
**Introduction**

On the recommendation of its Scientific Advisory Committee, the Caribbean Epidemiology Center (CAREC) conducted a review of mortality and morbidity in the Caribbean in 1970-1980 in order to determine the priorities of the countries and territories that are participating members of CAREC (Figure 1).

Many difficulties were encountered in establishing the demographic characteristics of the area because the last population census was held in 1970 and considerable changes are believed to have taken place in mortality, fertility, birth rate, child mortality, and migration between 1970 and 1980.

Since the mortality and morbidity data are presented in absolute figures, this review should be considered a first attempt to determine the health priorities of the region. This review will—it is hoped—serve as a basis for additional studies designed to obtain more precise information for planning and evaluating the health services the Caribbean population will need in the 1980s.

**Mortality**

To identify changes that might have occurred in the period 1970-1980, an analysis was made of the data for 1970, 1974, and 1978. Of the 19 member countries of CAREC, five (Antigua, Barbados, Dominica, Saint Lucia, and St. Vincent) were selected because they had appropriate data and similar economic and health characteristics (Figure 2). This group of countries has a total population of approximately 0.6 million and fewer than 5,000 deaths annually. Barbados accounts for 40 percent of the deaths.

The quality of the data is limited because of defects in reporting and coding the causes of death and lack of uniformity in the age-groups used by the five countries.

Because of the lack of data for the continental countries (Belize, Guyana, and Suriname) as well as for other countries, including the two most populous (Jamaica and Trinidad and Tobago), the findings for this group of countries do not make it possible to extrapolate the state of health in the Caribbean as a region.
Of the deaths from heart diseases, hypertension accounted for 5 per cent in 1970 and 6 per cent in 1974 and 1978 and ranked seventh, sixth, and fourth as a cause of death in those three years. Of the deaths attributed to hypertension, 72 per cent occurred in the age-group 65 years and more. Only 3 per cent occurred in the population under 35 years of age.

Cerebrovascular disease was the second cause of death in 1970 and 1974 and in 1978 ranked third (12 per cent of total deaths). The population aged 65 years and more accounted for 77 per cent of the deaths.

Malignant neoplasms ranked fourth as a cause of death in 1970 and second in 1978 (13 per cent of total deaths). Of total reported deaths attributed to cancer, 57 per cent occurred in the group aged 65 and above while 32 per cent of total deaths from cancer in 1978 occurred in the age group 45-64 years. In males the most frequent locations of cancer were the stomach, prostate, trachea-bronchia-lung, and esophagus. In females the most frequent locations were breast, stomach, and cervix.

Among infectious diseases, diarrheal diseases occupy a leading place as a cause of death and were responsible for 58 per cent of the deaths attributed to infectious diseases in 1970, 56 per cent in 1974, and 47 per cent in 1978. The group most affected was children under one year of age, who accounted for 57 per cent of the deaths caused by diarrhea in 1978. In that same year, diarrheal diseases were responsible for 14 per cent of total infant deaths and 15 per cent of deaths in the age group 1-4 years.

Influenza and pneumonia accounted for 6 per cent of the total deaths reported in 1970 and 1974 and 5 per cent in 1978.

Vitamin A and other nutritional deficiencies declined sharply (4 per cent to 1 per cent) as a cause of death between 1970 and 1978.

Deaths from accidents increased in all the countries, and represented 3 per cent of total deaths in 1970, 4 per cent in 1974, and 6 per cent in 1978. Accidents accounted for 33 per cent of total deaths in the age-group 5-14 years in 1978 and 16 per cent in the age-group 15-44 years. Of the deaths attributed to accidents in 1970 and 1978, 37 and 23 per cent, respectively, were caused by automobile accidents.

**Morbidity from Infectious Diseases**

Unlike mortality data, morbidity data for most of the reportable diseases have been notified to CAREC by all the Caribbean countries since 1975. Information for the period prior to 1975 was obtained from *Health Conditions in the Americas, 1969-1972, and 1973-1976* (PAHO Scientific Publications 287 and 364) (Table 1).

Some of the problems highlighted by this information are:
- Incomplete data. For example, for diseases such as measles and influenza, only serious cases that require hospitalization are reported by many countries.
- Lack of technical facilities for laboratory confirmation. This lack usually results not only in underreporting but also in erroneous reports.
- Diseases subject to the International Health Regulations (cholera, plague, yellow fever, smallpox)

Of these diseases, only yellow fever was reported in the area in 1970-1980. In November 1978 there was an epizootic of yellow fever in monkeys in Trinidad, which was followed by two outbreaks of jungle yellow fever in 1979 that caused 18 cases, eight of which were fatal. These outbreaks gave rise to great concern because of the high *Aedes aegypti* infestation of the region and because of their effect on tourism. Consequently, systems of epidemiological surveillance were organized and large-scale immunization and *A. aegypti* control measures were instituted.

