Epidemiological Bulletin

PAN AMERICAN HEALTH ORGANIZATION

Vol. 1, No. 1, 1980

Inauguration of the Bulletin

The *Epidemiological Bulletin* of the Pan American Health Organization, which commences with this issue, represents a further effort to promote the exchange of epidemiological information among the Member Countries of the Region of the Americas. Its main purpose is to publish periodically short accounts of and comments on the epidemiological activity of communicable and noncommunicable diseases of priority public health concern as well as information regarding technical aspects involved in disease surveillance, prevention, and control programs in the countries.

The *Bulletin* will include information on resolutions and recommendations of international importance related to disease control and which support the countries in their formulation of policy, in carrying out their programs as well as in strengthening their infrastructure. Mention will be made of the various resources available at the international level to national programs, in order to stimulate technical cooperation among developing countries. Emphasis will be given to the exchange of information about the main achievements in and obstacles to the implementation of disease control programs. Reports will likewise be included about efforts to apply epidemiological methodologies to programming and evaluation of health care delivery, which exemplify national attempts to achieve the goal of health services coverage extension and to attain the global objective of "health for all by the year 2000," established by the World Health Assembly.

In addition, the *Bulletin* aims to assist decision-makers in their allocation of resources to health systems and services by providing information on conceptual and technical aspects and national experiences regarding the application of epidemiology in the diagnosis of health situations. Moreover, it aspires to serve professionals and technical personnel in the field, sector administrators, and health sciences students.

Initially, the *Bulletin* will be distributed every two months and will replace the *Weekly Epidemiological Report,* which was discontinued in January 1979.

The Organization is confident that this new series will help to meet the current needs of the countries and will become a forum for the achievements and progress made by epidemiological surveillance and disease control programs, whose approaches and applications will contribute to the continuing solution of health problems in the Americas.

Héctor R. Acuña
Director

IN THIS ISSUE ...

Yellow Fever in the Americas

In the period 1965-1979 the average annual number of cases of jungle yellow fever in the Americas, as reported to the Pan American Sanitary Bureau, was 114. Between 1967 and 1971 the countries reported less cases than the average, as shown in Figure 1.

Since 1972, incidence of the disease has shown an upward trend, occurring in two- or three-year cycles and gradually affecting areas in which no cases had previously been reported. The annual transmission cycle (according to data for 1975-1978) usually began in December-January, reached its peak in April-July, and declined to its lowest level in September-November.

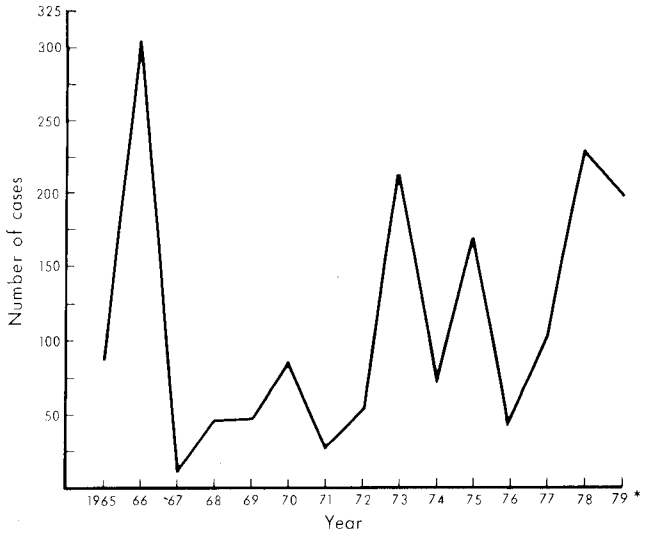
In 1979 seven countries—Bolivia, Brazil, Colombia, Ecuador, Peru, Trinidad and Tobago, and Venezuela—reported cases of jungle yellow fever. This is the highest number of reporting countries in 15 years (see Table 1) and points to an increase in the disease in the Region. As of year-end 1979 a total of 205 cases had been registered (provisional figures) (Fig. 2).

Trinidad and Tobago reported 18 cases of jungle yellow fever. The first eight occurred between 27 December 1978 and 6 March 1979. Two of the eight patients died, the first from yellow fever and the second from a bacterial infection accompanied by meningitis and liver abscesses. Of interest is the fact that, according to the information available, this last-mentioned patient had not been in jungle areas. In studying the outbreaks and for the purpose of isolating the virus, successful use was made of AP-61 cell cultures (*Aedes pseudoscutellaris*). Between August and December 1979, 10 more cases of jungle yellow fever were reported. Following confirmation of the initial cases, about 85 per cent of the population was vaccinated against the disease.

In Colombia, an epidemic broke out in mid-1978, in the Tarra region in rural areas adjacent to forests; 28 deaths, due to jungle yellow fever, were reported, 13 of which were confirmed. Some of the patients were transferred for treatment to nearby urban communities that were infested by *A. aegypti*, where they subsequently died; no cases of the disease transmitted by that mosquito were confirmed, however. In 1979 Colombia reported 51 cases of jungle yellow fever in the Departments of Cesar (13), Magdalena (30), Meta (6), and Santander (2).

