	35.0	1 696 039	1 110 724	65.5
Uruguay (a)	1963	78	71	91.0	16 935	15 047	88.9
Venezuela	1963	326	183	56.1	28 484	24 954	87.6

(a) Information from Smallpox Survey.

Figure 4



tively high costs for the level of medical care rendered. Thus the trend is for construction of large hospitals which serve populations large enough to maintain high occupancy rates and which have diagnostic and treatment facilities for all types of illness.

Table 4. Average Number of Beds in Governmental and Private Hospitals by Country, 1964

Country	Governmental	Private	Country	Governmental	Private
Argentina	80.2	26.9	Guatemala	260.1	77.4
Bolivia	73.3	62.8	Haiti	154.8	34.0
Brazil	222.9	59.7	Honduras	269.3	46.2
Canada	173.8	136.7	Nicaragua	128.4	38.9
Chile	120.1	33.1	Panama	199.1	38.1
Colombia	84.4	36.5	Paraguay	38.6	6.3
Costa Rica	147.4	32.2	Peru	173.9	31.3
Dominican Republic	96.6	72.8	United States	445.0	126.4
Ecuador	105.9	13.0	Uruguay	221.9	269.7
			Venezuela	136.4	24.7

UTILIZATION OF HOSPITALS

In addition to data on the existing facilities study of the use of these facilities by the population is necessary in planning. Maximum utilization of existing facilities before the addition of new hospitals is important in an efficient hospital program. Table 5 provides the numbers of discharges and patient days in general hospitals in 11 countries. The discharge rates vary widely from high rates of 158.3 and 143.6 per 1,000 population in Canada and the United States to low rates of 31.8 in Guatemala and 31.0 per 1,000 in Peru as shown in Figure 5. The availability and the demand for hospital services affect these rates. However, admission or discharge rates of at least 100 per 1,000 population would probably be necessary if facilities were available to the entire population.

The patient days required to meet the demand is probably at least one day per person per year which is presently provided in Canada and the United States (Figure 6).

The average length of stay in general hospitals is affected by the numbers of admissions for obstetrics for which the stay is short and of admissions of those

Table 5. Discharges from General Hospitals and Patient Days with Rates per 1,000 Population and Average Length of Stay for Eleven Countries, 1964

Country	Year	Discharges		Patient days		
		Number	Rate	Number	Rate	Average length of stay
Canada	1963	2 996 653	158.3	32 386 584	1 711.3	10.8
Chile (a)	1964	660 500	78.7	6 254 100	745.3	9.5
Colombia (b)	1963	795 121	47.0	7 007 046	413.6	8.8
Costa Rica	1964	144 639	104.3	1 185 558	806.5	7.7
El Salvador	1963	98 919	36.4	...	...	...
Guatemala	1964	136 817	31.8	2 495 470	579.7	18.2
Honduras	1964	73 502	35.1	794 518	379.8	10.8
Jamaica	1964	99 778	57.7	1 092 101	632.0	10.9
Peru	1962	329 111	31.0	5 222 855	491.2	15.9
Trinidad and Tobago	1962	65 132	75.1	...	...	...
United States	1964	27 477 204	143.6	235 033 854	1 228.2	8.6

(a) Government hospitals with exclusion of services of tuberculosis and other long-stay services. (b) Excluding diagnoses of tuberculosis and mental diseases.

with serious illness such as tuberculosis and mental diseases for whom care is sometimes provided in general hospitals. Efforts are constantly being directed to the improvement of hospital services whereby diagnosis and treatment are carried out promptly and thus the

Figure 5

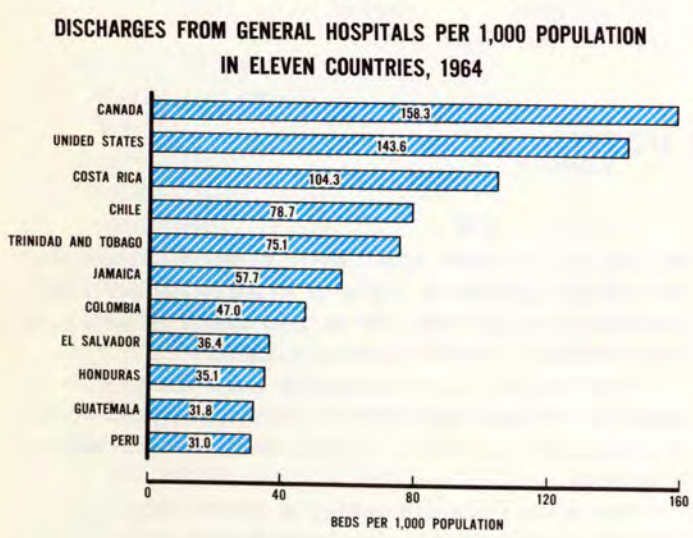


Figure 6

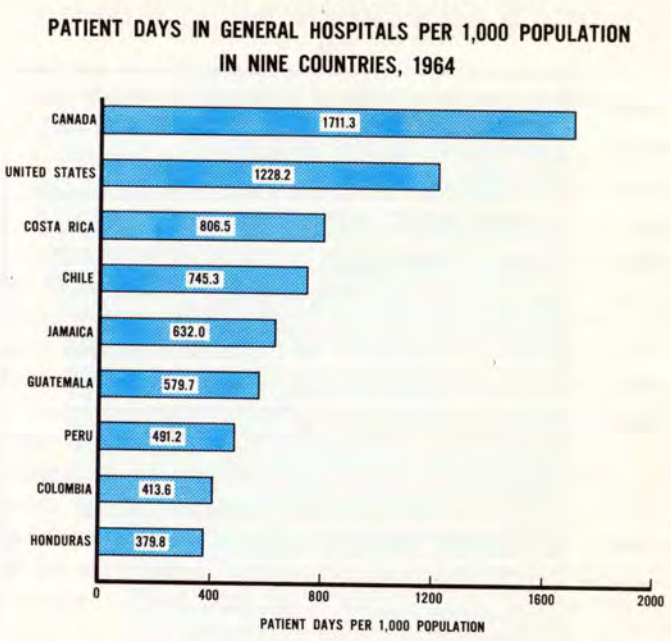
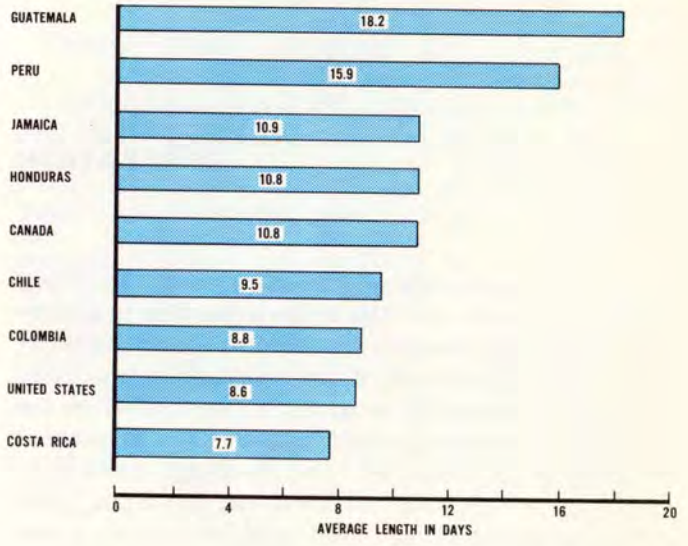


Figure 7



average length of stay reduced. As given in Table 5 and shown in Figure 7 the average length of stay in general hospitals in these countries varied from 7.7 to 18.2 days.

Another method of evaluating the utilization of services is by using the turnover rate, that is the number of patients admitted per bed during a year. Using the admissions in Table 5 and the numbers of general hospital beds the following turnover rates were calculated:

Canada	26.9	Honduras	22.0
Chile	30.3	Jamaica	29.5
Colombia	23.6	Peru	16.7
Costa Rica	33.0	Trinidad and Tobago	24.2
El Salvador	20.6	United States	33.0
Guatemala	16.4		

Four countries, Chile, Costa Rica, Jamaica and the United States admitted around 30 patients per bed in general hospitals in a year.

HOSPITAL MORBIDITY

Hospital morbidity statistics provide valuable data for evaluating the utilization of hospital services according to diseases and conditions of the patients. At the national levels such statistics serve to assess the health status of the population and the medical attention developed in the country. Although morbidity of a hospitalized population is not a complete representation of the general morbidity of the population it does provide information regarding the illnesses serious enough to require and receive hospitalization. However, for these purposes data should be available from each hospital in the country, both public and private. The collection of reliable data is laborious requiring great care at all levels. First the physician must record the diagnosis on the basis of clinical, surgical, laboratory and pathological evidence. Each hospital should have a department of medical records to assemble and process the data. At the national level a method of rapid processing and tabulation of the hospital abstracts or reports is necessary.

Several national health services are carrying out systematically the collection, tabulation and analysis of hospital morbidity for all or a high proportion of the hospitals in the country. Data on diagnoses of patients discharged from seven countries, namely, Chile, Colombia, Costa Rica, Ecuador, Honduras, Peru and Venezuela were provided in annual publications or by special tabulation with sufficient detail to be incorporated into a table for this report (Table C). Also information from El Salvador[1] for 1964 has been included in several tables in the text. In 1965 the tabulation in El Salvador will be completed in accordance with the A List of the ***International Classification of Diseases*** and thus more complete information will become available for that country also. Recent data for Peru[2] for 1964 were available for infectious diseases and have been used in summary tables.

For these countries the hospitals for which data are reported varies; for example in Chile and Ecuador the private hospitals are not included and in Honduras two tuberculosis hospitals were excluded, as well as some small private hospitals. Discharges and patient days analyzed represent 86 per cent of discharges and 76 per cent of patient days. In Colombia the data are for 586 hospitals with 39,558 beds. The experience in Venezuela was limited to 32 hospitals and 12 health centers of the Ministry of Health and Social Welfare, a small fraction of the total. For the seven countries with relatively complete coverage, hospital morbidity data appeared to be provided for the following proportions of the beds:

Chile	86 per cent
Colombia	85 per cent
Costa Rica	100 per cent
Ecuador	70 per cent
El Salvador	87 per cent
Honduras	85 per cent
Peru	90 per cent

1/ *Diagnostico de Consultas y Egresos de Pacientes,* Dirección General de Salud, El Salvador, 1966.

2/ *Plan Nacional de Salud, 1966-1970,* Ministerio de Salud Pública y Asistencia Social.

Rates using the populations of the entire country have been calculated as indices of the size of health problems and of the use of hospitals by patients for certain diseases and conditions and to compare the situations in these countries of Latin America. However, in interpreting these hospital morbidity statistics, the incompleteness of the material should be recognized. The great value of information on hospital morbidity warrants analysis and presentation to promote the development of more complete data for health planning and evaluation of progress in Latin America. The detailed information given in Table C shows the numbers of discharges and patient days according to causes. Although the average lengths of stay are calculated by dividing the number of patient days by the number of discharges, for chronic diseases this calculation is not as meaningful as with the short-stay patients. Some of the patients with chronic diseases remain for long periods, sometimes years.

The infectious and parasitic diseases classified under categories 001-138 of the *International Classification of Diseases* were responsible for from 6.6 to 13.3 per cent of the illnesses of the patients hospitalized and from 19.3 to 38.2 per cent of the patient days (Table 6). However, of these patient days over

Table 6. Number of Discharges and Patient Days due to Infectious Diseases with Rates per 1,000 Population in Seven Countries, 1964

Country	Discharges			Patient days			
	Number	Rate	Per cent of total	Number	Rate	Per cent of total	Average length of stay
Chile (a)	42 695	5.2	6.6	2 160 617	262.9	25.6	50.6
Colombia(a)	68 058	4.0	8.3	1 983 897	117.1	19.3	29.2
Costa Rica	10 095	7.3	6.8	300 068	216.3	19.9	29.7
Ecuador	19 781	4.1	12.7	...	...	...	...
El Salvador	16 518	5.8	13.3	609 371	215.8	25.6	36.9
Honduras	5 465	2.6	8.5	249 768	119.4	28.6	45.7
Peru	43 358	3.8	13.2	2 402 283	212.6	38.2	55.4

(a) 1963.

half were due to tuberculosis with extended periods of hospitalization. Programs of eradication or prevention are under way for many of these infectious diseases. In Table 7 are given the numbers of patients hospitalized due to four infectious diseases of childhood. Measles is a serious disease in these countries with high rates of hospitalization.

Typhoid fever and the diarrheal diseases likewise caused frequent hospital admissions (Table 8). For example, in Chile 28,000 hospitalizations or 337 per

Table 7. Hospitalizations for Four Infectious Diseases of Childhood with Rates per 100,000 Population for Seven Countries, 1964

Country	Diphtheria		Whooping cough		Poliomyelitis, acute		Measles	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Chile (a)	1 240	15.1	657	8.0	115	1.4	7 579	92.2
Colombia (a)	726	4.3	891	5.3	208	1.2	1 944	11.5
Costa Rica	118	8.5	264	19.0	15	1.1	1 742	125.6
Ecuador	84	1.7	276	5.7	42	0.9	900	18.4
El Salvador	188	6.7	77	2.7	33	1.2	695	24.6
Honduras	10	0.5	52	2.5	32	1.5	278	13.3
Peru	106	0.9	241	2.1	838	7.4	2 809	24.9

(a) 1963.

100,000 population were due to typhoid, paratyphoid, dysentery and other diarrheal diseases. In Costa Rica the rate reached 995 per 100,000 or one out of each 100 persons was hospitalized for one of these diseases transmitted by water, food or from person to person by fecal contamination. The programs under way in Latin America for construction of water supplies and sewage disposal facilities should be effective in eliminating many of these illnesses.

The numbers of hospitalizations due to malaria are given in Table 9. The highest rate was noted for El Salvador where 1,834 patients with malaria were hospitalized or 64.9 per 100,000 population. The average lengths of stay for patients with malaria were relatively short. The effect of the eradication program is evident in hospital morbidity statistics. For example, in 1958, 10,573 patients with malaria were hospitalized in Colombia while in 1963 the number was less than half, namely 4,630.

