

which was due in part to a considerable improvement in the situation in Burundi, Rwanda, the United Republic of Tanzania, and Zambia. Cholera reappeared in the Ivory Coast, which had been free of the disease since 1971, and there was a large outbreak in 1979 in Mozambique, which had not been affected since 1977. In addition, four countries (Upper Volta, Benin, Malawi, and Togo), which had reported cases in 1978, did not report any in 1979.

The *Americas* remained free of cholera in 1979, except for one imported case in the United States of America.

In *Asia* the total number of cases fell from 50,765 in 1978 to 34,842 in 1979. All together, 20 countries and areas reported cholera, the same number as in 1978. Of those that had reported cholera in 1978, three (Iraq, Macao, and Maldives) were free of the disease in 1979. Jordan, the Syrian Arab Republic, and Vietnam, which

had not reported cases in 1978, were again infected in 1979. Although in most of the countries, in particular India, there was a substantial reduction in the number of cases, considerable increases occurred in the Philippines, Indonesia, Iran, and the Democratic Yemen.

In *Europe* a total of 289 cases was reported in 1979. The disease reappeared in southern Europe, eight cases occurring in Italy (Cagliari) and 267 in Spain. Another three European countries reported imported cases.

In *Oceania*, the small number of cases that occurred in late 1978 in Nauru was brought under control in early 1979 and, despite close surveillance, no new cases were detected.

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## Primary Resistance to Antituberculosis Drugs in Chile, 1978

The Tuberculosis Department of Chile's Bacteriology Institute, in its capacity as national reference laboratory in its field, contributes to epidemiologic surveys and periodically determines the primary resistance of *Mycobacterium tuberculosis* to the first-line antibacterial drugs.

In 1978, a total of 1,694 patients with recently diagnosed tuberculosis who had not been treated were subjected to sensitivity tests; 810 cases had been diagnosed in the metropolitan area and 884 in various health regions of the country.

The data on sensitivity and resistance to the standard

Table 1. Primary resistance in 1,694 strains of *M. tuberculosis*, Chile, 1978.

Results of sensitivity tests	Metropolitan Zone		Health regions		Total	
	No.	%	No.	%	No.	%
Sensitive	731	90.3	800	90.5	1,531	90.4
R EM	27	3.3	38	4.3	65	3.8
R INH	23	2.8	22	2.5	45	2.7
R EM+INH	29	3.6	21	2.4	50	2.95
R EM+PAS	—	—	1	0.1	1	0.05
R EM+INH+Tb <sub>1</sub>	—	—	2	0.2	2	0.10
No. of strains studied	810	100.0	884	100.0	1,694	100.0
Total resistant strains	79	9.7	84	9.5	163	9.6

R = Resistant

EM = Streptomycin

INH = Isoniazid

PAS = Para-aminosalicylic acid

Tb<sub>1</sub> = Thiacetazone

**Table 2. Evolution of primary resistance in Chile.**  
(In percentages)

	1963-1964	1965-1966	1967-1968	1969	1970	1971	1975	1976	1978
Sensitive strains	80.1	85.1	86.4	88.6	87.2	88.6	89.9	88.3	90.4
Total resistant strains	19.9	14.9	13.6	13.4	12.8	11.4	10.1	11.7	9.6
No. of strains studied	176	403	358	356	451	1,352	1,206	925	1,694

first-line drugs (streptomycin, isoniazid-para-aminosalicylic acid, and thiacetazone) are shown in Table 1.

According to the results indicated above, no strains were found that were resistant only to PAS or to TB<sub>1</sub>; nor was resistance detected to combinations of drugs other than those reported in Table 1.

Two strains were resistant to INH+PAS+TB<sub>1</sub>, and four to the other four drugs (EM+INH+PAS+TB<sub>1</sub>), but all were strains of atypical mycobacteria.

The figures for resistance ranged from 7.7 to 13.8 per cent in the various health regions and areas studied; however, it is important to note that these lower and upper limits corresponded in general to regions or areas from which a relatively small number of samples were analyzed. In areas from which the number of samples analyzed was 100 or more, the percentages of resistance were very close to the national average.

Moreover, it should be pointed out that there was no difference in the total percentage of resistance between the metropolitan region and the health regions, in contrast with the findings in earlier years in which the figures for the health regions were higher.

However, the analysis of the resistance data is only of relative importance if the figures refer only to a given time, in this case 1978. Comparison of the figures for a number of years, as in Table 2, has much greater value.

The data in Table 2 support the following observations:

1. The percentage in 1978 was the lowest in the history of primary resistance in Chile.
2. Reduction of this proportion from the 1976 level was based essentially on the use of streptomycin and the combination EM-INH.
3. The reduction in 1978 would confirm the suggested hypothesis that the increase in 1976 was in keeping with normal fluctuations within this pattern of evolution, since the consistent downward trend from the first year of the graph is reversed in 1978.

(Source: *Vigilancia de enfermedades transmisibles y zoonosis* 6(4):1979. Ministry of Health of Chile.)

## Pan American Center for Human Ecology and Health

The Pan American Center for Human Ecology and Health (ECO) was officially established in Mexico in September 1975, under an agreement between PAHO and the Government of Mexico. It is a regional technical center of the Organization and comes under the Division of Environmental Health Protection. Its new headquarters have just been inaugurated in Metepec, about 80 km west of the Mexican capital.

The establishment of ECO was due to recent breakthroughs in knowledge and technology and the possibility

of multidisciplinary intersectoral collaboration. The interaction of man with his physical and social environment and its repercussion on his health are the focus of the Center's technical program.

Multidisciplinary groups trained by the Center cooperate with the countries in developing and using local resources for making comprehensive ecological evaluations of health problems.

In addition, the ECO staff cooperates with governments and teaching institutions in preparing and con-