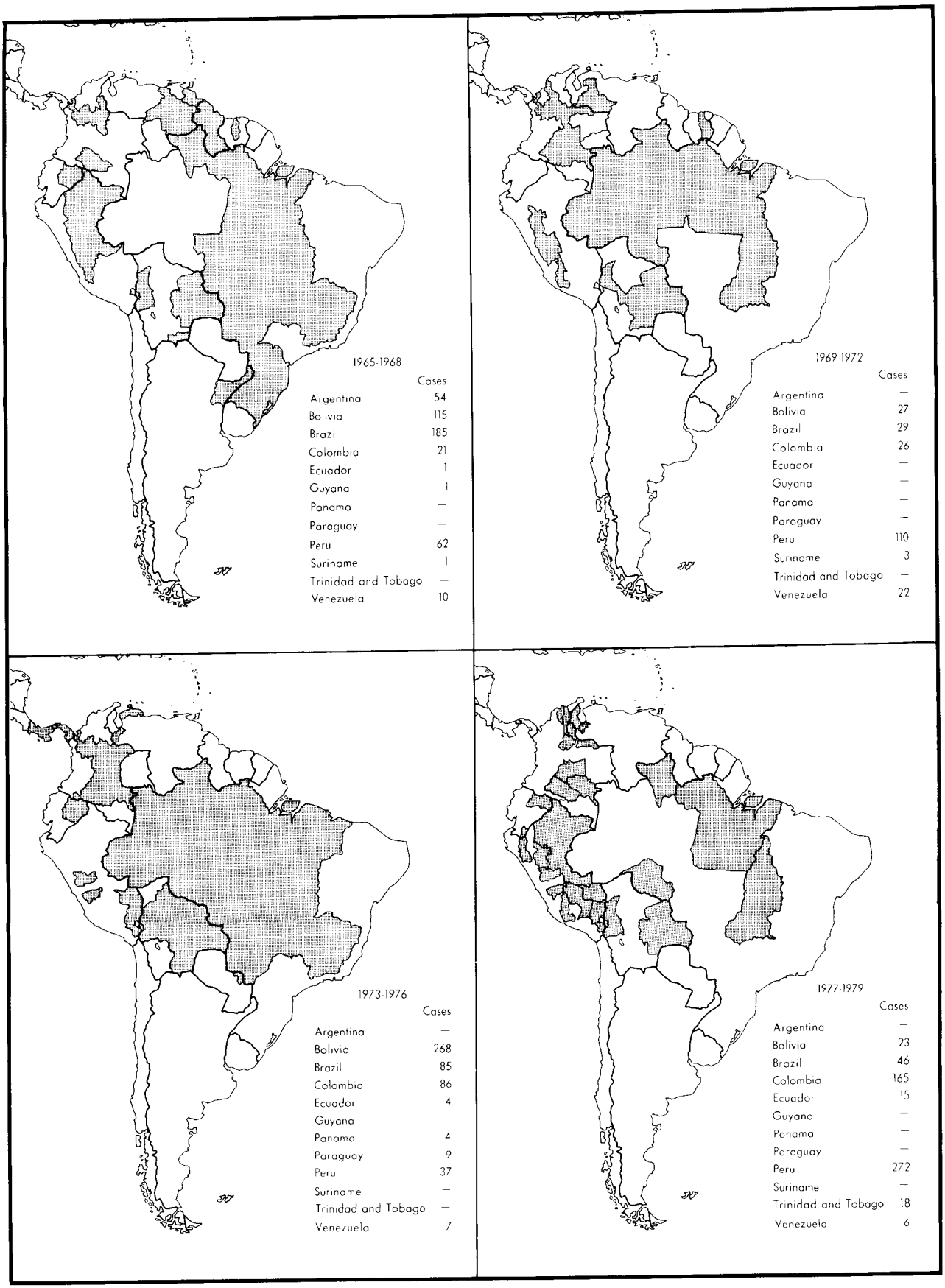
No data are available on the number of inhabitants

Figure 1. Reported cases of jungle yellow fever in the Americas, 1965-1979.*



***Up to 31 December 1979 (provisional data).**

Figure 2. Reported cases of jungle yellow fever by major political division of each country, 1965-1979.*



Shaded areas indicate political divisions that reported cases of jungle yellow fever.

***Up to 31 December 1979 (provisional data).**

Table 1. Reported cases of jungle yellow fever, 1965-1979,* by country.

	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
Argentina	2	51	1	—	—	—	—	—	—	—	—	—	—	—	—
Bolivia	19	69	—	27	8	2	8	9	86	12	151	19	2	11	10
Brazil	14	167	2	2	4	2	11	12	70	13	1	1	9	27	12
Colombia	2	3	5	11	7	7	9	3	16	36	12	22	9	105	51
Ecuador	—	—	1	—	—	—	—	—	—	—	3	1	—	1	14
Guyana	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—
Panama	—	—	—	—	—	—	—	—	—	4	—	—	—	—	—
Paraguay	—	—	—	—	—	—	—	—	—	9	—	—	—	—	—
Peru	45	9	3	5	28	75	—	7	33	2	1	1	82	93	97
Suriname	—	—	—	1	1	—	—	2	—	—	—	—	—	—	—
Trinidad and Tobago	—	—	—	—	—	—	—	—	—	—	—	—	—	—	18
Venezuela	5	5	—	—	—	—	—	22	7	—	—	—	—	3	3
Total	87	304	12	47	48	86	28	55	212	76	168	44	102	240	205

*Up to 31 December 1979 (provisional figures).
— None.

exposed to jungle yellow fever or on the number of those vaccinated against the disease in the various countries. Even though information from throughout the Region is incomplete, coverage in urban areas of Trinidad and Tobago, Venezuela, and some Colombian cities is believed to have been substantial.

Aedes aegypti infestation continues to be widespread in the Americas and affects many urban communities in the Hemisphere, especially in Colombia, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, the United States of America, and Venezuela, as well as numerous Caribbean islands.

Recent studies made in Colombia appear to suggest that changes are taking place in the habits of vectors traditionally considered selvatic.

In view of this situation, PAHO held a meeting of experts in yellow fever in Washington, D.C., in July 1979. The group concluded that, although the annual vaccine production in Latin America was 8 million doses—6 million prepared in the Oswaldo Cruz Foundation in Rio de Janeiro and 2 million in the National Institute of Health in Bogotá—the current stock was low (2.1 million doses in Rio de Janeiro and 400,000 doses in Bogotá) and insufficient to meet the demand in the event of an urban epidemic. The group recommended that 5-10 million doses should be available at all times.

The surveillance systems at present in use should be reviewed, in the opinion of the experts, who recommended that only persons exposed to risk be vaccinated. Although there is no evidence of a teratogenic effect of the 17D chick embryo vaccine, pregnant women should only be vaccinated if exposure to risk warrants it.

Laboratory confirmation is obtained by isolation of the virus or by serologic tests. For virus isolation the group recommended the use of AP-61 cell culture and mice.