- Diseases covered by the Expanded Program on Immunization (EPI) (poliomyelitis, measles, diphtheria, tetanus, whooping cough, tuberculosis)

**Poliomyelitis.** The incidence of poliomyelitis decreased sharply in all the member countries of CAREC. Mass

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**Table 1. Incidence of certain communicable diseases in all the member countries of CAREC, 1970-1980.**

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</tr>
</thead>
<tbody>
<tr>
<td><em>Malaria (Belize, Guyana, Suriname)</em></td>
<td>1,070</td>
<td>1,606</td>
<td>1,152</td>
<td>2,089</td>
<td>4,152</td>
<td>3,985</td>
<td>5,357</td>
<td>3,472</td>
<td>4,370</td>
<td>8,600</td>
<td></td>
</tr>
<tr>
<td><em>Malaria (other countries)</em></td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>8</td>
<td>14</td>
<td>13</td>
<td>7</td>
<td>19</td>
<td>31</td>
<td>14</td>
</tr>
<tr>
<td><em>Poliomyelitis</em></td>
<td>10</td>
<td>47</td>
<td>186</td>
<td>3</td>
<td>8</td>
<td>5</td>
<td>2</td>
<td>1</td>
<td>—</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td><em>Diphtheria</em></td>
<td>205</td>
<td>133</td>
<td>169</td>
<td>101</td>
<td>85</td>
<td>68</td>
<td>52</td>
<td>11</td>
<td>45</td>
<td>28</td>
<td>26</td>
</tr>
<tr>
<td><em>Measles</em></td>
<td>5,005</td>
<td>3,389</td>
<td>2,336</td>
<td>3,022</td>
<td>4,138</td>
<td>3,477</td>
<td>6,252</td>
<td>8,122</td>
<td>2,613</td>
<td>5,132</td>
<td>4,182</td>
</tr>
<tr>
<td><em>Tuberculosis</em></td>
<td>1,023</td>
<td>928</td>
<td>980</td>
<td>919</td>
<td>865</td>
<td>859</td>
<td>1,006</td>
<td>803</td>
<td>762</td>
<td>570</td>
<td>665</td>
</tr>
<tr>
<td><em>Typhoid fever</em></td>
<td>382</td>
<td>447</td>
<td>741</td>
<td>340</td>
<td>289</td>
<td>342</td>
<td>409</td>
<td>369</td>
<td>224</td>
<td>253</td>
<td>303</td>
</tr>
</tbody>
</table>

*Excludes an epidemic outbreak (58 cases) in Grenada in 1978.
—Data not available.
outbreaks affected Trinidad and Tobago in 1971-1972 and St. Vincent in 1972. At present one case of polio-
myelitis reported in the islands can be considered an epi-
demic. Of the nine cases that occurred between 1976 and
1980, five were in Belize and three in Suriname, both
mainland countries.

**Measles.** Outbreaks of measles are common in the
Caribbean, where the epidemic cycle and duration of the
epidemics depend on the size of the island and the fre-
quency of its contacts with foreign countries. The main-
land countries have a regular two-three year epidemic
pattern. In some countries measles vaccination has only
recently been instituted. Up to December 1980, only 10
of the 19 countries offered their population measles vac-
cination.

**Diphtheria.** The number of reported cases of diph-
theria gradually decreased during the decade despite the
fact that, in Barbados, children with positive pharyngeal
swabs were reported as cases.

**Tetanus.** Information on this disease is lacking in
many countries in the region.

**Whooping cough.** The incidence of this disease in the
area has remained low.

**Tuberculosis.** This disease has slowly decreased in the
region. The organization of case-detection programs has
influenced the number of cases reported by the coun-
tries.

- **Vector-borne diseases**

  **Malaria** is endemic in three countries: Belize, Guyana,
and Suriname. Since 1970 the malaria situation has con-
siderably worsened. Belize reported 33 cases in 1970 and
1,800 in 1980. Guyana reported 18 cases in 1970 and
estimated the number of cases in 1980 at 2,800. Suriname
reported 1,019 cases in 1970 and 4,000 were ex-
pected in 1980. In the other countries malaria was
eliminated in the 1960s. The cases reported in the follow-
ing decade were imported from other countries. Of the
31 cases reported in 1979, 14 were in the Bahamas and
most of them were imported from Haiti. Of the 14 cases
reported in 1980, eight were in the Cayman Islands and
most were workers from Guatemala and Honduras.

Cases of schistosomiasis have been reported by An-
tigua, Guadeloupe, Montserrat, Martinique, Puerto
Rico, Saint Lucia, and Suriname. No quantitative in-
formation is available for most of these countries.

**Dengue.** In the 1977-1978 period there was a large-
scale epidemic of dengue type I in the Caribbean; it be-
gan in Jamaica in March 1977 and rapidly spread to the
other countries in which Aedes aegypti is an habitual vec-
tor.