Table 8. Hospitalizations for Typhoid, Paratyphoid, Dysentery and Diarrheal Diseases with Rates per 100,000 Population for Seven Countries, 1964

Country	Typhoid fever		Paratyphoid and other salmonellosis		Dysentery, all forms		Gastritis, enteritis etc.	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Chile (a)	4 324	52.6	500	6.1	679	8.3	22 184	270.0
Colombia (a)	6 069	35.8	946	5.6	9 727	57.4	37 683	222.4
Costa Rica	162	11.7	181	13.0	536	38.6	12 918	931.4
Ecuador	2 071	42.4	1 137	23.3	1 511	31.0	6 952	142.4
El Salvador	1 058	37.5	(b)		6 340	224.5	(c)	
Honduras	509	24.3	31	1.5	582	27.8	4 340	207.5
Peru	3 046	27.0	(b)		11 603	102.7	(c)	

(a) 1963. (b) Included with typhoid fever. (c) Included with dysentery.

Table 9. Hospitalizations for Malaria with Rates per 100,000 Population, Patient Days and Average Length of Stay in Seven Countries, 1964

Country	Discharges		Patient days	
	Number	Rate	Number	Average length of stay
Chile (a)	-		-	
Colombia (a)	4630	27.3	44533	9.6
Costa Rica	146	10.5	1047	7.2
Ecuador	907	18.6	...	...
El Salvador	1834	64.9	12749	7.0
Honduras	353	16.9	2315	6.6
Peru	219	1.9	1961	9.0

(a) 1963.

The variations in the rates for hospitalization for three of these diseases, measles, malaria and typhoid fever are shown in Figure 8. As a result of the programs under way for eradication of malaria and for construction of water supplies and sewerage systems marked reduction in two of these diseases should occur. Measles vaccine was first used in Chile in 1963 and if widely applied should have an effect on the elimination of serious cases of measles requiring hospitalization as well as of high death rates from this disease.

One of the fields in which mortality statistics have not adequately defined the serious problem in Latin America is nutrition. Although many serious cases of malnutrition may occur in areas without hospital facilities, hospital morbidity statistics do provide some information on hospitalizations due to nutritional deficiency states and anemias (Table 10 and Figure 9). Costa Rica had high rates from both these groups. In Colombia there were 9,807 persons hospitalized due to nutritional deficiency or 57.9 per 100,000 population. Of these 4,413 or 45 per cent were children from 1-4 years of age.

Another field in which morbidity statistics are needed for definition of the problem is in the field of mental diseases. Although data on admissions would be preferable to discharges these data indicate the rate of hospitalization for psychoses, psychoneuroses and other personality disorders and for mental deficiency. Costa Rica with its complete data for hospitals had the largest rate of cases of mental diseases, namely 295.1 per 100,000 population (Table 11 and Figure 10).

As hospital facilities become available they are used more frequently for deliveries. In fact in some countries a high proportion of deliveries now occur in hospitals. Table 12 provides data regarding normal deliveries (those without complications), patients with complications of pregnancy, childbirth and the puerperium and abortions. Rates in this table are calculated per 1,000 population which is the basis for calculation of birth rates. In two of these countries Chile and Costa Rica, the high rates of delivery without complications of 21.0 and 23.9 per 1,000 population indicate that more than half of the births are occurring in hospitals. The birth rates for these countries in 1964 were 35.6 and 46.8 per 1,000 population respectively. In both

Figure 8

NUMBER OF HOSPITALIZATIONS PER 100,000 POPULATION FOR MEASLES, MALARIA AND TYPHOID FEVER IN SEVEN COUNTRIES, 1964

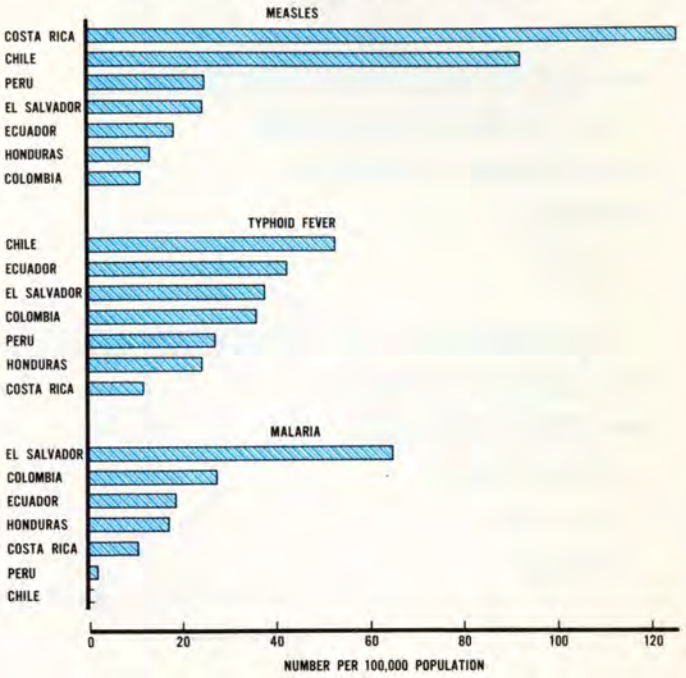


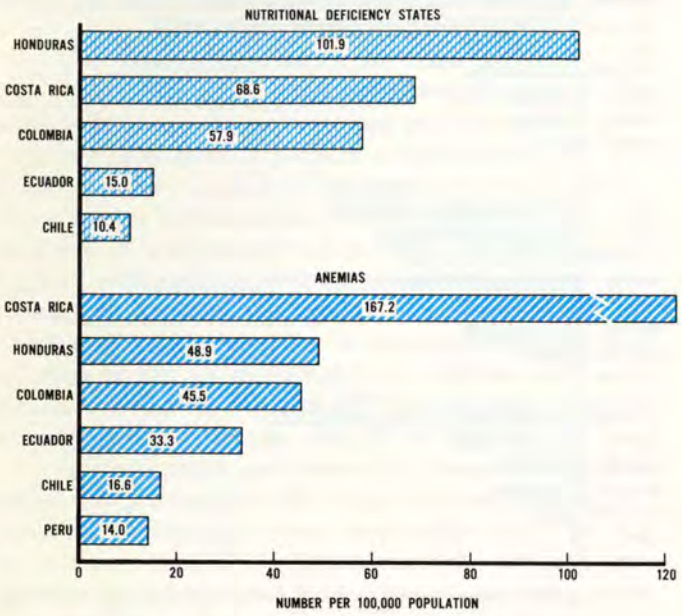
Table 10. Hospitalizations for Nutritional Deficiency States and Anemias with Rates per 100,000 Population in Six Countries, 1964

Country	Nutritional deficiency states		Anemias	
	Number	Rate	Number	Rate
Chile (a)	851	10.4	1365	16.6
Colombia (a)	9807	57.9	7705	45.5
Costa Rica	952	68.6	2319	167.2
Ecuador	731	15.0	1627	33.3
Honduras	2132	101.9	1024	48.9
Peru (b)	...	...	1491	14.0

(a) 1963. (b) 1962.

Figure 9

NUMBER OF HOSPITALIZATIONS PER 100,000 POPULATION FOR NUTRITIONAL DEFICIENCY STATES AND ANEMIAS IN SIX COUNTRIES 1964



Chile and Costa Rica the frequency of abortions was high, 6.1 and 4.3 per 1,000 population thus pointing to serious problems.

These examples of hospital morbidity statistics indicate their usefulness at the international level to assess the health problems of the Latin American countries. Within the countries and for the individual hospitals similar data over a period of time serve both to measure the problems and to evaluate progress. Additional analyses should be made considering many variables.

Table 11. Hospitalizations for Mental Diseases with Rates per 100,000 Population in Six Countries, 1964

Country	Total		Psychosis		Psychoneurosis,* etc.		Mental Deficiency	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Chile (a)	11 902	144.8	4 019	48.9	7 455	90.7	428	5.2
Colombia (a)	16 792	99.1	9 362	55.3	5 928	35.0	1 502	8.9
Costa Rica	4 093	295.1	1 438	103.7	2 583	186.2	72	5.2
Ecuador	2 103	43.1	1 205	24.7	817	16.7	81	1.7
Honduras	1 801	86.1	462	22.1	1 332	63.7	7	0.3
Perú	4 403	39.0	...		...		...	

* Psychoneurosis and other personality disorders.
(a) 1963.

Figure 10

HOSPITALIZATIONS PER 100,000 POPULATION FOR MENTAL DISEASES IN SIX COUNTRIES, 1964

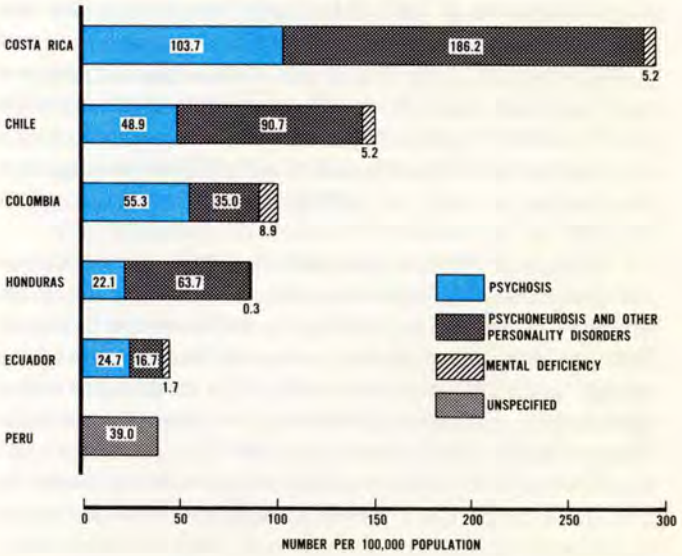


Table 12. Hospitalizations for Deliveries and Complications of Pregnancy and Childbirth with Rates per 1,000 Population, 1964

Country	Total		Abortions		Delivery without complications		Complications of pregnancy and childbirth	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Chile (a)	254 296	31.0	49 772	6.1	172 697	21.0	31 827	3.9
Colombia (a)	308 308	18.2	50 020	3.0	b) 258 288	15.3	...	...
Costa Rica	49 745	35.9	5 983	4.3	33 106	23.9	10 656	7.7
Ecuador	52 350	10.7	5 866	1.2	35 222	7.2	11 262	2.3
El Salvador	42 168	14.9	...	...	...	...	...	...
Honduras	21 749	10.4	3 397	1.6	15 270	7.3	3 082	1.5
Peru	91 374	8.1	...	...	...	...	...	...

(a) 1963. (b) Includes complications.

TABLE A. NUMBER OF HOSPITALS BY TYPE IN THE AMERICAS, BY COUNTRIES, 1964

Country	Year	Total	General hospitals					Other hospitals				
			Total	General	Maternity	Pediatrics	Other	Total	Tuberculosis	Leprosy	Mental diseases	Other
			1965									
Argentina	1962	2253	2055	1852	115	85	13	198	76	9	59	54
Bolivia	1962	107	99	91	6	1	1	8	4	2	1	1
Brazil (a)	1962	2806	2428	2167	217	44	-	378	107	55	138	78
Canada (b)	1965	1381	1085	1067	15	-	3	296	45	-	103	148
Chile	1964	347	336	328	-	8	-	11	6	-	4	1
Colombia	1964	628	583	...	...	...	...	45	24	-	21	-
Costa Rica	1964	49	45	42	2	1	-	4	2	1	1	-
Cuba (c)	1965	159	113	...	...	...	...	46	...	...	...	...
Dominican Republic	1964	103	96	78	16	2	-	7	2	1	1	3
Ecuador	1964	161	143	133	5	5	-	18	11	3	3	1
El Salvador	1963	51	44	39	4	1	-	7	4	-	2	1
Guatemala	1964	46	37	27	4	4	2	9	5	1	1	2
Haiti (d)	1965	36	27	26	1	-	-	9	4		2	3
Honduras	1964	32	29	29	-	-	-	3	2	-	1	-
Jamaica	1964	27	24	22	1	1	-	3	1	1	1	-
Mexico	1962	1925	1862	1419	415	28	-	63	(e) 32	...	31	...
Nicaragua (d)	1965	39	36	36	-	-	-	3	1	1	1	-
Panama	1964	28	26	25	-	1	-	2	1	-	1	-
Paraguay	1964	143	137	124	12	1	-	6	1	2	1	2
Peru (f)	1964	256	...	...	...	...	...	...	...	...	...	...
Trinidad and Tobago	1962	27	24	24	-	-	-	3	1	1	1	-
United States (g)	1964	7127	6101	5949	57	60	35	1026	194	3	531	298
Uruguay (d)	1963	78	72	67	2	2	1	6	4	-	2	-
Venezuela	1964	314	281	262	12	7	-	33	16	2	9	6
Antigua	1964	3	1	1	-	-	-	2	-	1	1	-
Bahama Islands	1964	4	1	1	-	-	-	3	-	1	1	1
Barbados	1964	10	8	5	2	-	1	2	-	1	1	-
Bermuda	1964	3	1	1	-	-	-	2	-	-	1	1
British Guiana	1964	28	25	25	-	-	-	3	1	1	1	-
British Honduras	1963	10	7	7	-	-	-	3	1	-	1	1
Canal Zone	1963	4	2	2	-	-	-	2	-	1	1	-
Cayman Islands	1964	1	1	1	-	-	-	-	-	-	-	-
Dominica	1963	7	5	4	-	1	-	2	-	1	1	-
Falkland Islands	1962	1	1	1	-	-	-	-	-	-	-	-
French Guiana	1964	4	3	3	-	-	-	1	-	1	-	-
Grenada	1964	8	4	3	-	-	1	4	1	-	1	2
Guadeloupe	1964	19	17	16	1	-	-	2	-	1	1	-
Martinique	1962	17	15	9	6	-	-	2	1	-	1	-
Montserrat	1964	1	1	1	-	-	-	-	-	-	-	-
Netherlands Antilles	1964	10	8	8	-	-	-	2	-	1	1	-
Puerto Rico	1963	139	125	124	-	-	1	14	6	1	4	3
St. Kitts-Nevis and Anguilla	1963	4	4	4	-	-	-	-	-	-	-	-
St. Lucia	1963	5	4	4	-	-	-	1	-	-	1	-
St. Pierre and Miquelon	1962	3	2	1	1	-	-	1	1	-	-	-
St. Vincent	1957	6	2	1	1	-	-	4	1	1	1	1
Surinam	1965	15	13	13	-	-	-	2	-	1	1	-
Turks and Caicos Islands	1964	4	4	2	2	-	-	-	-	-	-	-
Virgin Islands (UK)	1962	1	1	1	-	-	-	-	-	-	-	-
Virgin Islands (US)	1963	3	3	3	-	-	-	-	-	-	-	-

(a) Anuario Estatistico do Brasil, 1965. (b) List of Canadian Hospitals, 1965. (c) Salud Pública en Cifras, Ministerio de Salud Pública, La Habana, 1965. (d) Information from smallpox survey; distribution of special hospitals maintained as in previous reports. (e) Infectious diseases including tuberculosis. (f) Plan Nacional de Salud, 1966-1970. (g) American Hospital Association.