Attention was drawn to a number of aspects of research—some well known, others more recent—which should be taken into account in the Americas. These include studies of competition between various *A. aegypti* vector strains in transmitting yellow fever virus; genetic and transovarial transmission of yellow fever in *Aedes* mosquitoes; use of insect cell lines in cases in which mice cannot be used for isolation of the virus, in diagnosing yellow fever, and possibly as a substrate for production of vaccine; and duration of antibodies in persons vaccinated.

Other new and promising aspects of research include use of the enzyme-linked immunosorbent assay (ELISA) test for serodiagnosis, development of radioimmunoassay and immunoassay tests in thin layers for detection of antigens, use of hybridomes for producing specific antibodies in vitro, and studies on interferon in antiviral drugs in clinical treatment of the disease.

Other tests that should be compared with those currently in use include tests for plaque-reduction neutralization, fluorescent foci-inhibition neutralization, and histopathology of the liver.

Finally, the group recommended that a seminar on yellow fever be held in the Americas in 1980 for administrators, epidemiologists, vector control specialists, ecologists, laboratory research workers, and vaccine specialists. It should focus on the present status of the disease in the Americas; reevaluate the risks of its urbanization; recommend measures necessary for preventing and controlling jungle and urban yellow fever; foster innovative research aimed at effecting positive changes in prevention or control; and promote the exchange of information on new diagnostic techniques.

This meeting will be held in Belem, Brazil, 18-22 April 1980.

(Virology Program, Communicable Disease Control Unit, Division of Disease Prevention and Control, PAHO.)

Diseases Subject to the International Health Regulations

Cases and deaths caused by cholera, yellow fever, and plague reported in the Region of the Americas in 1979*

Country and administrative division	Cholera cases	Yellow Fever		Plague cases
		Cases	Deaths	
Bolivia	—	*10*	*7*	*2*
La Paz	—	8	6	2
Santa Cruz	—	2	1	—
Brazil	—	*12*	*9*	—
Amazonas	—	2	2	—
Goiás	—	3	2	—
Pará	—	5	3	—
Rondonia	—	2	2	—
Colombia	—	*51*	*36*	—
Cesar	—	13	13	—
Magdalena	—	30	15	—
Meta	—	6	6	—
Santander	—	2	2	—
Ecuador	—	*14*	*13*	—
Napo	—	1	...	—
Zamora/Chinchipe	—	13	13	—
Peru	—	*97*	*87*	—
Ayacucho	—	5	5	—
Huánuco	—	24	22	—
Junín	—	34	*31*	—
Loreto	—	2	—	—
Madre de Dios	—	13	13	—
Puno	—	3	3	—
San Martín	—	16	13	—
Trinidad and Tobago	—	*18*	*7*	—
Trinidad	—	18	7	—
United States	*1*	—	—	*10*
Arizona	—	—	—	3
California	1	—	—	—
Colorado	—	—	—	2
Nevada	—	—	—	1
New Mexico	—	—	—	4
Venezuela	—	*3*	*2*	—
Mérida	—	1	1	—
Zulia	—	2	1	—

*Provisional data. —None. ... Data not available.

Smallpox Eradication

The Global Commission for the Certification of Smallpox Eradication reached the following conclusions in the report of its final meeting in December 1979:

1. Smallpox eradication has been achieved throughout the world.
2. There are no reasons for fearing the reappearance of smallpox as an endemic disease.

The report also pointed out that more than two years had elapsed since the discovery of the last case of endemic smallpox in Somalia in October 1977. It added that neither the special surveillance activities undertaken in the last endemic countries nor the investigation of presumed cases and rumors elsewhere in the world had detected a single case of endemic smallpox since that time.

The Global Commission was an independent body of experts established by the Director-General of WHO in 1978, at the request of the Executive Board of the Organization, for the purpose of evaluating the extent of smallpox eradication throughout the world.

On 25 January 1980, during its Sixty-fifth Session, the Executive Board of the World Health Organization endorsed the conclusions of the Global Commission, and made the following recommendations:

Vaccination Policy

Recommendation 1. Smallpox vaccination should be discontinued in every country except for investigators at special risk.

Recommendation 2. An international certificate of vaccination against smallpox should no longer be required of any traveller.

Reserve Stocks of Vaccine

Recommendation 3. Sufficient freeze-dried smallpox vaccine to vaccinate 200 million people should be maintained by WHO in refrigerated depots in two countries, together with stocks of bifurcated needles.

Recommendation 4. The stored vaccine should be periodically tested for potency.

Recommendation 5. Seed lots of vaccinia virus suitable for the preparation of smallpox vaccine should be maintained in designated WHO collaborating centers.

Recommendation 6. National health authorities that have vaccine stocks should be asked to inform WHO of the amount of vaccine maintained.

Investigation of Suspected Smallpox Cases

Recommendation 7. In order to maintain public confidence in the fact of global eradication, it is important that rumors of suspected smallpox, which can be expected to occur in many countries, should be thoroughly investigated. Information should be provided to WHO, if requested, so that it can be made available to the world community.

Recommendation 8. WHO should maintain an effective system to coordinate and participate in the investigation of suspected smallpox cases throughout the world. The international smallpox-rumor register should be maintained.

Laboratories Retaining Variola Virus Stocks

Recommendation 9. No more than four WHO collaborating centers should be approved as suitable to hold, and handle, stocks of variola virus. A collaborating center would be approved only if it had adequate containment facilities. Each such center should provide WHO annually with relevant information on its safety measures and should be inspected periodically by WHO.

Recommendation 10. Other laboratories should be asked to destroy any stocks of variola virus that they hold, or transfer them to an approved WHO collaborating center.

Human Monkeypox

Recommendation 11. In collaboration with country health services WHO should organize and assist a special surveillance program on human monkeypox, its epidemiology, and its ecology in areas where it is known to have occurred. The program should continue until 1985, when a further assessment of the situation should be made.

Laboratory Investigations

Recommendation 12. WHO should continue to encourage and coordinate research on orthopoxviruses.

Recommendation 13. WHO should maintain the system of WHO collaborating centers for carrying out diagnostic work and research on orthopoxviruses.

Recommendation 14. Research workers who do not work in a WHO collaborating center and who wish to carry out experiments with variola or whitepox virus that are approved by the appropriate WHO committee should be offered the use of the special facilities in a WHO collaborating center.