- **Sexually transmitted diseases**

  In 1979, 14 Caribbean countries reported 7,010 cases
of gonococcal infections and 1,608 of syphilis. The num-
ber of cases reported by each country depends on the
type of program and the intensity of active case-detec-
tion. Guyana, Jamaica, and Suriname do not have any
information on these diseases.

- **Gastrointestinal diseases**

  The definition of gastroenteritis used for reporting
varies from country to country and therefore the data
must be interpreted with caution. The annual totals do
not show marked weekly or seasonal variations.

  The reporting of hepatitis is deficient and underregis-
tration is considerable; in addition, no distinction is
made between hepatitis A and B because the necessary
laboratory facilities are not available.

**Typhoid fever** is present throughout the Caribbean.
During the last five years CAREC has helped to investi-
gate 10 epidemic outbreaks of the disease in six coun-
tries.

**Principal Conclusions**

The lack of reliable information makes it very difficult
to plan health programs. Therefore, improvement of the
collection and analysis of mortality data, including the
establishment of histopathological services, must be em-
phasized.

Morbidity data also need to be improved through the
strengthening of laboratories and improvement of
reporting coverage. Of special importance is the im-
provement of the definition of cases for reporting such
diseases as gastroenteritis, diphtheria, and the like, as
well as the application of the concept of "negative report-
ing" (in order to ensure that the non-occurrence of cases
is not construed to mean "data not available").

The data presented in this study point to a change in the
non-infectious/infectious disease ratio. Nevertheless,
infectious diseases continue to be a cause of high mor-
tality, especially in children under five years of age and
in the aged. Measles morbidity in children is still very high
and a much more active vaccination against the disease is
needed.

The danger of the spread of epidemics, especially
those caused by arboviruses, such as dengue and yellow
fever, calls for constant vigilance. Therefore, there is a
continuing need for good virological diagnostic facilities.

Although malaria is endemic only in Belize, Guyana,
and Suriname, the situation is serious since in the past
two years the number of cases has risen sharply. At the
same time there has been a continuous increase in the
number of "imported" cases, which exposes the region to
a considerable risk of the reintroduction of the disease.

Accidents, which have gradually increased in all the
countries and especially affect the population 1-44 years
of age, call for resolute efforts by the governments for
their prevention and control.

The importance of hypertension control in preventing
cerebrovascular accidents is obvious, as is the need to
provide diabetes mellitus patients with medical services.
This should be assigned high priority and calls for a new methodology at the primary health care level. Because of lack of data, it was not possible in this study to analyze a number of important aspects, such as food poisonings and occupational health, both of which are of regional interest.


### Diseases Subject to the International Health Regulations

#### Cholera, yellow fever and plague cases and deaths reported in the Region of the Americas up to 1 June 1981

<table>
<thead>
<tr>
<th>Country and administrative subdivision</th>
<th>Cholera cases</th>
<th>Yellow fever cases</th>
<th>Deaths</th>
<th>Plague cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOLIVIA</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Beni</td>
<td>3</td>
<td>5</td>
<td>2</td>
<td></td>
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<tr>
<td>Cochabamba</td>
<td>5</td>
<td>6</td>
<td>1</td>
<td></td>
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<tr>
<td>Chuquisaca</td>
<td>6</td>
<td>7</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>La Paz</td>
<td>70</td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Santa Cruz</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>BRAZIL</td>
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<tr>
<td>Ceará</td>
<td>3</td>
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<tr>
<td>Mato Grosso</td>
<td>3</td>
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<td>PERU</td>
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</tr>
<tr>
<td>Cusco</td>
<td>4</td>
<td>2</td>
<td>7</td>
<td></td>
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<tr>
<td>Madre de Dios</td>
<td>2</td>
<td>1</td>
<td>1</td>
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<tr>
<td>Piura</td>
<td>1</td>
<td>1</td>
<td>7</td>
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<tr>
<td>San Martín</td>
<td>1</td>
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<tr>
<td>UNITED STATES</td>
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<tr>
<td>Arizona</td>
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<tr>
<td>New Mexico</td>
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</tbody>
</table>

—None.

### Status of Plague in the Americas, 1970–1980

Sporadic cases of plague and numerous small outbreaks attest to the persistence of the disease in the Americas. Wild rodent foci of plague in northeastern Brazil, the Andean region, and the western part of the United States continue to produce occasional cases. The conditions with regard to the potential for human disease in active foci vary widely and are not well understood. At present, there has been a gradual decline in both the number of cases and extent of infected areas in the Americas. Figures 1 to 5 indicate an apparently decreasing geographic distribution of plague in the persistent foci of Bolivia, Brazil, Ecuador, Peru, and the United States, the only countries of the Region reporting human cases since 1963. The number of plague cases reported by