TABLE B. NUMBER OF HOSPITAL BEDS BY TYPE OF HOSPITAL WITH RATES PER 1,000 POPULATION BY COUNTRIES, 1964

Country	Year	Total		General hospitals						Other hospitals				
		Number	Rate	Total Number	Total Rate	General	Maternity	Pediatrics	Other	Total	Tuberculosis	Leprosy	Mental diseases	Other
Argentina	1962	129 435	6.1	92 990	4.4	84 297	2 621	5 451	621	36 445	9 112	1 992	21 454	3 887
Bolivia	1962	7 371	2.1	...		...	...	...	...	...	...	...	...	...
Brazil (a)	1962	236 930	3.2	142 648	1.9	105 951	21 591	15 106	-	94 282	22 412	16 404	41 845	13 621
Canada (b)	1965	206 067	10.5	116 346	5.9	115 035	799	-	512	89 721	6 829	-	68 323	14 569
Chile	1964	36 290	4.3	30 882	3.7	29 135	-	1 747	-	5 408	1 487	-	3 816	105
Colombia	1964	46 507	2.7	37 008	2.1	...	...	...	...	9 499	2 852	-	6 647	-
Costa Rica	1964	6 186	4.5	4 393	3.2	3 802	130	461	-	1 793	535	177	1 081	-
Cuba (c)	1965	42 162	5.5	31 245	4.1	...	...	...	...	10 917	...	...	...	...
Dominican Republic	1964	9 283	2.7	6 736	1.9	5 468	718	550	-	2 547	936	181	700	730
Ecuador	1964	11 199	2.3	8 368	1.7	7 173	590	605	-	2 831	1 507	224	1 072	28
El Salvador	1963	6 375	2.3	4 803	1.8	4 226	322	255	-	1 572	966	-	496	110
Guatemala	1964	11 053	2.6	8 355	1.9	7 477	307	452	119	2 698	1 041	50	1 172	435
Haiti (d)	1965	3 035	0.7	2 704	0.6	2 618	86	...	...	331	312		19	...
Honduras	1964	4 155	2.0	3 343	1.6	3 343	-	-	-	812	622	-	190	-
Jamaica	1964	6 907	4.0	3 385	2.0	3 021	164	200	-	3 522	222	185	3 115	-
Mexico	1963	84 680	2.2	...		...	...	...	...	...	...	...	...	...
Nicaragua (d)	1965	3 753	2.3	3 085	1.9	3 085	-	-	-	668	300	68	300	-
Panama	1964	3 804	3.2	2 513	2.1	2 301	-	212	-	1 291	320	-	971	-
Paraguay	1964	4 297	2.2	3 289	1.7	3 289	...	...	...	1 008	366	320	294	28
Peru (e)	1964	28 113	2.5	...		...	...	...	...	...	...	...	...	...
Trinidad and Tobago	1962	4 712	5.3	2 692	3.0	2 692	-	-	-	2 020	473		1 547	-
United States (f)	1964	1 696 039	8.9	833 536	4.4	821 981	2 420	7 300	1 835	862 503	41 385	819	758 401	61 898
Uruguay (d)	1963	16 935	6.4	11 867	4.5	10 738	258	741	130	5 068	2 084	-	2 984	-
Venezuela	1964	27 873	3.3	19 606	2.3	17 801	979	826	-	8 267	2 961	900	3 823	583
Antigua	1964	420	7.0	180	3.0	180	-	-	-	240	-	40	200	-
Bahama Islands	1964	782	5.5	450	3.2	450	-	-	-	332	-	20	200	112
Barbados	1964	1 393	5.8	567	2.3	507	40	-	20	826	-	25	801	-
Bermuda	1964	428	8.9	162	3.4	162	-	-	-	266	-	-	230	36
British Guiana	1964	3 424	5.4	1 990	3.2	1 990	-	-	-	1 434	246	354	834	-
British Honduras	1963	493	4.9	261	2.6	261	-	-	-	232	52	-	122	58
Canal Zone	1963	985	19.7	565	11.3	565	-	-	-	420	-	120	300	-
Cayman Islands	1964	34	3.8	34	3.8	34	-	-	-	-	-	-	-	-
Dominica	1963	309	4.9	257	4.1	232	-	25	-	52	-	22	30	-
Falkland Islands	1962	32	16.0	32	16.0	32	-	-	-	-	-	-	-	-
French Guiana	1964	626	17.4	506	14.1	506	-	-	-	120	-	120	-	-
Grenada	1964	731	7.9	320	3.4	300	-	-	20	411	60	-	200	151
Guadeloupe	1960	2 406	8.8	1 786	6.5	1 778	8	-	-	620	-	120	500	-
Martinique	1964	4 150	13.4	3 500	11.3	...	...	...	...	650	250	-	400	-
Montserrat	1964	69	5.3	69	5.3	69	-	-	-	-	-	-	-	-
Netherlands Antilles	1964	1 821	8.9	1 391	6.8	1 391	-	-	-	430	-	30	400	-
Puerto Rico	1963	12 411	4.9	7 533	3.0	7 466	-	-	67	4 878	2 000	100	2 567	211
St. Kitts-Nevis and Anguilla	1963	205	3.4	205	3.4	205	-	-	-	-	-	-	-	-
St. Lucia	1963	445	4.7	300	3.2	300	-	-	-	145	-	-	145	-
St. Pierre and Miquelon	1962	70	14.0	46	9.2	37	9	-	-	24	-	-	24	-
St. Vincent	1957	435	5.7	150	2.0	134	16	-	-	285	40	20	100	125
Surinam	1965	1 790	5.2	1 275	3.7	1 275	-	-	-	515	-	150	365	-
Turks and Caicos Islands	1964	32	5.3	32	5.3	28	4	-	-	-	-	-	-	-
Virgin Islands (UK)	1962	34	4.2	34	4.2	34	-	-	-	-	-	-	-	-
Virgin Islands (US)	1963	189	4.7	189	4.7	189	-	-	-	-	-	-	-	-

(a) Anuario Estatístico do Brasil, 1965. (b) List of Canadian Hospitals, 1965. (c) Salud Pública en Cifras, Ministerio de Salud Publica, La Habana, 1965. (d) Information from smallpox survey; distribution of special hospitals maintained as in previous reports. (e) Plan Nacional de Salud, 1966-1970. (f) American Hospital Association.

TABLE C. NUMBER OF DISCHARGES FROM HOSPITALS WITH RATES PER 1,000 POPULATION, PATIENT DAYS AND AVERAGE LENGTH OF STAY BY DIAGNOSIS IN SEVEN COUNTRIES, 1964

Diagnosis	Chile (a)				Colombia (a)				Costa Rica			
	Discharges		Patient Days		Discharges		Patient Days		Discharges		Patient Days	
	Number	Rate	Number	Average length of stay	Number	Rate	Number	Average length of stay	Number	Rate	Number	Average length of stay
Total	646233	78.65	8447817	13.1	821319	48.48	10285948	12.5	147816	106.57	1505996	10.2
Tuberculosis, all forms 001-019	18483	2.25	1758698	95.2	9553	0.56	1105000	115.7	1296	0.93	172688	133.2
Syphilis and its sequelae 020-029	758	0.09	21313	28.1	629	0.04	15922	25.3	93	0.07	1485	16.0
Typhoid fever 040	4324	0.53	68672	15.9	6069	0.36	55009	9.1	162	0.12	1859	11.5
Paratyphoid fever and other Salmonella infections 041, 042	500	0.06	5986	12.0	946	0.06	7819	8.3	181	0.13	1296	7.2
Dysentery, all forms 045-048	679	0.08	10482	15.4	9727	0.57	94686	9.7	536	0.39	4638	8.7
Scarlet fever and streptococcal sore throat 050, 051	590	0.07	7321	12.4	107	0.01	741	6.9	18	0.01	87	4.8
Diphtheria 055	1240	0.15	17119	13.8	726	0.04	5316	7.3	118	0.09	885	7.5
Whooping cough 056	657	0.08	8814	13.4	891	0.05	11261	12.6	264	0.19	3148	11.9
Meningococcal infections 057	58	0.01	882	15.2	11	0.00	81	7.4	10	0.01	71	7.1
Plague 058	-	-	-	-	6	0.00	63	10.5	-	-	-	-
Leprosy 060	-	-	-	-	281	0.02	125848	447.9	79	0.06	32063	405.9
Tetanus 061	77	0.01	814	10.6	1232	0.07	12667	10.3	143	0.10	1473	10.3
Yaws 073	-	-	-	-	...	-	...	-	-	-	-	-
Acute poliomyelitis 080	115	0.01	2951	25.7	208	0.01	9109	43.8	15	0.01	544	36.3
Smallpox 084	-	-	-	-	37	0.00	274	7.4	-	-	-	-
Measles 085	7579	0.92	103933	13.7	1944	0.11	19913	10.2	1742	1.26	14055	8.1
Yellow fever 091	-	-	-	-	34	0.00	242	7.1	-	-	-	-
Rabies 094	3	0.00	108	36.0	27	0.00	163	6.0	2	0.00	14	7.0
Typhus and other rickettsiae 100-108	65	0.01	4620	71.1	493	0.03	8496	17.2	20	0.01	177	8.8
Malaria 110-117	-	-	-	-	4630	0.27	44533	9.6	146	0.11	1047	7.2
All other infective and parasitic diseases Residual	7567	0.92	148904	19.7	30507	1.80	466754	15.3	5270	3.80	64538	12.2
Malignant neoplasms, etc 140-205	9249	1.13	242324	26.2	8853	0.52	190325	21.5	2098	1.51	50230	23.9
Benign and unspecified neoplasms 210-239	7134	0.87	87882	12.3	11741	0.69	133064	11.3	1542	1.11	16680	10.8
Diabetes mellitus 260	1830	0.22	36775	20.1	1282	0.08	20901	16.3	483	0.35	7505	15.5
Avitaminoses and other dificiency states 280-286	851	0.10	22738	26.7	9807	0.58	223475	22.8	952	0.69	17960	18.9
Anemias 290-293	1365	0.17	22580	16.5	7705	0.45	150502	19.5	2319	1.67	26422	11.4
Psychoses 300-309	4019	0.49	703025	174.9	9362	0.55	1382671	147.7	1438	1.04	174956	121.7
Psychoneuroses and disorders of personality 310-324, 326	7455	0.91	185639	24.9	5928	0.35	303569	51.2	2583	1.86	23166	9.0
Mental dificiency 325	428	0.05	86553	202.2	1502	0.09	387695	258.1	72	0.05	14271	198.2
Vascular lesions affecting central nervous system 330-334	3201	0.39	80545	25.2	2717	0.16	47493	17.5	457	0.33	7362	16.1
Non-meningococcal meningitis 340	1074	0.13	18772	17.5	1502	0.09	23212	15.5	247	0.18	3718	15.1
Rheumatic fever 400-402	1619	0.20	43241	26.7	1136	0.07	22667	20.0	289	0.21	3688	12.8
Chronic rheumatic heart disease 410-416	1962	0.24	42530	21.7	559	0.03	12727	22.8	278	0.20	4480	16.1
Arteriosclerotic and degenerative heart disease 420-422	4046	0.49	97885	24.2	1895	0.11	26243	13.8	666	0.48	9867	14.8
Other diseases of the heart 430-434	1997	0.24	30680	15.4	3855	0.23	69260	18.0	507	0.37	6102	12.0
Hypertension with heart disease 440-443	569	0.07	8172	14.4	561	0.03	15500	27.6	168	0.12	2426	14.4
Hypertension without mention of heart 444-447	2972	0.36	34715	11.7	2832	0.17	33960	12.0	517	0.37	4707	9.1
Arteriosclerosis 450	784	0.10	27080	34.5	9204	0.54	133938	14.6	145	0.10	5762	39.7
Other diseases of the circulatory system 451-468	5557	0.68	86307	15.5					1525	1.10	20269	13.3
Influenza 480-483	12559	1.53	89838	7.2	5806	0.34	37171	6.4	2004	1.44	8778	4.4
Pneumonia 490-493	25253	3.07	283901	11.2	13731	0.81	118989	8.7	2836	2.04	24432	8.6
Bronchitis 500-502	8084	0.98	75713	9.4	9834	0.58	79686	8.1	3490	2.52	21874	6.3
Other diseases of respiratory system 470-475, 510-527	10584	1.29	117449	11.1	36044	2.13	175907	4.9	3242	2.34	20830	6.4
Ulcer of stomach and duodenum 540, 541	3589	0.44	65186	18.2	6021	0.36	100006	16.6	869	0.63	11147	12.8
Appendicitis 550-553	15118	1.84	102256	6.8	10014	0.59	78132	7.8	1381	1.00	8396	6.1
Intestinal obstruction and hernia 560, 561, 570	12941	1.57	128086	9.9	25265	1.49	243316	9.6	2555	1.84	24171	9.5
Gastritis, enteritis, etc 543, 571, 572	22184	2.70	208126	9.4	37683	2.22	297794	7.9	12918	9.31	92779	7.2
Cirrhosis of the liver 581	4224	0.51	72912	17.3	834	0.05	17613	21.1	250	0.18	4632	18.5
Other diseases of digestive system Residual	30600	3.72	385020	12.6	22603	1.33	256671	11.4	3288	2.37	33393	10.2
Nephritis and nephrosis 590-594	3807	0.46	93672	24.6	3953	0.23	66905	16.9	661	0.48	11809	17.9
Other diseases of the genitourinary system 660-637	21475	2.61	248094	11.6	37613	2.22	373089	9.9	7191	5.18	57987	8.1
Abortion 650-652	49772	6.06	155382	3.1	b)50020	2.95	b)170576	3.4	5983	4.31	18029	3.0
Delivery without mention of complications 660	172697	21.02	574663	3.3	258288	15.25	1032251	4.0	33106	23.87	81480	2.5
Complications of pregnancy, childbirth and puerperium 640-649, 670-689	31827	3.87	198576	6.2					10656	7.68	51103	4.8
Congenital malformations 750-759	3735	0.45	73000	19.5	3662	0.22	56858	15.5	967	0.70	14641	15.1
Certain diseases of early infancy 760-776	12818	1.56	205561	16.0	7126	0.42	82504	11.6	2141	1.54	22762	10.6
Senility, ill-defined, and unknown 780-795	8114	0.99	84799	10.4	20674	1.22	217916	10.5	1586	1.14	14023	8.8
All other diseases Residual	39330	4.79	676131	17.2	52495	3.10	947755	18.1	10704	7.72	166454	15.6
Accidents and violence N800-N999	42572	5.18	521111	12.2	71154	4.20	771710	10.8	13164	9.49	100924	7.7
Special conditions and examinations Y00-Y29	16143	1.96	70281	4.4					2443	1.76	16713	6.8

(a) 1963. (b) Does not include abortion with toxemia without mention of infection (652).