Recommendation 15. Research on poxviruses other than variola or whitepox viruses should not be performed under circumstances where there is any possibility of crosscontamination with these two agents.

Documentation of the Smallpox Eradication Program

Recommendation 16. WHO should ensure that appropriate publications are produced describing smallpox and its eradication and the principles and methods that are applicable to other programs.

Recommendation 17. All relevant scientific, operational, and administrative data should be cataloged and retained for archival purposes in WHO headquarters and perhaps also in several centers interested in the history of medicine.

WHO Headquarters Staff

Recommendation 18. An interregional team consisting of not less than two epidemiologists with past experience in the smallpox eradication campaign, plus supporting staff, should be maintained at WHO headquarters until at least the end of 1985. At least one additional field officer should be assigned to cover areas where human monkeypox is under investigation.

Recommendation 19. WHO should set up a committee on orthopoxvirus infections.

Smallpox Rumors

Between 1 January 1978 and 7 November 1979, the World Health Organization received a total of 101 rumors of smallpox cases from 40 countries in which eradication had already been certified or which were considered free of the disease (Table). Apart from two cases resulting from a laboratory outbreak in the United Kingdom in 1978, none of the rumors were confirmed. Five rumors still pending are under investigation.

Summary of smallpox rumors received at WHO Headquarters, 1 January 1978–7 November 1979.

Region	Year	Diagnostic						Total
		Smallpox	Monkeypox	Varicella or measles	Other skin diseases	False reports/ earlier smallpox	Pending	
Africa	1978	—	1	2	—	7	—	10
	1979	—	—	4	2	3	1	10
Americas	1978	—	—	2	—	—	—	2
	1979	—	—	4	—	2	1	7
Eastern Mediterranean	1978	—	—	1	2	2	—	5
	1979	—	—	1	1	3	1	6
Europe	1978	2[a]	—	1	—	1	—	4
	1979	—	—	3	1	—	1	5
Southeast Asia	1978	—	—	19	2	3	—	24
	1979	—	—	9	7	5	1	22
Western Pacific	1978	—	—	—	—	2	—	2
	1979	—	—	2	—	2	—	4
Total	1978	2[a]	1	25	4	15	—	47
	1979	—	—	23	11	15	5[b]	54

[a]Two cases of smallpox originating in a laboratory in the United Kingdom, August 1978.
[b]The rumors pending are those that were reported to Geneva Headquarters during the two weeks prior to 7 November and that are being investigated.
—None.

Malaria in the United States, 1978

In 1978, 616 cases* of malaria were reported in the United States, a 28.3 per cent increase over the 481 cases reported in 1977.

Only 31 cases (5.1 per cent of all cases reported in the United States) were in military personnel.

As in previous years, imported *Plasmodium vivax* cases were more common than those of *P. falciparum* (64.1 per cent as compared to 19.4 per cent).

No local transmission by mosquitoes was reported.

In 1978 there were 6 reported deaths attributed to

*A "case" is defined as an individual's first attack of malaria in the United States, regardless of whether or not he had experienced previous attacks of malaria while outside the country. A subsequent attack in the same person caused by a different *Plasmodium* species is counted as an additional case. Repeated attacks in the United States caused by the same species are considered relapses, not additional cases. All cases included in this report were diagnosed as malaria on the basis of a positive peripheral blood smear examined in the local or state health department laboratory. Doubtful cases were referred to the National Malaria Repository of the U.S. Center for Disease Control in Atlanta, Georgia.

malaria compared with 3 in 1977; 5 were due to *P. falciparum* and 1 to *P. malariae.*

The fatality rate of malaria caused by *P. falciparum* was 4 per cent; the rate for the 10-year period 1966–1975 was 1.6 per cent.

In 6 of the 585 civilian cases (none in military personnel) the patients acquired the disease in the United States. Three cases were transfusion-induced—1 each of *P. falciparum, P. vivax,* and *P. malariae.* Two congenital cases occurred—*P. falciparum* and *P. vivax.* In 1 case, the infection followed a kidney transplant.

Although the 31 cases in military personnel in 1978 represented an increase of 282 per cent over 1977 (11 cases), the total number of cases in military personnel remained far below the levels seen during the Vietnam War years (maximum of 4,096 in 1970).

The proportion of cases caused by each *Plasmodium* species showed little change between 1977 and 1978 (Table 1).

Of the 616 cases, the percentages of patients by place in which malaria was contracted were as follows: 52.1 in Asia; 28.9 in Africa; 12.0 in Central America and the Caribbean areas; 2.2 in South America; 1.8 in Oceania; and 3.0 in North America. The number of reported malaria cases contracted in Asia for 1978 represents a 22.9 per cent increase over that for 1977, which reflects a marked increase in the number of cases from India—241 in 1978 as against 188 in 1977. As in 1977, the largest number of cases in 1978 originated in India and represented 39.4 per cent of all cases.

Of the imported cases, a large number of patients acquired the disease in Nigeria (47), the Philippines (24), Kenya (17), El Salvador (16), Ghana (15), and Honduras (15).

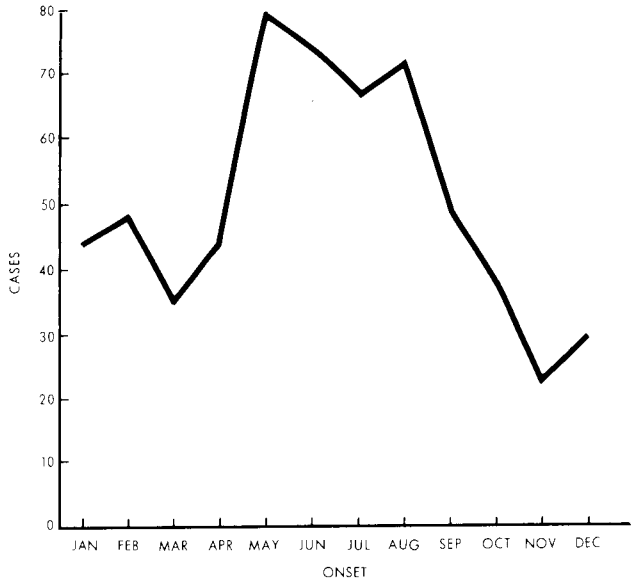
In 1978, as in the preceding year, the seasonal distribution of malaria cases—excluding those whose date of onset was unknown—showed a distinct pattern: a definite peak was apparent in late spring and during the summer months (Fig. 1).

This seasonal distribution pattern probably reflects the increase in travel of North Americans during the summer months.

Table 1. Malaria cases by *Plasmodium* species, United States, 1978.

Species	Total	%
P. vivax	395	64.1
P. falciparum	120	19.4
P. malariae	43	7.0
P. ovale	14	2.3
Mixed infections	3	0.5
Undetermined	41	6.7
Total	616	100.0

Figure 1. Cases of malaria, by month of onset, United States, 1978.



In cases for which the exact dates of arrival in the United States and of onset were available, the clinical symptoms of malaria developed within 30 days of arrival in the United States in 79.5 per cent of individuals with *P. falciparum* malaria and in 30.9 per cent of those with *P. vivax* malaria.

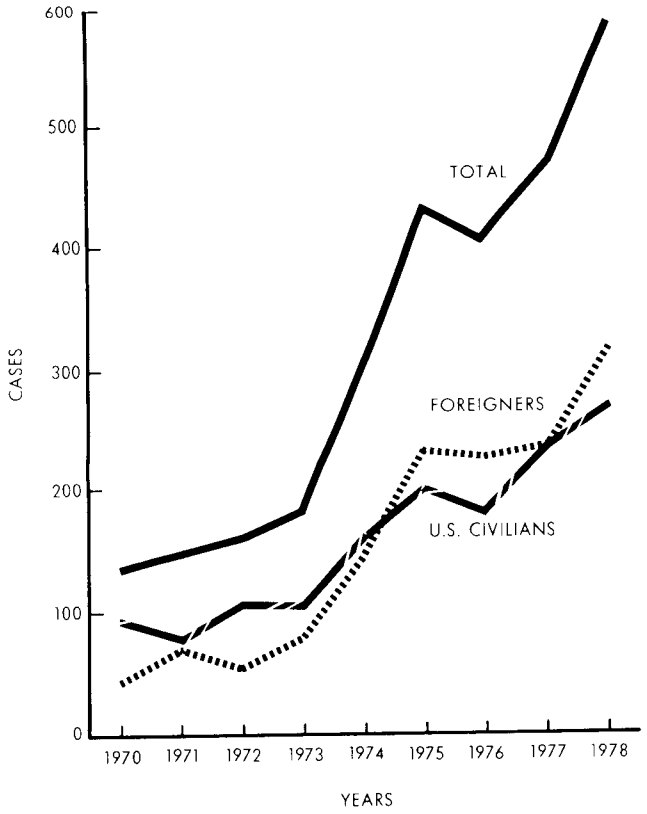
Within six months of returning to the United States 96.2 per cent of patients with *P. falciparum* malaria and 70.2 per cent of those with *P. vivax* malaria developed clinical symptoms.

Twenty-one patients (4.1 per cent) became ill with malaria 12 months or longer after their exposure to the disease abroad. Of the 603 cases on which complete information was available, 86.6 per cent required hospitalization.

Most of the patients (65.5 per cent) were initially treated in civilian hospitals, 5.0 per cent in military hospitals, and 1.5 per cent in U.S. Public Health Service hospitals. The armed forces and Veterans' Administration have made malaria reporting a major responsibility of their hospital staffs. Although malaria is a reportable disease in every state, reporting by civilian physicians is largely a matter of individual initiative, thus the percentages mentioned above probably underestimate the extent to which civilian physicians saw patients with malaria.

The number of imported civilian cases continued to increase in 1978 (Fig. 2). This trend has been evident for the last 10 years, but was masked by the large number of military cases during the Vietnam War years. The one-

Figure 2. Cases of malaria in U.S. civilians and foreigners, United States, 1970-1978.



quarter increase in the United States and foreign civilian cases between 1977 and 1978 brought the number to 585. However, the percentage distribution of cases, by purpose of travel in malarious areas, has shown no appreciable change in the past 10 years.

The 1978 data show that, of the American and foreign civilians who acquired malaria, most were students and teachers (23.7 per cent), but tourists (9 per cent) and businessmen (7.4 per cent) also accounted for a significant proportion of cases.

The distribution of cases by age and sex shows that, as in earlier years, males between 20 and 29 years of age accounted for the largest number of cases.

(Based on *Malaria Surveillance Annual Summary 1978*, Center for Disease Control, Atlanta, Georgia. Published in August 1979.)

Outbreak of Meningococcal Meningitis in Osorno, Chile

In mid-July 1979, an epidemic outbreak of meningococcal meningitis occurred in the city of Osorno and peaked in the following month. Following a mass vaccination campaign carried out in mid-August, the outbreak was brought under control (see Figure). A total of 39 cases was reported, which represents a rate of 21.7 per 100,000 inhabitants, compared with a rate of 1.1 per 100,000 recorded in nonepidemic years.

The age groups most affected were unweaned and school age children (Table 1).

Most of the cases occurred in the suburb of Rahue Alto in the city of Osorno. In the remainder of the Province of Osorno,* which consists mostly of rural areas, only 7 cases occurred, which represents a rate of 3.9 per 100,000 inhabitants.

Of the 39 cases recorded in the Province of Osorno, 31 were confirmed bacteriologically by culture, and typing showed that all were due to strain A. In 6 cases, the diagnosis was made by Gram staining of cerebro-

*In Chile, the Province of Osorno must be distinguished from the provincial capital of Osorno.

Table 1. Distribution of meningococcal meningitis cases by age-group, Osorno, Chile, 1979.

Age (in years)	No. of cases	%
0-1	11	28.2
2-5	5	12.8
6-10	8	20.5
11-15	4	10.3
20 and over	9	23.1
Not recorded	2	5.1
Total	39	100.0

Table 2. Mass meningococcal vaccination, Osorno, Chile, August 1979.

Area	<5 years	6-18 years	Total	Program %
Urban	10,856	44,964	55,820	98
Rural	6,903	21,297	28,200	92
Total	17,759	66,261	84,020	96

spinal fluid; in 2, it was based on clinical symptoms.