Sources: Chile and Costa Rica, special tabulations given by the National Health Services; Colombia, Anuario General de Estadística 1963, Departamento Administrativo Nacional de Estadística.

TABLE C. NUMBER OF DISCHARGES FROM HOSPITALS WITH RATES PER 1,000 POPULATION, PATIENT DAYS AND AVERAGE LENGTH OF STAY BY DIAGNOSIS IN SEVEN COUNTRIES, 1964 (continued)

Diagnosis		Ecuador		Honduras				Peru (a)				Venezuela (b)		
		Discharges		Discharges		Patient Days		Discharges		Patient Days		Discharges	Patient Days	
		Number	Rate	Number	Rate	Number	Average length of stay	Number	Rate	Number	Average length of stay	Number	Number	Average length of stay
Total		155 303	31.82	64 662	30.91	873 532	13.5	313 207	29.46	5 974 935	19.1	177 403	1 643 876	9.3
Tuberculosis	001-019	2 562	0.52	1 459	0.70	181 000	124.1	13 606	1.28	1 443 589	106.1	666	24 166	36.3
Syphilis and its sequelae	020-029	228	0.05	48	0.02	751	15.6	948	0.09	28 787	30.4	112	2 312	20.6
Typhoid fever	040	2 071	0.42	509	0.24	4 878	9.6	1 804	0.17	34 407	19.1	123	2 214	18.0
Paratyphoid fever and other Salmonella infections	041,042	1 137	0.23	31	0.01	257	8.3	...	...	...	...	29	501	17.3
Dysentery, all forms	045-048	1 511	0.31	582	0.28	4 982	8.6	855	0.08	6 595	7.7	2 041	34 737	17.0
Scarlet fever and streptococcal sore throat	050,051	5	0.00	1	0.00	6	6.0	30	0.00	340	11.3	9	198	22.0
Diphtheria	055	84	0.02	10	0.00	100	10.0	99	0.01	924	9.3	140	1 495	10.7
Whooping cough	056	276	0.06	52	0.02	460	8.8	229	0.02	2 354	10.3	51	619	12.1
Meningococcal infections	057	2	0.00	8	0.00	95	11.9	20	0.00	70	3.5	5	84	16.8
Plague	058	25	0.01	-	-	-	-	...	...	...	...	-	-	-
Leprosy	060	127	0.03	20	0.01	3 483	174.2	...	...	...	...	35	1 215	34.7
Tetanus	061	355	0.07	199	0.10	1 794	9.0	...	...	...	...	353	4 576	13.0
Yaws	073	7	0.00	-	-	-	-	...	...	...	...	...	...	...
Acute poliomyelitis	080	42	0.01	32	0.02	4 838	151.2	48	0.01	885	18.4	138	4 887	35.4
Smallpox	084	42	0.01	-	-	-	-	...	...	...	...	1	19	19.0
Measles	085	900	0.18	278	0.13	2 830	10.2	2 679	0.25	28 512	10.6	556	6 198	11.1
Yellow fever	091	-	-	-	-	-	-	...	...	...	...	-	-	-
Rabies	094	19	0.00	16	0.01	121	7.6	...	...	...	...	11	24	2.2
Typhus and other rickettsiae	100-108	138	0.03	-	-	-	-	17	0.00	397	23.4	4	31	7.8
Malaria	110-117	907	0.19	353	0.17	2 315	6.6	207	0.02	2 864	13.8	36	829	23.0
All other infective and parasitic diseases	Residual	9 343	1.91	1 867	0.89	41 858	22.4	9 497	0.89	603 155	63.5	2 979	51 900	17.4
Malignant neoplasms, etc	140-205	1 785	0.37	961	0.46	23 628	24.6	5 301	0.50	154 454	29.1	2 188	63 610	29.1
Benign and unspecified neoplasms	210-239	1 679	0.34	748	0.36	9 193	12.3	5 623	0.53	86 332	15.4	2 345	39 037	16.6
Diabetes mellitus	260	214	0.04	167	0.08	3 063	18.3	1 020	0.10	31 626	31.0	602	16 440	27.3
Avitaminoses and other dificiency states	280-286	731	0.15	2 132	1.02	53 236	25.0	...	...	...	...	980	34 303	35.0
Anemias	290-293	1 627	0.33	1 024	0.49	17 026	16.6	1 491	0.14	42 132	28.3	1 152	35 538	30.8
Psychoses	300-309	1 205	0.25	462	0.22	53 909	116.7	...	...	...	...	130	5 134	39.5
Psychoneuroses and disorders of personality	310-324,326	817	0.17	1 332	0.64	13 287	10.0	...	...	...	...	438	9 173	20.9
Mental dificiency	325	81	0.02	7	0.00	1 308	186.9	...	...	...	...	25	993	39.7
Vascular lesions affecting central nervous system	330-334	303	0.06	256	0.12	3 899	15.2	1 035	0.10	79 159	76.5	770	12 655	16.4
Non-meningococcal meningitis	340	268	0.05	130	0.06	2 889	22.2	664	0.06	12 748	19.2	304	6 763	22.2
Rheumatic fever	400-402	165	0.03	76	0.04	1 440	18.9	244	0.02	9 513	39.0	204	5 607	27.5
Chronic rheumatic heart disease	410-416	155	0.03	51	0.02	1 207	23.7	384	0.04	16 101	41.9	137	4 699	34.3
Arteriosclerotic and degenerative heart disease	420-422	324	0.07	219	0.10	3 442	15.7	2 054	0.19	52 074	25.4	1 093	22 005	20.1
Other diseases of the heart	430-434	303	0.06	298	0.14	5 843	19.6	539	0.05	9 794	18.2	771	16 791	21.8
Hypertension with heart disease	440-443	51	0.01	32	0.02	404	12.6	156	0.01	3 834	24.6	141	2 968	21.0
Hypertension without mention of heart	444-447	593	0.12	142	0.07	1 321	9.3	1 132	0.11	24 379	21.5	1 608	9 886	6.1
Arteriosclerosis	450	186	0.04	86	0.04	1 734	20.2	...	...	...	...	} 1 492	} 30 451	} 20.4
Other diseases of the circulatory system	451-468	1 004	0.21	614	0.29	11 758	19.1	...	...	...	...			
Influenza	480-483	3 616	0.74	221	0.11	1 028	4.7	2 548	0.24	15 776	6.2	333	2 087	6.3
Pneumonia	490-493	1 619	0.33	1 007	0.48	10 483	10.4	6 045	0.57	64 171	10.6	2 159	25 159	11.7
Bronchitis	500-502	2 280	0.47	1 270	0.61	9 506	7.5	5 737	0.54	64 662	11.3	1 749	12 285	7.0
Other diseases of respiratory system	470-475,510-527	3 060	0.63	1 702	0.81	10 833	6.4	...	...	...	...	6 326	40 362	6.4
Ulcer of stomach and duodenum	540,541	880	0.18	220	0.11	2 853	13.0	2 380	0.22	59 477	25.0	460	10 726	23.3
Appendicitis	550-553	3 212	0.66	634	0.30	4 742	7.5	7 333	0.69	69 461	9.5	3 435	28 913	8.4
Intestinal obstruction and hernia	560,561,570	3 086	0.63	1 194	0.57	13 708	11.5	6 998	0.66	94 936	13.6	4 746	57 571	12.1
Gastritis, enteritis, etc	543,571,572	6 952	1.42	4 340	2.07	36 985	8.5	11 328	1.07	109 851	9.7	6 590	69 702	10.6
Cirrhosis of the liver	581	242	0.05	153	0.07	3 008	19.7	803	0.08	21 256	26.5	292	9 602	32.9
Other diseases of digestive system	Residual	6 840	1.40	1 304	0.62	15 757	12.1	...	...	...	...	2 814	54 015	19.2
Nephritis and nephrosis	590-594	1 071	0.22	139	0.07	2 467	17.7	1 280	0.12	44 193	34.5	951	25 810	27.1
Other diseases of the genitourinary system	600-637	6 161	1.26	3 012	1.44	32 805	10.9	...	...	...	...	7 303	103 971	14.2
Abortion	650-652	5 866	1.20	3 397	1.62	9 601	2.8					c) 13 695	c) 45 448	3.3
Delivery without mention of complications	660	35 222	7.22	15 270	7.30	55 008	3.6	} 88 054	} 8.28	} 460 115	} 5.2	} 75 499	} 255 836	} 3.4
Complications of pregnancy, childbirth and puerperium	640-649,670-689	11 262	2.31	3 082	1.47	16 376	5.3							
Congenital malformations	750-759	582	0.12	151	0.07	2 624	17.4	1 418	0.13	38 261	27.0	831	16 953	20.4
Certain diseases of early infancy	760-776	318	0.07	206	0.10	3 250	15.8	3 120	0.29	49 833	16.0	1 469	25 777	17.5
Senility, ill-defined, and unknown	780-795	5 144	1.05	1 428	0.68	14 716	10.3	8 444	0.79	93 846	11.1	5 035	53 315	10.6
All other diseases	Residual	13 213	2.71	4 488	2.15	86 760	19.3	80 432	7.57	1 609 577	20.0	7 407	146 530	19.8
Accidents and violence	N800-N999	13 405	2.75	7 210	3.45	82 469	11.4	37 605	3.54	504 495	13.4	13 958	202 237	14.5
Special conditions and combinations	Y00-Y29	-	-	32	0.02	198	6.2	...	...	...	...	682	5 519	8.1

(a) 1962. (b) 1963. (c) Does not include abortion with toxemia without mention of infection (652).

Sources: Ecuador, Anuario de Estadísticas Hospitalarias, Junta Nacional de Planificación y Coordinación Económica, 1965; Honduras, Anuario Estadístico 1964, Dirección General de Estadística y Censos, 1965; Perú, Estadísticas Hospitalarias, Perú 1962, Ministerio de Salud Pública y Asistencia Social 1965; Venezuela, Anuario de Epidemiología y Estadística Vital, 1963, Tomo 1, Ministerio de Sanidad y Asistencia Social.

CHAPTER VI

ENVIRONMENTAL SANITATION

The relationship between environmental conditions and health status of the population is well established. The serious health problems created by deficiencies in water supplies and in sewerage systems are apparent from an analysis of mortality and morbidity, particularly of young children. In 15 of the 20 Latin American countries for which data are available gastritis, enteritis, etc., is still one of the five principal causes of death, and in six countries it was the first principal cause of death (Table 10 of Chapter I). A high proportion of these deaths are among children under five years of age. Progress is being made in lowering these death rates but much remains to be accomplished as can be observed from Figures 1 and 2. In addition to diarrheal diseases, typhoid fever and dysenteries, which are frequently either waterborne or spread because of an insufficient supply of water and lack of cleanliness, contribute to both morbidity and mortality (Figure 17, Chapter III).

Priority has been placed on environmental sanitation programs in the last decade particularly in the fields of water supply and sewerage systems. Activities have been accelerated in the past five years as a result of the emphasis placed on the water and sewerage programs in the Charter of Punta del Este

Figure 1

DEATHS FROM GASTRITIS AND ENTERITIS PER 100,000 POPULATION IN THREE REGIONS OF THE AMERICAS, 1959 AND 1964

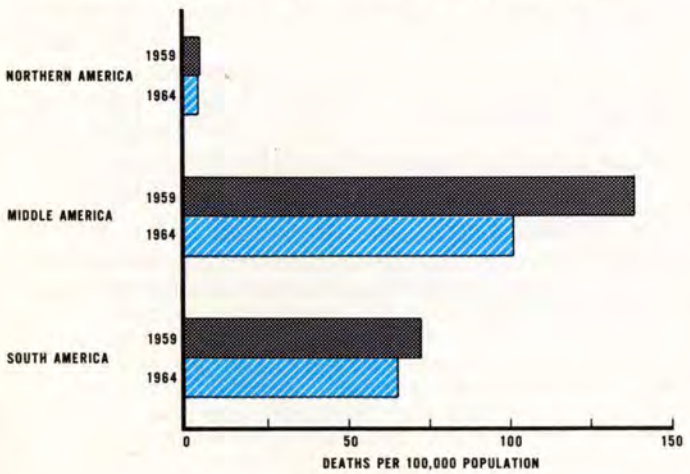
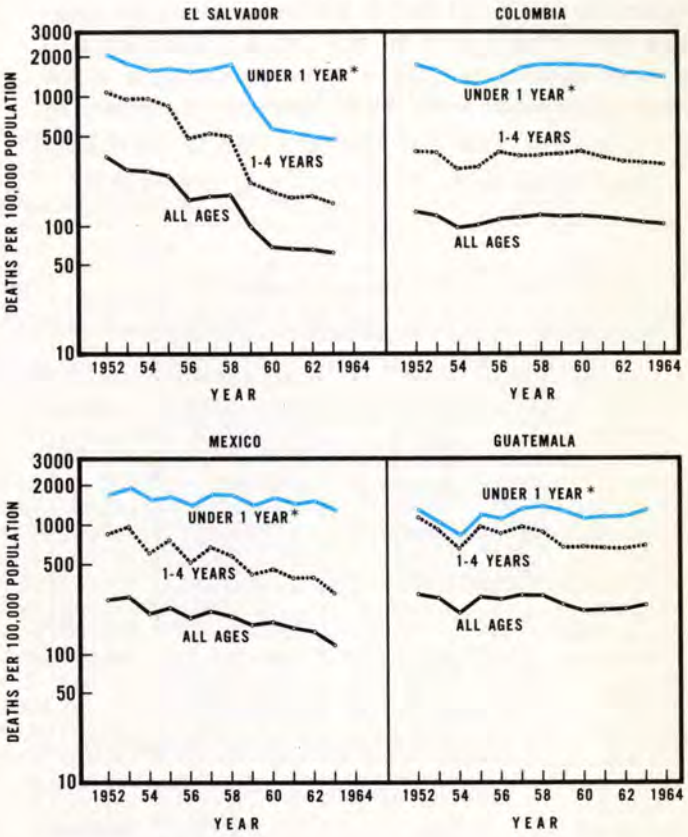


Figure 2

DEATHS FROM DIARRHEAL DISEASES PER 100,000 POPULATION, 1952-1964



* Rates per 100,000 live births

in 1961 and the loans made available through the International Banks, in particular the Inter American Development Bank. Goals were established for providing potable water supplies and sewerage services for at least 70 per cent of the urban population and for 50 per cent of the rural population in each country by 1971.