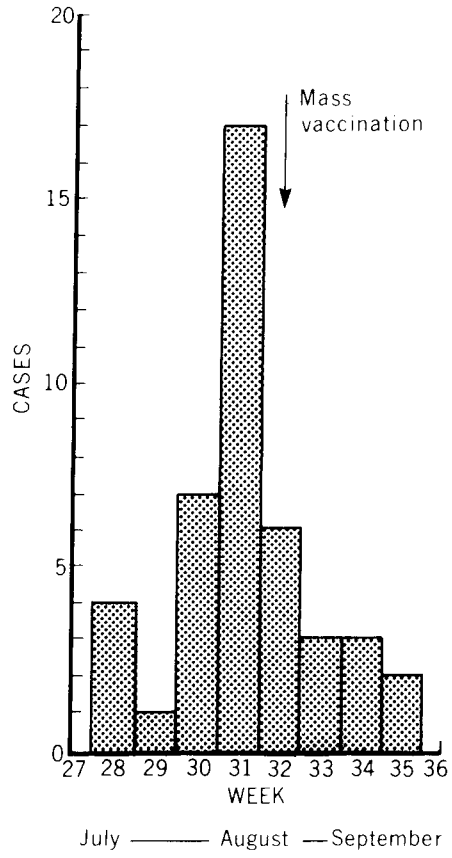
Of the strains isolated, 57 per cent proved resistant to the sulfonamide.

The case fatality rate was 15.4, and almost all the deaths (5 out of 6) occurred in children under 2 years of age.

Mass vaccination was carried out for a period of three days (14, 15, and 16 August) among the total population aged 2-18 years of the Province; polyvalent meningococcal vaccine A and C prepared by the Merieux Institute was used.

Furthermore, all direct contacts of the cases were treated for 4 days with rifampin, adults receiving 600 mg daily, 5-12 year-old children 300 mg daily, and those younger than 5 years of age 20 mg daily per kg of body weight.

Weekly incidence of meningococcal meningitis, Osorno, Chile, 1979.



Epidemiological surveillance subsequent to the vaccination campaign made it possible to confirm 8 additional cases in the following weeks, but no further cases were detected thereafter.

(*Source:* Government of Chile, Ministry of Public Health, *Vigilancia de enfermedades transmisibles y zoonosis* 6 (10), October, 1979.)

Vitamin D Intoxication in Venezuela

In June 1979, two rural families in Carabobo State shared a 5-liter drum of oil containing 2 million IU of vitamin D_3 per gram.

In the course of 6 weeks, 16 persons consumed food prepared with this oil. At the end of approximately 1 month, the first symptoms appeared: vomiting, anorexia, progressive loss of weight (an average of 16 kg), irritation of eyes, dizziness, and, in some cases, a sharp pain in the lower extremities. Of the 4 children involved, 2 were unable to walk, one had difficulty in

moving the upper right arm, and another had facial paralysis.

The examinations made showed hypercalcemia in all of them, and X-ray photographs showed raising of the periosteum in the patella of a 7 year-old child.

The 16 cases were hospitalized in Valencia, and treatment consisted in isolation from sunlight, a milkless diet, corticoids, and diuretics.

On 29 August a 6-year-old girl died. The autopsy showed marked acute bilateral pulmonary edema with bilateral bronchopneumonic foci, increased compactness of the lungs, moderately enlarged liver with mild jaundice, moderately enlarged spleen, hard pancreas with calcified foci, large and hard kidneys, and right fibula with thickening of the periosteum. Microscopic examination confirmed the calcification of kidney tissues and of the spleen.

This was the only fatal case, but there were 9 cases with liver/kidney insufficiency and generalized calcinosis.

(*Source:* Government of Venezuela, Ministry of Health and Social Welfare, *Boletín Epidemiológico Semanal*, Nos. 30 and 47, 1979.)

Brucellosis Outbreak in Alberta, Canada

In 1977, eight cases of brucellosis were reported among workers in a meat packing plant in Alberta Province, Canada. Between May and November 1978, six cases of the disease, in which an occupational risk was indicated, were notified to the Alberta Workers' Health, Safety, and Compensation, the social security institution of the province. This led to an epidemiological investigation in which local, provincial, and federal agencies actively collaborated, as did the management and workers of the meat-packing plant.

To determine the presence of *Brucella* antibodies, 193 workers were examined; 17 of them (8.8 per cent) were found to be seropositive. Of the latter 17, 14 had been employed at the plant for 5 years or less. The risk of infection was six times greater for workers who did not wear glasses than for those who did. It was estimated that the daily slaughter of 20-25 head of cattle that were reactors to brucellosis was the critical limit, above which the risk of human infection increased. This fact was associated with the outbreak of brucellosis in the plant.

(*Source: Canada Diseases Weekly Report*, 2 February 1980.)

Current Progress in Tuberculosis Chemotherapy*

Bacteriologic Bases of Short-course Chemotherapy

The purpose of tuberculosis chemotherapy is to sterilize lesions quickly and completely, and the drugs are used to avoid the failures caused by bacterial resistance and to avert relapses.

Despite the high proportion of mutants resistant to drugs among wild strains of tubercle bacilli, selection of resistant bacilli is easily avoided by appropriate combinations of active drugs, that is, drugs to which the bacilli are sensitive.

*Extract of the conclusions of the III Regional Seminar on Tuberculosis Chemotherapy, PAHO, Washington, D.C., 27-30 March 1979.

On the large populations of bacilli actively multiplying at neutral pH on the walls of pulmonary caverns the effect of streptomycin, isoniazid, and rifampin is bactericidal; ethambutol and PAS are bacteriostatic; and pyrazinamide is inactive. The most active drug against the small bacterial population that multiplies slowly inside macrophages in an acid medium is pyrazinamide followed by isoniazid plus rifampin. Streptomycin, like any other aminoglycoside antibiotic, is inactive in acid media.

In solid caseous lesions produced by persistent bacilli that multiply intermittently, only rifampin is bactericidal, all other drugs being inactive.

Consequently, from the bacteriological standpoint, the isoniazid-rifampin combination, which is bactericidal for all these bacterial populations, constitutes the basis for short-course chemotherapy. To enhance the effectiveness of this combination and to avert the consequences of primary and acquired resistance, it is advisable to add one or two supplementary drugs in the initial, intensive phase of treatment.

Effectiveness of Short-course Chemotherapy

From the many studies and controlled clinical trials carried out in the last 10 years in different parts of the world, a few conclusions may be drawn on which there is consensus:

a) The rifampin-isoniazid association is essential in short-course tuberculosis chemotherapy.

b) Streptomycin and pyrazinamide contribute to the success of short-course chemotherapy as supplementary drugs in the initial phase and in therapeutic regimens resorted to when rifampin is unavailable.

c) For patients with bacteriologically confirmed tuberculosis the short-course regimens must last 6–9 months in order to assure 100 per cent effectiveness.

d) It is essential that the initial phase of the short-course chemotherapy be intensive and that the drugs be administered daily.

Adverse Reactions to, and Toxicity of, Antituberculosis Drugs

Though antituberculosis drugs are, on the whole, well tolerated, they can cause adverse effects. However, the number of cases in which treatment has to be discontinued permanently is usually lower than 3 per cent.

Operational Aspects

The supply and distribution system must be so organized as to assure a timely and uninterrupted supply of drugs for application of the therapeutic regimens chosen. Governments must guarantee supply of the drugs free of charge. In view of the economic advantages of centralized drug procurement, establishment of a regional revolving fund, through an international agency, to obtain antituberculosis drugs, is recommended.

Training and Supervision of Health Personnel

The introduction of new chemotherapeutic regimens make it necessary to retrain and upgrade personnel. To maintain the quality and productivity of the program, continuous supervision is essential at the central, regional, and local levels.

Venezuelan Center for the Classification of Diseases (CEVECE)

The Venezuelan Center for the Classification of Diseases (CEVECE), formerly known as the Latin American Center for the Classification of Diseases (CLACE), will serve as the WHO center for this activity in the Spanish language and will have its headquarters in Caracas. This change derives from the fact that there already exists in Latin America another center with the same name: the WHO Center for the Classification of Diseases in Portuguese, with headquarters in São Paulo, Brazil.

In August 1979, PAHO and the Government of Venezuela, desirous of giving greater emphasis to the work of the Center, signed a new agreement under which the Government of Venezuela would substantially increase

the resources of the Center to enable it to provide greater support to Spanish-speaking countries, in accordance with the principles of technical cooperation among developing countries (TCDC). To achieve this objective, it will serve as a reference center in close collaboration with the other two WHO centers of the Region—the one in São Paulo and the other in Washington, D.C.—as well as with the WHO Unit for the International Classification of Diseases.

In coordination with PAHO, the Center will assume responsibility for all activities connected with the International Classification of Diseases (ICD) in the Spanish language in Latin America. Foremost among these are the development of human resources through national continuing education courses held at the request of the countries and international courses on coding: the teaching of the ICD in schools of medicine and public health; the preparation of teaching materials for the countries; cooperation in the application of the Ninth Revision of the ICD in the countries and its evaluation; the testing of a system of health reporting by non-medical personnel, of the perinatal certificate, and of the classification of diseases and disabilities; research on the medical terminology of death certificates in Spanish-speaking countries; and preparation, publication, and distribution of a quarterly bulletin.

Courses in Epidemiology and Disease Control, Latin America and the Caribbean, 1980.

Country	Institution	Course title	Admission requirements	Length	Commencement date
Argentina	National Institute of Tuberculosis, Santa Fe	Tuberculosis epidemiology and control	Physician, nurses, laboratory workers	7 weeks	19 September
	Institute of Epidemiology, Mar del Plata	Introduction to syphilis epidemiology	Physicians, nurses, laboratory workers	1 week	11 March
	Institute of Epidemiology, Mar del Plata	Epidemiology	Physicians, nurses, laboratory workers	2 months	15 July
	Institute of Epidemiology, Mar del Plata	Epidemiology and investigation of contacts in sexually transmitted diseases	Technical personnel	3 weeks	30 September
	National University of Córdoba	Epidemiology	Physicians, nurses, laboratory workers, and other health professionals	1 month	4 September
Brazil	Oswaldo Cruz Foundation, National School of Public Health, Rio de Janeiro	Advanced course in epidemiology	Physicians, nurses, laboratory workers, and other health professionals	18 weeks	15 August
	School of Hygiene and Public Health, University of São Paulo	Epidemiology and entomology	Physicians, nurses, laboratory workers, and other health professionals	—	—
Chile	National Institute of Pulmonary Diseases and Thoracic Surgery, Santiago	National course in tuberculosis epidemiology and control	Physicians, nurses, laboratory workers	4 weeks	6 November
	School of Medicine, University of Chile, Santiago	Seminar on clinical epidemiology	Health professionals	2 weeks	10 July
Colombia	University of Antioquia, Medellín	Epidemiological surveillance and disease control	Professional personnel working in health services or teaching	8 weeks	11 June
	University of Antioquia, Medellín	Special course in epidemiology	Master's degree in health planning	5 months	30 June
	University of Antioquia, Medellín	Epidemiological surveillance in nosocomial infections	Health professionals	2 weeks	—
	University of Antioquia, Medellín	Residency in epidemiology	Master's degree in health planning	9 months	2 February

Courses in Epidemiology and Disease Control, Latin America and the Caribbean, 1980. (cont.)