Data are available from the completed questionnaires for the Third Report on the World Health Situation on both water and sewerage systems, mainly for urban populations.

WATER SUPPLIES

Excellent progress has been made in the provision of water supplies in Latin America in the four-year period 1960-1964 as can be seen in Figure 3. Close to 70 per cent of the urban population of Latin America has water service. In urban areas, particularly capitals and large cities, existing systems have been improved and expanded and smaller cities are now being included in the construction programs.

Table 1, based on summary data received from countries for the WHO questionnaire for the Third Report on the World Health Situation, gives the numbers and percentage of the population with water piped to their homes. In Figure 4 the percentages of the urban population with water service is shown by country. For the data in Table 1 and the two Figures communities with 2,000 or more inhabitants have been considered urban. In a few countries it was necessary to accept other definitions. All countries, however, have not reached the goal of providing water to 70 per cent of the urban population. Nine countries have 70 or more per cent of urban population served at their homes through piped water systems. The percentages for the remaining countries are below 50 per cent. Thus some countries are far from the goal even in terms of service for the present populations. All countries, including those now with a high percentage of the urban population served, will have to continue to construct and improve water systems at a rapid

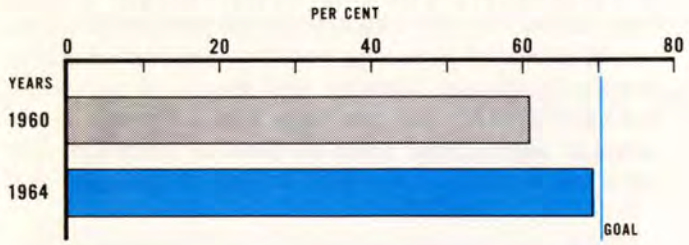
Table 1. Number and Per Cent of Population Living in Houses with Piped Water, by Country, 1964

Country	Year	Source of data (a)	Total			Urban (b)			Rural		
			Total (c) Population	Number	Per cent	Total Population	Number	Per cent	Total Population	Number (d)	Per cent
Argentina	1963	2	20 009 000	12 464 000	62.3	15 537 000	12 218 000	78.6	4 472 000	246 000	5.5
Bolivia	1964	2	3 647 000	527 000	14.5	1 115 000	507 000	45.5	2 532 000	20 000	0.8
Brazil	1964	2	78 809 000	18 131 000	23.0	27 971 000	18 131 000	64.8	50 838 000	...	...
Canada	1963	1	18 853 000	12 545 000	66.5	...	...	...	...	...	...
Chile	1964	2	8 391 000	3 395 000	40.5	4 707 000	3 327 000	70.7	3 684 000	68 000	1.8
Colombia (e)	1960	1	14 132 000	6 576 000	46.5	5 932 000	4 674 000	78.8	8 200 000	1 902 000	23.2
Costa Rica	1964	1	1 400 000	849 000	60.6	465 000	449 000	96.6	935 000	400 000	42.8
Cuba	1964	1	7 434 000	3 077 000	41.4	4 063 000	3 010 000	74.1	3 371 000	67 000	2.0
Dominican Republic	1961	3	3 145 000	502 000	16.0	867 000	502 000	57.9	2 278 000	...	...
Ecuador	1964	2	4 881 000	1 239 000	25.4	1 678 000	1 182 000	70.4	3 203 000	57 000	1.8
El Salvador	1964	2	2 828 000	642 000	22.7	929 000	614 000	66.1	1 899 000	28 000	1.5
Guatemala	1964	1	4 497 000	545 000	12.1	1 225 000	527 000	43.0	3 272 000	18 000	0.6
Haiti	1964	2	4 646 000	120 000	2.6	566 000	120 000	21.2	4 080 000	-	-
Honduras	1963	1	1 884 000	248 000	13.2	406 000	200 000	49.3	1 478 000	48 000	3.2
Jamaica	1963	1	1 687 000	522 000	30.9	...	...	...	...	(d)	...
Mexico	1964	2	40 187 000	16 295 000	40.5	21 448 000	15 648 000	73.0	18 739 000	647 000	3.5
Nicaragua	1964	1	1 597 000	269 000	16.8	549 000	255 000	46.4	1 048 000	14 000	1.3
Panama	1964	1	1 207 000	461 000	38.2	544 000	447 000	82.2	663 000	14 000	2.1
Paraguay	1964	2	1 968 000	120 000	6.1	580 000	120 000	20.7	1 388 000	-	-
Peru (f)	1964	2	11 298 000	3 774 000	33.4	4 998 000	3 314 000	66.3	6 300 000	460 000	7.3
Trinidad and Tobago	1964	2	900 000	350 000	38.9	...	...	...	...	...	...
United States (g)	1963	1	188 658 000	e)150 602 000	79.8	131 836 000	131 706 000	99.9	56 822 000	18 896 000	33.3
Uruguay	1964	2	2 682 000	1 439 000	53.7	1 957 000	1 378 000	70.4	725 000	61 000	8.4
Venezuela	1964	1	8 336 000	3 565 000	42.8	5 524 000	3 326 000	60.2	2 812 000	239 000	8.5
Northern America (h)			207 511 000	163 147 000	78.6	131 836 000	131 706 000	99.9	56 822 000	18 896 000	33.3
Middle America (i)			71 412 000	23 880 000	33.4	31 062 000	21 772 000	70.1	37 763 000	1 236 000	3.3
South America			154 153 000	51 230 000	33.2	69 999 000	48 177 000	68.8	84 154 000	3 053 000	3.6

(a) Sources: (1) Third Report on the World Health Situation; (2) Country Reports received by Environmental Sanitation Branch of PAHO; (3) Other. (b) Urban usually refers to cities with 2,000 or more inhabitants. (c) Population figures sometimes differ from those in previous Tables in Chapter I since it was advisable to use data from source supplying information. (d) Sometimes number given refers to communities under 2,000 population and not to entire rural population. (e) Urban includes cities of 5,000 or more population. (f) Data given for communities of 3,911,000 population with systems operated by "Ministerio de Fomento y la Municipalidad." Same percentage of service assumed for rest of urban population. (g) Number with water service refers to those receiving water from piped community systems. (h) Canada is excluded from the urban-rural distribution. (i) Jamaica and Trinidad and Tobago are excluded from the urban-rural distribution.

Figure 3

PERCENTAGE OF URBAN INHABITANTS OF LATIN AMERICA WITH PIPED WATER TO HOUSES, 1960 AND 1964



pace to keep up with the increase resulting from population growth and the migration of large numbers from rural to urban areas.

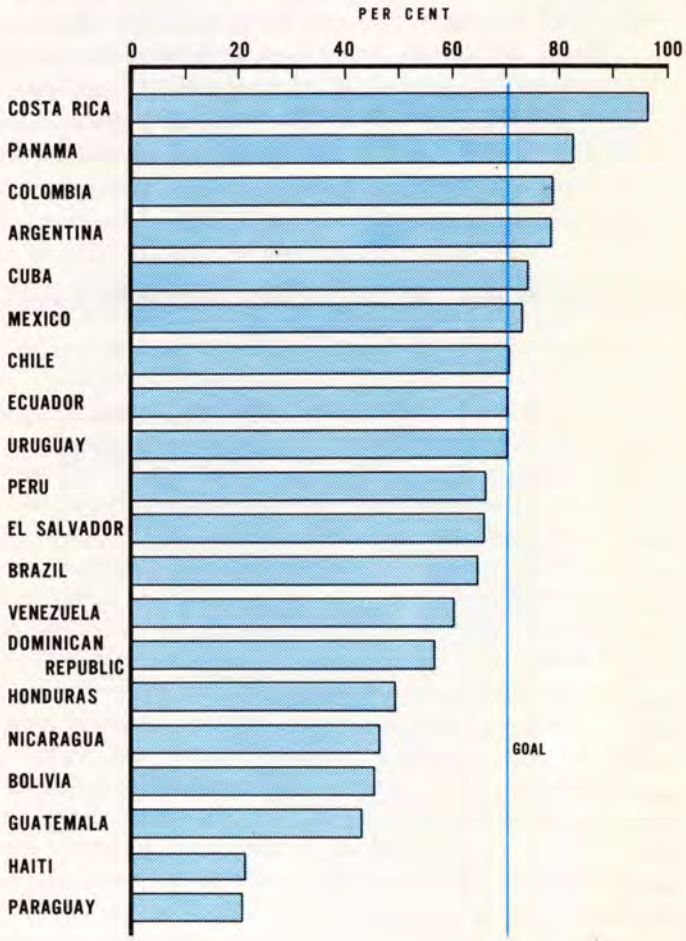
To reach the goal of the Charter crude estimates were made in 1961 that 44.4 million additional persons in Latin America should be provided with water by 1971. In the three years between 1961 and 1964 water services should have been provided for 30 per cent of this number or 13.3 million. Based on summary data mainly as provided for the Second and Third Reports on the World Health Situation 10,000,000 persons have been served or 75 per cent of the three-year objective. In the remaining years of the decade, construction will need acceleration to compensate for the deficit in the early years of the decade as well as to achieve the level for the remaining years of the decade.

Data were received from the United States only on population served by water systems in urban and rural areas. Population estimates were not given in accordance with the definitions used for urban and rural and thus those shown in the table are not official estimates. For Canada no urban-rural data were available and only the number and per cent with water service in the entire country has been included (66.5 per cent). Similarly the data for Jamaica and Trinidad and Tobago were presented only for the entire country. All four of these countries have been excluded from Figure 4.

To reach the goal of water for 50 per cent of the rural population is a more difficult objective than the urban goal of 70 per cent. Progress has been much slower. The data shown in Table 1 refer in many countries only to piped water service available in small communities of under 2,000 inhabitants. In most groups for which such data were given the proportion with water service was low and it can be assumed that in the population for which no data were given, that is the more rural sections, the proportions are without doubt even lower. However, in rural areas other measures besides piped water to homes are used to provide water, and the proportions with water are higher than those shown here. Several countries have made important progress in rural water supplies in the past four years which are not evident from this table. However, greater attention and additional funds are needed for the problem of providing potable water for inhabitants of rural areas.

Figure 4

PERCENTAGE OF URBAN INHABITANTS WITH PIPED WATER TO THEIR HOUSES IN COUNTRIES OF LATIN AMERICA, 1964



SEWAGE DISPOSAL

Progress in sewage disposal has not been as great as that in water supplies. The problems in Latin America are similar to those for water but greater. In Table 2 and Figure 5, the percentages of the urban population living in houses connected to sewerage systems are shown by country and, in the table only, for the three regions of the Americas. By region the percentages served are 81 in Northern America, 57 in Middle America and 51 in South America. The high percentage for Middle America results from the large number in communities with sewerage systems in Mexico where 70 per cent of the urban population lives in houses connected to sewerage systems. Mexico is the only country in Latin America which has reached the goal of 70 per cent for the urban population. In other countries the percentages range from 0 to 61 per cent. Thus in all countries of Latin America large effort will be required to meet the goals of the Charter.

Rural sanitation poses even greater problems in size and methodology since at least half of the population of the countries of Latin America live in communities of under 2,000 inhabitants. In general data on rural sanitation facilities are limited and have not been shown, but the magnitude of the problem is great.

Methods of financing construction and improvement of sewerage systems and means of repayment are more difficult for sewerage than for water. International and national funds invested in sewerage systems and facilities have been far more limited.