Country	Institution	Course title	Admission requirements	Length	Commencement date
Cuba	Institute of Health Development, Ministry of Public Health, Havana	Specialization in epidemiology	Physicians, dentists	30 months	1 September
	Institute of Health Development, Ministry of Public Health, Havana	Administration of tuberculosis control programs	Physicians, nurses, laboratory workers	5 weeks	8 October
Mexico	School of Public Health, Mexico City	Specialization in advanced epidemiology	Master's degree in hospital administration or health planning	10 months	12 Feburary
	School of Public Health, Mexico City	Public health with emphasis on parasitic diseases	Physicians	10 months	12 February
Trinidad and Tobago	Caribbean Epidemiology Center (CAREC)	Epidemic investigation and surveillance	Nurses, public health inspectors	1 month	4 September
Venezuela	School of Public Health, Central Univesity of Venezuela	Epidemiological surveillance and disease control	Physicians	4 months	16 July
	School of Medicine, Central University of Venezuela	Epidemiology	Physicians	7 months	—
	School of Medicine, Central University of Venezuela	Epidemiology of sexually transmitted diseases	Physicians	11 months	—

Reports on Meetings and Seminars

First Caribbean Workshop on Tuberculosis

This workshop was held at the Caribbean Epidemiology Center (CAREC) in Port-of-Spain, Trinidad and Tobago, from 15 to 19 October 1979. It was attended by selected epidemiologists and health coordinators from Antigua, Bahamas, Barbados, Grenada, Guyana, Jamaica, Suriname, and Trinidad and Tobago.

In the first part of the workshop, which was devoted to presentations and discussions of technical and epidemiological aspects of the disease, Drs. Lawrence Farer (Center for Disease Control, Atlanta, Georgia, USA), Fabio Luelmo and Jean Halet (PAHO/WHO), and David Basset (CAREC) took part. In the second part, the strategy to be followed for improving control of the disease in the region was discussed at group meetings. In the countries represented—and, in general, in the English-speaking Caribbean—the prevalence of tuberculosis is low, the risk of infection being 0.1-0.3 per cent annually. With the exception of occasional epidemic foci, most of those affected are adults. The downward trend of the disease is not very pronounced (it is estimated at 5 per cent annually), however, and it is to be expected that it would reach at least 10 per cent if proper use were made of the resources available. In addition, a reorganization of the control program could substantially improve the care provided to patients without increasing—and perhaps even reducing—the work load of the health services.

In countries in this epidemiological situation, the goal of eradication of the disease (incidence of cases lower than 1 per 100,000 inhabitants approximately) in one generation is not an impossible task. The recommendations of the workshop, which emphasized the advisability of adopting a subregional strategy, are summarized below:

The participants agreed on the following:

Conclusions

1. The development of a uniform strategy for tuberculosis surveillance and control in the countries of the Caribbean.
2. The adoption of control measures with maximum

epidemiological coverage, in accordance with the magnitude of the problem, in each country in the Caribbean area.

3. The execution of control programs integrated into existing health services.

4. The assignment, in all health services, of the highest priority to the detection and treatment of sources of infection.

5. The extension of sputum examinations to ambulatory patients in order to facilitate case detection.

6. Identification, at the national level, of groups of professionals responsible for providing advice on the planning, organization, and evaluation of tuberculosis programs in the countries.

7. Participation of PAHO and CAREC in the coordination of training, surveillance, and evaluation of programs in the countries.

Seminar on Legionnaires' Disease

This seminar, held in Caracas from 12 to 16 November 1979, was financed by PAHO and provided with technical and educational collaboration by the Center for Disease Control (CDC) of the United States. Its purpose was to inform selected professionals (epidemiologists, heads of laboratory, professors of pneumology or clinical medicine, and heads of respiratory disease programs) about advances in knowledge of *Legionella pneumophila* and its pathology as well as to encourage research on this bacteriosis in the Region. Participants represented a number of countries in the Americas: Argentina, Brazil, Colombia, Costa Rica, Cuba, Dominican Republic, Mexico, Panama, Peru, Uruguay, and Venezuela.

The Seminar closed with a general review of the discussions, and each country presented a short program of planned activities for the coming year. The principal topics discussed were as follows:

a) Dissemination of the advances made in this field among interested professionals by means of epidemiological bulletins and meetings at the national level.

b) Development of diagnostic techniques in laboratories, priorities being serologic diagnosis (immunofluorescence), direct examination, and culture in appropriate media. The need was emphasized of simultaneously encouraging the study of other pneumonia agents by systematically using direct examination with Gram staining.

c) Research on the prevalence of Legionnaires' disease among cases of pneumonia (especially atypical pneumonia) and study of autopsy specimens from patients that had died of pneumonia of unknown etiology.

It was agreed that all technical consultations should be addressed to the CDC experts, according to their speciality, and that requests for reagents or the presentation of research projects should be channeled through PAHO (specifically, through the Regional Adviser in Tuberculosis and Respiratory Diseases) in order to coordinate the activities of the countries. Reagents could be dispatched directly by CDC or, should customs difficulties arise, through PAHO. In the latter case, the applicant should get into touch with the PAHO/WHO office in the country concerned.

Calendar of Meetings

Meeting of the Subcommittee for Research on Diarrheal Diseases of the PAHO Advisory Committee on Medical Research.
Panama City, Panama, 27-28 March 1980

The Subcommittee will meet to make suggestions on the establishment of a research program on diarrheal diseases in the Region.

Regional Seminar on Acute Respiratory Diseases.
Rio de Janeiro, Brazil, 12-13 April 1980

The WHO program in the field of acute respiratory disease (ARD) will be presented at this seminar. There will be a general discussion of the organization of the ARD control program, in which emphasis will be placed

on bacterial pneumonias, the epidemiology of respiratory diseases caused by bacteria and of those caused by viruses in children, and the ARD control program in Brazil.

Meeting on Yellow Fever.
Belem, Brazil, 18-22 April 1980

The purpose of the meeting is to analyze present knowledge about the yellow fever virus, its epidemiology, and the diagnostic techniques and control measures currently available. In addition, it will prepare recommendations to be submitted to the Director of the Pan American Sanitary Bureau on essential aspects of laboratory and field research, as well as the changes that should be introduced into the present program for the surveillance and control of the disease.

Meeting on Material for the Teaching of Epidemiology and the Expanded Program on Immunization.
Washington, D.C., 21-25 April 1980

This will be a consultative meeting and will be attended by representatives of schools of public health, who will discuss training methods for the teaching of epidemiology and the Expanded Program on Immunization.

PAN AMERICAN HEALTH ORGANIZATION
Pan American Sanitary Bureau, Regional Office of the
WORLD HEALTH ORGANIZATION
525 Twenty-third Street, N.W.
Washington, D.C. 20037, U.S.A.