Figure 5

PERCENTAGE OF URBAN POPULATION SERVED BY SEWERAGE SYSTEMS, BY COUNTRY, 1964

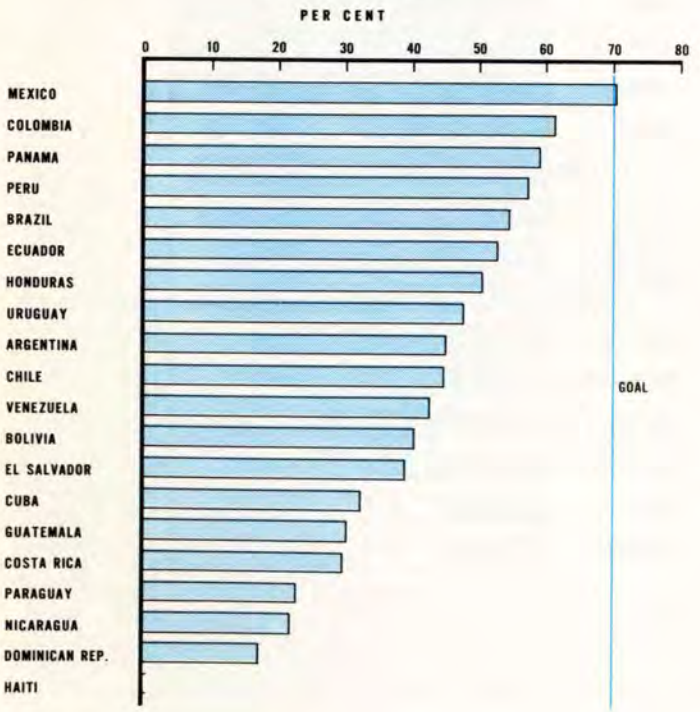


Table 2. Number and Per Cent of Urban Population Served by Sewerage Systems, by Country, 1964

Country	Year	Source of data (a)	Population		
			Total	With sewerage systems	
				Number	Per cent
Argentina	1963	1	15 537 000	6 985 000	45.0
Bolivia	1964	2	1 115 000	450 000	40.4
Brazil	1964	2	27 971 000	15 249 000	54.5
Canada (b)	1963	1	18 853 000	11 541 000	61.2
Chile	1964	2	4 707 000	2 107 000	44.8
Colombia	1960	1	5 932 000	3 645 000	61.4
Costa Rica	1964	1	465 000	138 000	29.7
Cuba	1964	1	4 063 000	1 317 000	32.4
Dominican Republic	1960	3	918 000	158 000	17.2
Ecuador	1964	1	1 678 000	886 000	52.8
El Salvador	1964	2	929 000	362 000	39.0
Guatemala	1964	1	1 225 000	371 000	30.3
Haiti	1964	2	566 000	-	-
Honduras	1964	1	406 000	205 000	50.5
Jamaica	1963	1	544 000	59 000	10.8
Mexico	1964	2	21 448 000	15 102 000	70.4
Nicaragua	1964	1	549 000	120 000	21.9
Panama	1964	1	544 000	321 000	59.0
Paraguay	1964	2	580 000	132 000	22.8
Peru (c)	1964	2	4 998 000	2 866 000	57.3
Trinidad and Tobago	1964	2	...	48 000	...
United States (d)	1960	1	131 836 000	106 940 000	81.1
Uruguay	1964	2	1 957 000	933 000	47.7
Venezuela	1964	1	5 524 000	2 351 000	42.6
Northern America (e)			131 836 000	106 940 000	81.1
Middle America (f)			31 657 000	18 153 000	57.3
South America			69 999 000	35 604 000	50.9

(a) 1- Third Report on World Health Situation; 2- Country reports received by Environmental Sanitation Branch of PAHO; 3- Other. (b) Total country. (c) Data given for communities of 3,911,000 with systems operated by "Ministerio de Fomento y la Municipalidad." Same percentage of service assumed for rest of urban population. (d) Urban population estimated from 1960 census data and may not correspond to the definition for population served. (e) Excluding Canada. (f) Excluding Trinidad and Tobago.

CHAPTER VII

HEALTH MANPOWER

The success of health programs and progress in improving the health status of a population is directly related to the quality and quantity of available health personnel. For health planning it is essential to know the numbers, types and geographic distribution of specialists in the health field in each country. Continuous evaluation is necessary to relate health needs to manpower resources and to make plans for training the professional, technical and auxiliary personnel who are responsible for health services.

A great diversity in specialists is required in the health field. The tasks are complex ones and for many specialized knowledge is essential. To obtain current, reliable and complete information about available personnel in each profession has proven to be a difficult task in most countries.

Registries for each professional group should be established and maintained on a regular basis. New members of the profession should be registered and records of those retiring or dying removed from the active files. An up-to-date registry is essential for evaluating the professional manpower available and the need for educational facilities to train for the future. A central register for each country in addition to State or local registries is desirable since duplicate registration within a country may result in overstatement of the existing manpower. In a central register for each profession it should be possible to have details on educational background, on age, geographic distribution, specialty (especially for physicians), and university and hospital affiliations. Registers are needed for physicians, nurses, engineers, dentists, veterinarians and selected groups of scientific personnel. For many of these categories, information is not available at present.

In a few countries such as in Colombia and Peru, special manpower surveys have been carried out. In general, response to questionnaires has not been complete and methods must be devised to reach as large a number as possible. In countries initiating registries or continuing inventories of personnel a survey may be the basis of the registry. From then on addition should be made of graduates of professional schools with routine querying of all registered for activity status. Another source of data on health personnel which is frequently used is the census on population which is carried out at decennial intervals and usually includes information by occupations.

A pilot study on health manpower and medical education was begun in Colombia in 1964 with the support of the Colombian Association of Medical Schools, the Ministry of Health, the Milbank Memorial Fund and the Pan American Health Organization. The study intended primarily to provide a realistic plan for expanding and improving medical education in Colombia will serve a broader purpose in determining the overall need for resources. Not only is a current inventory being made of health manpower and facilities but the health status of the population is being evaluated through a national health survey. The prevalence and incidence of diseases and disabling conditions are being obtained through household interviews and through clinical, laboratory and special examinations. Measures of the health services supplied and of the unmet needs of the population are being analyzed.

Planning for personnel for health facilities involves not only the provision of staff adequately trained for existing institutions but also education of specialists for services which will be required by the rapidly increasing population. Planning must also cover resources, needs and training for the auxiliary personnel to assist each of the professional groups.

Previous questionnaires for the Reports on the World Health Situation have requested information on health personnel and on educational institutions. The most recent questionnaire did not include a section for this information since manpower data are included as a part of the PAHO/WHO annual questionnaire. No special information has been obtained on educational institutions for this report.

PHYSICIANS

No single ratio can express the adequacy of the number of available physicians. The numbers needed vary with the structure of the medical care system in a country, with its health problems and with the demand for services.

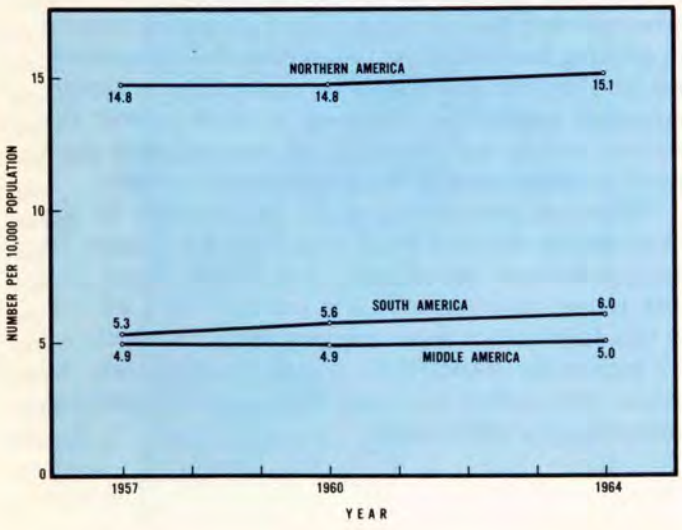
In the seven-year period, 1957-1964, the number of physicians in the region of the Americas increased by 18 per cent from 379,000 to 448,000 (Table 1). The increase was 14 per cent in Northern America, 26 in Middle and 33 in South America. In relation to population, however, the gains were far smaller. The ratio per 10,000 population changed only from 14.8 to 15.1 in Northern America, from 4.9 to 5.0 in Middle America and, from 5.3 to 6.0 in South America (Figure 1). It was only in South America that the increase in physicians was much greater than that of the population in the same period.

By country the ratio of physicians to population varied from a high of 15.4 per 10,000 in the United States to a low of 0.7 per 10,000 in Haiti (Table 2 and Figure 2). Ratios over 10 per 10,000 also included those for Argentina, Canada and Uruguay. For seven countries ratios were less than 4 per 10,000 population.

Within the countries physicians tend to be concentrated in the capitals or in the very large cities. The uneven distribution can be seen for 17 countries

Figure 1

PHYSICIANS PER 10,000 POPULATION IN THE THREE REGIONS OF THE AMERICAS, 1957, 1960 AND 1964



POPULATIONS IN THOUSANDS - CALCULATED FROM RATIOS

Table 1. Number of Physicians with Ratios per 10,000 Population in Three Regions of the Americas, 1957, 1960 and 1964

Region	Number			Ratio per 10,000 population		
	1957	1960	1964	1957	1960	1964
Northern America	278 871	292 941	316 761	14.8	14.8	15.1
POPULATION Middle America	30 455	67 006 32 833	38 456	4.9	4.9	5.0
POPULATION South America	69 914	144 983 81 191	93 248	5.3	5.6	6.0
LAT. AMER.		114,024			5.4	

from Table 3 and Figure 3. The ratios of physicians per 10,000 population in the capitals and other large cities vary from 5.8 to 28.8. In the remaining area of these countries the ratios spread from 0.8 to 8.0

Figure 2

PHYSICIANS PER 10,000 POPULATION BY COUNTRY, 1964

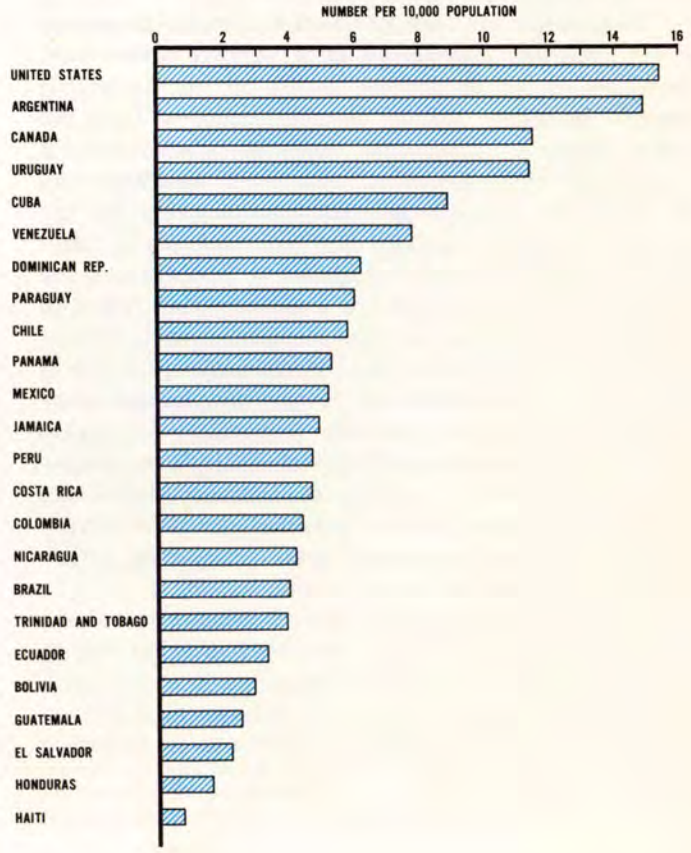


Table 2. Number of Physicians with Ratios per 10,000 Population, 1964, and Number of Medical Schools and Graduates, by Country

Country	Year	Physicians		Medical Schools		Country	Year	Physicians		Medical Schools	
		Number	Ratio	Number of schools	Annual number of graduates (a)			Number	Ratio	Number of schools	Annual number of graduates (a)
Argentina	1962	31831	14.9	9	1871	British Guiana	1963	290	4.7	-	-
Bolivia	1963	1032	2.9	3	104	British Honduras	1963	27	2.7	-	-
Brazil	1962	29840	4.0	36	1334	Canal Zone	1964	92	17.0	-	-
Canada	1962	21411	11.5	12	b) 817	Cayman Islands	1962	2	2.2	-	-
Chile	1964	4842	5.8	4	247	Dominica	1963	11	1.7	-	-
Colombia	1963	7453	4.4	7	391	Falkland Islands	1962	4	20.0	-	-
Costa Rica	1963	634	4.7	1	-	French Guiana	1964	27	7.5	-	-
Cuba	1965	6815	8.9	2	334	Grenada	1962	24	2.6	-	-
Dominican Republic	1964	2153	6.2	1	85	Guadeloupe	1964	134	4.4	-	-
Ecuador	1965	1698	3.3	3	69	Martinique	1962	122	4.1	-	-
El Salvador	1964	625	2.2	1	40	Montserrat	1964	4	3.1	-	-
Guatemala	1964	1066	2.5	1	89	Netherlands Antilles	1964	141	6.9	-	-
Haiti	1965	c) 311	0.7	1	41	Puerto Rico	1964	1965	7.6	1	d) 43
Honduras	1965	341	1.6	1	13	St. Kitts-Nevis and Anguilla	1963	9	1.5	-	-
Jamaica	1964	854	4.9	1	36	St. Lucia	1963	14	1.5	-	-
Mexico	1965	21165	5.2	23	1079	St. Pierre and Miquelon	1962	4	8.0	-	-
Nicaragua	1965	698	4.2	1	22	St. Vincent	1962	10	1.2	-	-
Panama	1964	628	5.3	1	20	Surinam	1964	154	4.7	1	6
Paraguay	1964	1180	6.0	1	97	Turks and Caicos Islands	1962	2	3.3	-	-
Peru	1964	5262	4.7	6	359	Virgin Islands (UK)	1962	2	2.5	-	-
Trinidad and Tobago	1962	350	3.9	-	-	Virgin Islands (US)	1964	46	11.2	-	-
United States	1964	295296	15.4	87	d) 7265						
Uruguay	1964	3051	11.4	1	91						
Venezuela	1964	6584	7.8	6	364						
Antigua	1964	16	2.7	-	-	Northern America		316761	15.1	99	8082
Bahama Islands	1964	101	7.2	-	-	Middle America		38456	5.0	35	1802
Barbados	1964	94	3.9	-	-	South America		93248	6.0	77	4933
Bermuda	1964	50	10.4	-	-						

(a) Most recent data available; year varies for schools. (b) 1962.. (c) Estimate. (d) 1963. Source: For Medical Schools in Latin America, PAHO, Medical Education Information Center, Directory of Schools of Medicine in Latin America, 1966.

per 10,000 population. For four countries ratios of physicians per 10,000 population exceed 20 in the capital cities and in other cities of over 500,000 population, while elsewhere in these countries the range of ratios is from 1.6 to 0.0. In six other countries there are at least 10 physicians per 10,000 population in the capitals and large cities. Approximately 55 per cent of the physicans of these countries are employed in the capital or in these large cities. The population in the same highly urban areas is only 20 per cent of the population of these countries.

In 1965 there were 211 medical schools in the Americas, 99 in Northern, 35 in Middle and 77 in South America. Every country but Trinidad and Tobago has at least one medical school. In addition there are schools in Puerto Rico and Surinam. Twelve schools have been established in Latin America since 1960. At present in the Americas almost 15,000 physicians are graduated each year from medical schools; over 8,000 in Northern America and almost 7,000 in Middle and South America. The added new schools and expansion of existing schools should increase the number of graduates from medical schools in Latin America, helping to maintain present ratios of physicians to an increasing population and even to augment the present ratios. However, the low ratios in several countries demonstrate the need for expanding or adding new facilities to prepare the medical manpower required.

Limited information has been obtained on the distribution of physicians by medical specialty and the available information may not be comparable because of varying definitions and procedures for certification of specialists. In Table 4 data are shown for six countries. Canada, Costa Rica and Venezuela have

Table 3. Number of Physicians and Ratios per 10,000 Population in Capitals and Large Cities and the Remainder of Seventeen Countries Around 1964

Country		Year	Capitals and large cities		Remainder of country	
			Number	Ratio	Number	Ratio
Argentina	(a)	1962	20 353	28.8	11 478	8.0
Bolivia	(b)	1963	456	9.7	576	1.8
Brazil	(c)	1962	13 154	13.9	16 686	2.6
Chile	(b)	1964	2 957	10.6	1 885	3.4
Colombia	(a)	1962	3 784	7.4	3 669	3.8
Costa Rica	(b)	1962	408	9.3	167	2.0
Cuba	(d)	1965	3 595	22.8	3 220	5.3
Dominican Republic	(b)	1963	1 471	28.5	614	2.2
Ecuador	(b)	1965	786	7.2	916	2.3
El Salvador	(b)	1963	352	7.0	229	1.0
Honduras	(b)	1965	188	5.8	153	0.8
Mexico	(c)	1965	10 832	14.9	10 333	3.1
Panama	(d)	1964	302	7.1	121	1.6
Paraguay	(d)	1964	800	24.2	261	1.6
Peru	(d)	1964	3 420	17.1	1 815	2.0
Uruguay	(b)	1964	2 400	19.5	651	4.5
Venezuela	(d)	1964	3 027	17.6	3 557	5.3

(a) Federal district and Department or Provinces with cities of over 500,000 population. (b) Department or Province with capital city. (c) Federal district and cities of over 500,000 population. (d) Metropolitan area of capital city.

the highest percentages of physicians in general practice (42.4, 63.6 and 43.7 per cent). In the United States and Peru larger proportions of the physicians (approximately one-fifth) are reported as surgeons than in the other countries. The highest proportion specializing in internal medicine is found in the United States and the largest per cent in public health is observed in Peru.

Figure 3

PHYSICIANS PER 10,000 POPULATION IN CAPITALS AND LARGE CITIES AND IN REMAINDER OF THESE COUNTRIES, 1964

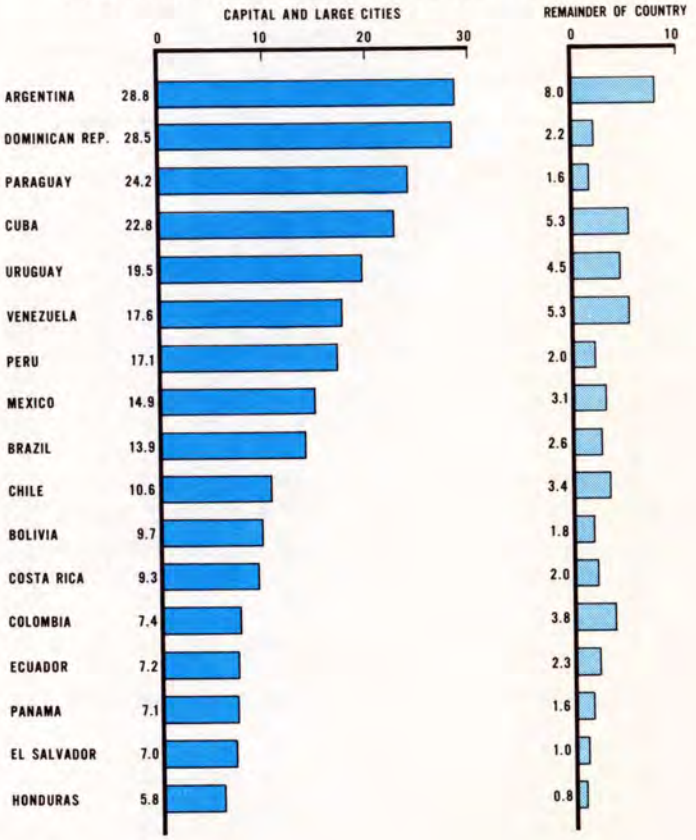


Table 4. Field of Activity of Physicians with Percentages for Six Countries in Recent Year

Field of activity	Canada, 1962		Costa Rica 1963		Panama, 1964		Peru, 1964		United States 1963		Venezuela 1963	
	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
Total	a)21 011	100.0	634	100.0	533	100.1	b)5 262	100.0	c)261 733	99.9	6 246	99.9
General practice	8 900	42.4	403	63.6	157	29.5	1 436	27.3	85 157	32.5	2 732	43.7
Public health	133	0.6	9	1.4	3	0.6	285	5.4	1 550	0.6	176	2.8
Surgery	1 996	9.5	42	6.6	40	7.5	920	17.5	54 525	20.8	496	7.9
Internal medicine	1 356	6.5	11	1.7	25	4.7	233	4.4	34 334	13.1	271	4.3
Pediatrics	572	2.7	43	6.8	52	9.8	443	8.4	14 077	5.4	368	5.9
Psychiatry	585	2.8	12	1.9	17	3.2	110	2.1	15 569	5.9	112	1.8
Radiology	567	2.7	6	0.9	12	2.3	...		8 725	3.3	55	0.9
Gynecology and obstetrics	730	3.5	27	4.3	46	8.6	399	7.6	15 683	6.0	311	5.0
Pathology	336	1.6	3	0.5	5	0.9	195	3.7	7 321	2.8	...	
Anesthesiology	702	3.3	10	1.6	5	0.9	84	1.6	7 623	2.9	73	1.2
Other specialties	1 143	5.4	68	10.7	99	18.6	1 157	22.0	17 169	6.6	608	9.7
Unspecified	3 991	19.0	-		72	13.5	-		-		1 044	16.7

(a) 8,120 active civilian physicians hold formal specialist certificates. Total includes 1,900 senior interns, residents and fellows; physicians in Armed Forces number 400. (b) Of those surveyed 5,061 are in active practice; no information on 267 in private practice. (c) Does not include doctors of osteopathy.

DENTISTS

Between 1957 and 1960 the number of dentists in the Americas increased from approximately 133,000 to 165,000 or by 24 per cent (Table 5 and Figure 4).

Table 5. Number of Dentists with Ratios per 10,000 Population in the Three Regions of the Americas, 1957, 1960 and 1964

Region	1957		1960		1964	
	Number	Ratio	Number	Ratio	Number	Ratio
Northern America	94 500	5.0	107 754	5.4	113 011	5.4
Middle America	5 100	0.8	5 203	0.8	7 397	1.0
South America	33 000	2.5	35 852	2.5	44 201	2.8

By region the gains were 20, 45 and 34 per cent respectively for Northern, Middle and South America. With respect to population the increases were smaller, the ratio of dentists per 10,000 population in Northern America increased from 5.0 to 5.4 between 1957 and 1960. In Middle America the rise from 0.8 to 1.0 per 10,000 occurred between 1960 and 1964 and in South America the gain from 2.5 to 2.8 also took place in the same period.

Figure 4

DENTISTS PER 10,000 POPULATION IN THE THREE REGIONS OF THE AMERICAS, 1957, 1960 AND 1964

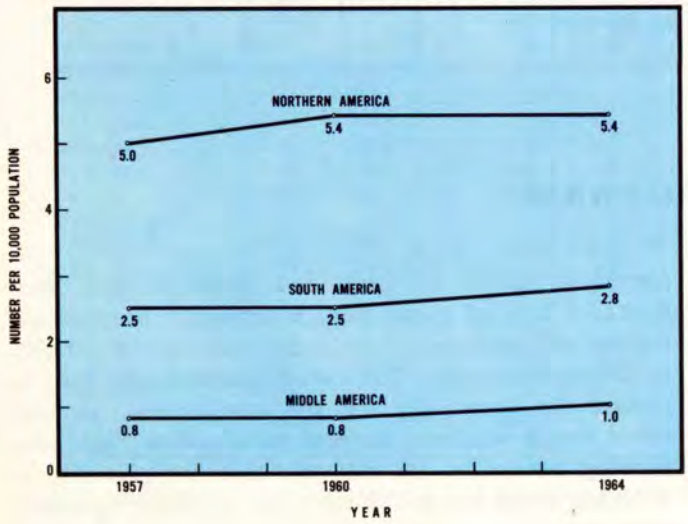
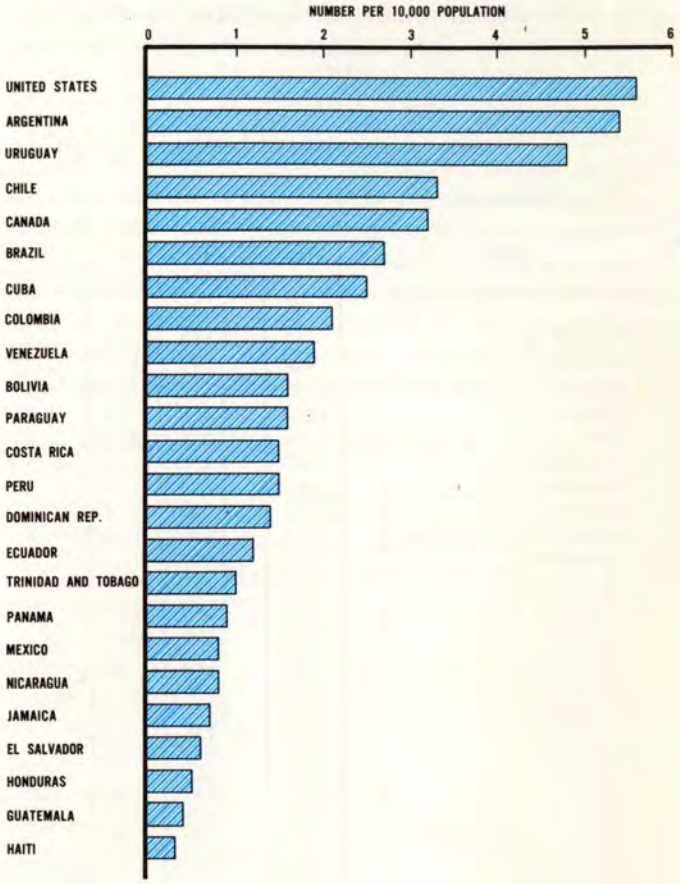


Figure 5

DENTISTS PER 10,000 POPULATION BY COUNTRY, 1963 OR 1964



With respect to dentists there are large differences in ratios among the three regions with Middle America showing by far the lowest ratios. By country the ratios range from 5.6 per 10,000 population to 0.3 (Table 6 and Figure 5). Only five countries had 3 or more dentists per 10,000 population and eight, all in Middle America, had less than one. In areas other than countries ratios were also low.

All but three countries, Jamaica, Panama and Trinidad and Tobago, have at least one school of dentistry. In Panama plans have been made for a dental school and for predental courses in 1966. In the region there are 139 schools of which 62 per cent are in Latin America. The annual numbers of graduates from many of these schools are small and the possibility exists for expansion.

As is clear from the data, most countries will consider it necessary to increase their dental manpower since present ratios are in general very low, and the population growth which is expected in the coming years will require additional dentists to maintain even present levels of care to the population.

Advantage is being taken of other measures to help solve dental problems. Seminars on dental education have been held which have included participants from 16 countries. A Latin American Center for Dental Research and Epidemiology has been created in the Faculty of Hygiene and Public Health of the University of Sao Paulo, Brazil. Fluoridation of water is being extended in communities of the region and research is being carried out on fluoridated salt. Special courses are being created for auxiliary personnel in several countries.

Table 6. Number of Dentists with Ratios per 10,000 Population, 1964, and Schools of Dentistry, 1962-1963, by Country

Country	Year	Dentists		Schools of dentistry 1962-1963	Country	Year	Dentists		Schools of dentistry 1962-1963
		Number	Ratio				Number	Ratio	
Argentina	1962	11 584	5.4	6	Bermuda	1964	25	5.2	-
Bolivia	1963	591	1.6	4	British Guiana	1960	32	0.6	-
Brazil	1963	*20 700	2.7	39	British Honduras	1963	3	0.3	-
Canada	1964	6 215	3.2	6	Canal Zone	1963	16	3.2	-
Chile	1960	2 504	3.3	3	Cayman Islands	1964	1	1.1	-
Colombia	1962	3 400	2.1	4	Dominica	1963	2	0.3	-
Costa Rica	1963	205	1.5	1	Falkland Islands	1962	2	10.0	-
Cuba	1963	1 750	2.4	1	French Guiana	1964	6	1.7	-
Dominican Republic	1964	479	1.4	1	Grenada	1962	4	0.4	-
Ecuador	1962	529	1.2	3	Guadeloupe	1964	39	1.3	-
El Salvador	1963	157	0.6	1	Martinique	1962	59	2.0	-
Guatemala	1964	187	0.4	1	Montserrat	1964	-	-	-
Haiti	1963	150	0.3	1	Netherlands Antilles	1964	31	1.5	-
Honduras	1962	92	0.5	1	Puerto Rico	1964	448	1.7	1
Jamaica	1963	120	0.7	-	St. Kitts-Nevis and Anguilla	1963	2	0.3	-
Mexico	1963	3 250	0.8	11	St. Lucia	1963	3	0.3	-
Nicaragua	1964	135	0.8	1	St. Pierre and Miquelon	1962	1	2.0	-
Panama	1964	106	0.9	-	St. Vincent	1962	3	0.4	-
Paraguay	1964	324	1.6	1	Surinam	1964	19	0.6	-
Peru	1964	1 655	1.5	2	Turks and Caicos Islands	1963	1	1.7	-
Trinidad and Tobago	1962	93	1.0	-	Virgin Islands (UK)	1962	1	1.2	-
United States	1964	106 770	5.6	47	Virgin Islands (US)	1963	13	3.2	-
Uruguay	1962	1 250	4.8	1					
Venezuela	1964	1 605	1.9	3	Northern America		113 011	5.4	53
Antigua	1964	4	0.7	-	Middle America		7 397	1.0	20
Bahama Islands	1964	17	*1.2	-	South America		44 201	2.8	66
Barbados	1964	26	1.1	-					

* Estimate.

NURSING PERSONNEL

The largest group of health workers is made up of three groups of nursing personnel — nurses, nursing auxiliaries and midwives. Their qualifications and education are not comparable in all countries; but for this report definitions of these categories are those used by the country. Information on the numbers in active service is not always available or complete. In general in Latin America the largest numbers of nurses and auxiliaries are employed in government services, both in hospitals and health centers. Because of lack of registries, information on graduate nurses and auxiliaries in many countries is difficult to obtain currently. The data presented here may be incomplete especially for the auxiliaries. As with other health workers current information regarding nursing personnel is indispensable for planning to meet the needs for health services in rapidly growing populations.

Data on nursing resources for this report have been taken from two sources: 1) questionnaires completed by the nursing divisions of the national health services, for the nursing consultants of the Pan American Health Organization and 2) the annual PAHO/WHO questionnaires on health personnel.

The number of graduate nurses in Northern America far exceeds those in Middle and South America (Table 7). In relation to population there are eight times as many in Northern America as in Middle America and almost 12 times as many as in South America. The ratios per 10,000 population are 30.0, 3.7 and 2.6 per 10,000 in the three regions respectively. Graduate nurses number 611,867 in Northern, 28,698 in Middle and 41,630 in South America.

Nursing auxiliaries employed in Northern America total 701,517 and in Middle and South America 63,749 and 113,988 respectively. In Northern America there are 1.1 nursing auxiliaries for each graduate nurse while in Middle America this ratio is 2.2 and in South America 2.7. Nursing auxiliaries in Northern America are usually employed in hospitals or in nursing homes but in Latin America they also serve in health centers and other outpatient clinics.

By country there is considerable variation in the ratios per 10,000 population for both nurses and nursing auxiliaries. The highest are in Canada where there are 33.8 nurses and 34.2 auxiliaries per 10,000 population with similar numbers of nurses and auxiliaries serving the population. The lowest ratio of graduate nurses to population is found in the Dominican Republic (0.4 per 10,000) but with 5.0 auxiliaries per 10,000 the ratio of total nursing personnel reaches 5.4 per 10,000. Certain other countries with slightly larger ratios of graduate nurses have fewer auxiliaries and thus have lower ratios of the two categories combined. Ratios of nursing auxiliaries to graduate nurses vary by country from 12.3 to 0.3. Either extreme has its shortcomings. If graduate nurses are too few in relation to auxiliaries, supervision and training of the

Table 7. Number of Graduate Nurses and Nursing Auxiliaries with Ratios per 10,000 Population, by Country

Country	Year	Graduate nurses		Nursing auxiliaries		Ratio of nursing auxiliaries to nurses	Country	Year	Graduate nurses		Nursing auxiliaries		Ratio of nursing auxiliaries to nurses
		Number	Ratio	Number	Ratio				Number	Ratio	Number	Ratio	
Argentina	1964	a) 22 903	10.4	7 429	3.4	0.3	Bermuda	1964	165	34.4	49	10.2	0.3
Bolivia	1964	411	1.1	1 148	3.1	2.8	British Guiana	1963	353	5.8	217	3.5	0.6
Brazil	1963	6 684	0.8	55 664	7.3	8.3	British Honduras	1963	162	16.2	22	2.2	0.1
Canada	1961	61 699	33.8	62 553	34.2	1.0	Canal Zone	1963	200	40.0	344	68.8	1.7
Chile	1963	1 656	2.0	b) 13 260	15.5	8.0	Cayman Islands	1965	7	7.8	-	-	-
Colombia	1965	1 259	0.7	10 818	6.1	8.6	Dominica	1963	58	9.2	-	-	-
Costa Rica	1965	616	4.3	2 000	14.0	3.2	Falkland Islands	1962	4	20.0	5	25.0	1.2
Cuba	1965	3 917	5.1	4 544	6.0	1.2	French Guiana	1964	61	16.9	81	22.5	1.3
Dominican Republic (b)	1965	146	0.4	1 792	5.0	12.3	Grenada	1965	126	13.4	76	8.1	0.6
Ecuador	1965	364	0.7	1 849	3.6	5.1	Guadeloupe	1964	297	9.7	...	...	...
El Salvador	1965	715	2.4	1 680	5.7	2.3	Martinique	1965	273	8.6	108	3.4	0.4
Guatemala	1965	491	1.1	2 289	5.2	4.7	Montserrat	1964	13	10.0	-	-	-
Haiti	1965	a) 315	0.7	553	1.2	1.8	Netherlands Antilles	1964	96	4.7	60	2.9	0.6
Honduras	1965	179	0.8	1 253	5.8	7.0	Puerto Rico	1964	5 658	21.9	5 117	19.8	0.9
Jamaica	1964	3 799	22.0	611	3.5	0.2	St. Kitts-Nevis and Anguilla	1963	68	11.1	-	-	-
Mexico	1965	8 252	2.0	40 000	9.8	4.8	St. Lucia	1963	66	7.0	-	-	-
Nicaragua	1965	353	2.1	1 047	6.3	3.0	St. Pierre and Miquelon	1962	3	6.0	15	30.0	5.0
Panama	1965	808	6.5	1 113	8.9	1.4	St. Vincent	1957	74	9.7	32	4.2	0.4
Paraguay	1965	134	0.7	1 471	7.2	11.0	Surinam	1963	207	6.6	419	13.3	2.0
Peru	1965	3 600	3.1	5 783	5.1	1.6	Turks and Caicos Islands	1963	23	38.3	15	25.0	0.7
Trinidad and Tobago	1965	1 227	12.6	356	3.6	0.3	Virgin Islands (UK)	1965	5	5.6	11	12.2	2.2
United States	1962	550 000	29.6	638 900	34.4	1.2	Virgin Islands (US)	1963	86	21.5	116	29.0	1.3
Uruguay	1964	496	1.8	3 756	14.0	7.6							
Venezuela	1963	3 498	4.3	12 088	14.8	3.5							
Antigua	1964	131	21.8	-	-	-	Northern America		611 867	30.0	701 517	34.4	1.1
Bahama Islands	1964	144	10.2	190	13.5	1.3	Middle America		28 698	3.7	63 749	8.2	2.2
Barbados	1964	393	16.2	c) 420	17.4	1.1	South America		41 630	2.6	113 988	7.2	2.7

(a) Distribution of nursing personnel by graduate nurses and auxiliaries differs from preceding reports. (b) 1965.
(c) Government only.

latter group are without doubt deficient. If graduate nurses far outnumber auxiliaries it would appear that utilization of the former could be improved for they may be participating in activities for which auxiliaries could be prepared.

Emphasis has been placed on the training of auxiliaries in many countries in recent years. Of the 63,749 auxiliaries reported in Middle America 44 per cent have received a short course of formal training usually lasting six months to one year. In South America 26 per cent have received training.

Midwives in the Americas can be divided into the following three groups on the basis of their preparation: nurse-midwives who are graduate nurses with additional education and training in midwifery; graduate midwives who have completed a diploma course of requirements established in the country; and auxiliary midwives. The information on the numbers in these groups as furnished in the annual WHO/PAHO questionnaire on health personnel is given in Table 8. The nurse-midwives have been included as graduate nurses in Table 7.

The large deficiencies in the numbers prepared to give nursing care in Latin America are evident. They stand out sharply when presented in combination with the low ratios of physicians to population which also exist in the two regions of Latin America (Figure 6).

Figure 6

RATIOS OF PHYSICIANS AND NURSING PERSONNEL PER 10,000 POPULATION IN THREE REGIONS OF THE AMERICAS, 1964

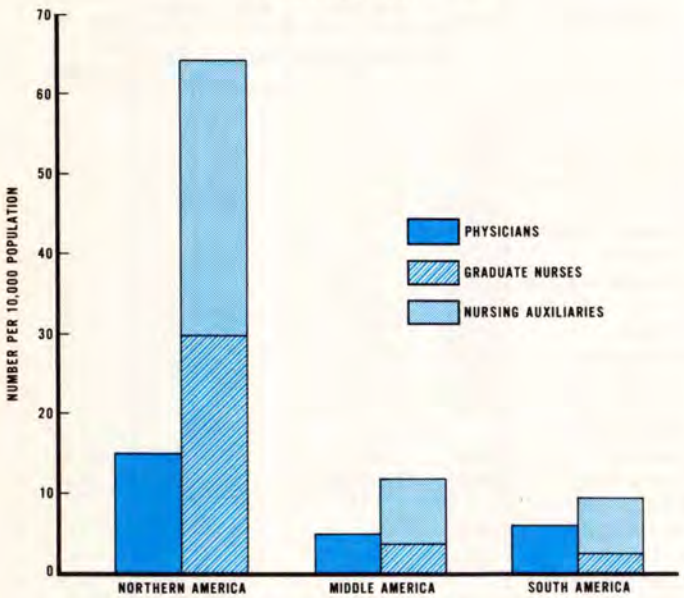


Table 8. Number of Nurse-Midwives, Midwives and Auxiliaries, 1963 or 1964

Country	Year	Graduate nurse-midwives (a)	Midwives with diplomas	Auxiliaries
Costa Rica	1963	345	-	-
Dominican Republic	1964	...	...	71
Ecuador	1964	-	30	...
Honduras	1963	9	29	-
Jamaica	1963	830	2901	-
Panama	1964	99	12	52
Paraguay	1964	16	135	477
Peru	1964	-	885	-
Venezuela	1963	...	-	1097
Antigua	1963	60	91	-
Bahama Islands	1964	141	-	40
Barbados	1964	148	25	13
Bermuda	1964	142	9	...
British Honduras	1963	44	21	125
Dominica	1963	58	18	
French Guiana	1964	...	11	
Guadeloupe	1964	...	59	
Montserrat	1964	13	30	1
Netherlands Antilles	1964	...	22	
Puerto Rico	1963	121	-	868
St. Kitts-Nevis and Anguilla	1963	68	12	
St. Lucia	1963	60	-	-
Surinam	1963	-	56	7
Virgin Islands (US)	1963	18	-	-

(a) Included in Table 7.

OTHER HEALTH PERSONNEL

Personnel in other health fields have a wide variety of professional and technical training. In the operation of hospitals, in addition to the basic and largest groups providing care, that is the physicians and nurses, specialized personnel is required. These include hospital administrators, architects, pharmacists, X-ray technicians, laboratory technicians, dieticians, physiotherapists, social workers, health educators, medical record librarians and auxiliary workers of many types. In addition, the preventive and curative services of health centers and health departments require others such as veterinarians, sanitary engineers, sanitary inspectors and statisticians, as well as many of the same categories mentioned in hospitals.

Information is in general lacking for many of the above groups. The annual questionnaires of PAHO/WHO request information on only a few specified categories to which the data shown in Table 8 are restricted. In many countries the information could be given only for hospital employees or government employees.

The priority given to the construction, expansion and improvement of water supplies in the Americas has made it imperative to train additional sanitary engineers in Latin America. Only estimates are available as to the numbers currently available. At present there are estimated to be 2,000 sanitary engineers in Latin America. Excluding the United States and Canada, data for this report were received on only 220, presumably those employed by health services, but from many countries there were no reports or only incomplete information. In the United States there are around 9,000 sanitary engineers.

In Latin America several times as many sanitary engineers as are currently available are needed. They are employed in Ministries of Health, Ministries of Public Works, and other national and local agencies concerned with construction of water supplies and sewerage systems. Sanitary engineers are also essential for other environmental programs such as occupational health, housing, air pollution and waste disposal.

Sanitary inspectors are another group of personnel for environmental health programs who are needed in large numbers for general health services and for special programs such as malaria and *Aëdes aegypti* eradication.

Table 9. Health Personnel by Country*, 1963 or 1964

Country	Sanitary engineers	Sanitary inspectors	Veterinarians	Pharmacists	Laboratory technicians	X-ray technicians	Physiotherapists
Brazil (a, b)	...	...	...	760	1 119	1 113	...
Canada (b)	135	1 275	1 524	9 166	a) 4 334	a) 2 183	2 677
Costa Rica	18	89	18	450	142	a) 31	...
Dominican Republic	11	293	46	844	45	21	...
Ecuador	...	...	...	35	...	...	...
El Salvador	7	123	1	155	72	20	...
Guatemala	15	121	40	159	...	60	40
Honduras	1	72	1	4	63	25	...
Jamaica	c) 3	99	27	537	c) 104	c) 51	c) 8
Panama	1	68	3	44	132	36	5
Paraguay	9	46	25	737	124	37	30
Peru	83	145	18	1 416	...	...	...
United States	9 000	14 000	21 600	117 400	68 000	70 000	12 000
Venezuela	50	327	557	1 450	c) 587	500	c) 5
Antigua	-	22	2	...	2	1	-
Bahama Islands	-	29	3	12	20	9	1
Barbados	2	106	9	104	17	10	2
Bermuda	2	24	4	23	8	5	3
British Guiana	1	59	8	...	...	5	...
British Honduras	1	12	...	1	8	4	-
Canal Zone	1	7	4	8	49	11	4
Dominica	-	16	1	12	3	1	-
French Guiana	...	...	1	4	...	1	...
Guadeloupe	...	15	3	45	...	...	4
Montserrat	...	3	...	...	...	...	...
Netherlands Antilles	...	...	3	23	...	...	...
Puerto Rico	12	300	88	1 175	428	360	175
St. Kitts-Nevis and Anguilla	1	16	1	8	2	1	-
St. Lucia	1	11	1	16	3	1	-
Surinam	...	90	4	15	59	17	3
Virgin Islands (US)	1	12	2	11	12	5	2

(a) Employed in hospitals. (b) Data for 1961. (c) Government only. * Countries reporting information.

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