acute respiratory infections. The WHO/UNICEF Joint Program in Nutrition (funded by the Italian Government) also will contribute to activities promoting maternal nutrition and infant and young child feeding. (Besides supporting regional activities, these funding agencies are also supporting various projects at the national level.)

Regarding PAHO's national-level activities, PAHO country representatives and their staffs, supported by program experts from headquarters, work with country officials to strengthen national health policies and programs, promote intersectoral coordination, and help build the national capability to provide efficient and effective maternal and child health services. Some examples of their work are as follows:

- In the area of diarrheal disease control, PAHO has helped to introduce and promote widespread use of oral rehydration therapy (ORT) in 16 countries of Latin America and the Caribbean. (ORT is a very cheap and relatively simple technique that can save the lives of millions of infants and children suffering from severe diarrhea.) At the same time, PAHO is helping countries to develop programs that will tend to prevent these diseases through improved nutrition and sanitary practices.
- Regarding immunization, PAHO has developed a method that helps countries to study their immunization programs, identify the strengths and weaknesses in their current practices, and introduce changes that will assure better vaccination coverage. (A team of PAHO experts and their national counterparts visit the actual sites where immunizations are given to study the immunization programs in action.)
- In many countries of Latin America and the Caribbean, PAHO administers funds from the United Nations Fund for Population Activities and other sources to assist countries in making family planning services available to those who need them most urgently, in ways that are socially and culturally acceptable.
- Active programs to control acute respiratory diseases are now underway in four countries of Latin America—Brazil, Guatemala, Honduras, and Panama.

As already noted, PAHO's maternal and child health program is concerned with the health problems of more than 200 million people in the Americas. It is expected that this program will achieve a measure of success and will help many women and children to live longer and more productive lives. PAHO's long-range goal, which is shared with the Member Governments, is to see that reproduction, growth, and development take place under the best possible biological, psychological, and social circumstances. For although many of PAHO's numerous projects are addressed specifically to issues of child survival, the Organization is concerned not only with reducing morbidity and mortality but with improving the quality of life.

Source: Pan American Health Organization, *PAHO in Action: Newsletter of the Pan American Health Organization* 1(1):2-3, 1984.

THE EPIDEMIOLOGY OF TUBERCULOSIS IN CHILE

Morbidity

In order to follow the trend of a disease in a community, it is extremely useful to know its prevalence in children. In Chile it is not possible to obtain this information about tuberculosis, since BCG vaccination coverage of children under 14 years of age is greater than 90%, thus preventing tuberculin test surveys to determine these indications.

However, tuberculosis morbidity has been recorded in Chile since 1971, when notification became compulsory (Table 1). Of the total cases notified in 1982, 77.5% were cases of pulmonary tuberculosis and 22.5% were extrapulmonary ones. Eighty-six per cent of the pulmonary tuberculosis cases and 71.7% of the extrapulmonary cases were confirmed bacteriologically.

Only 6% of the cases were in subjects under 15 years of age. The morbidity rates seem to be

Table 1. Tuberculosis (all types): numbers of cases and deaths, and rates per 100,000 population in Chile, 1971-1983.

Year	Tuberculosis morbidity						Tuberculosis mortality					
	All ages		0-14 years		≥15 years		All ages		0-14 years		≥15 years	
	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate
1971	8,216	86.2	1,936	54.0	6,280	105.6	2,275	23.9	99	2.8	2,176	36.6
1972	8,582	88.5	839	23.4	7,743	126.8	2,396	24.7	111	3.1	2,285	37.4
1973	8,528	86.5	609	17.0	7,919	126.3	2,048	20.8	77	2.1	1,971	31.4
1974	8,258	82.4	660	18.4	7,598	118.1	1,952	19.5	67	1.9	1,885	29.3
1975	8,289	81.3	620	17.3	7,569	114.6	1,930	18.9	63	1.8	1,867	28.3
1976	9,462	91.2	564	15.7	8,918	131.6	1,996	19.2	51	1.4	1,945	28.7
1977	9,312	88.3	575	16.0	8,737	125.5	1,944	18.4	55	1.5	1,889	27.2
1978	8,257	76.9	474	13.2	7,785	109.1	1,715	16.0	38	1.1	1,677	23.5
1979	8,105	74.2	518	14.4	7,587	103.7	1,678	15.4	27	0.8	1,651	22.6
1980	8,523	76.8	659	18.2	7,864	105.0	1,355	12.2	32	0.9	1,323	17.7
1981	7,337	65.0	596	16.4	6,741	88.0	1,067	9.4	16	0.4	1,051	13.7
1982	6,941	60.4	420	11.5	6,521	83.3	984	8.6	17	0.5	967	14.4
1983							950	8.1	13	0.4	937	11.7

falling very slowly, but it should be borne in mind that the efficiency of the notification system increased in the early years, and so more hidden cases were detected.

At the same time, case-finding improved. For both of these reasons, morbidity is not a very reliable indicator—because of its tendency to mirror the impact of the control program. Nevertheless, the figures do show a downward trend, with a 3% average annual decrease during the last five years (1978-1982).

Mortality

Tuberculosis mortality has been recorded in Chile since 1903. The downward trend shown in Table 1 has been slower than might have been expected with a satisfactory control program.

Over the period 1974-1983 there was a 50.3% drop in the number of deaths from tuberculosis. Nevertheless, the rate of decline could be accelerated by improving program coverage. In 1983 the disease ranked twelfth among causes of death in Chile, accounting for 1.3% of all deaths. In that same year 950 persons died from tuberculosis and 636 from all other "infectious, contagious, and parasitic" diseases excluding septicemia and diarrhea.

The Tuberculosis Control Program

BCG Immunization

In accordance with the technical guidelines of the program, over 90% of the children under 15 years of age are covered by BCG immunization. This coverage was achieved through immunization of 91% of all newborn infants, 83.1% of all children in their first year of school, and 98% of those in their final year. Surveys of schoolchildren have indicated the presence of an immunization scar on 90% of those surveyed. The third dose of BCG (administered in the final year of school) was dropped in 1983.

Case-finding

There are 124 type III laboratories in Chile which carry out bacilloscopies only, 44 type II laboratories which prepare cultures, and three type I laboratories which also carry out susceptibility studies. Together, these laboratories cover 95% of the country's total area.

The demand for bacilloscopies is met completely, and any new requirements which may result from promoting case-finding can easily be absorbed by these laboratories.

In 1975 a national average of 47 bacilloscopies were performed per 1,000 consultations, the corresponding figures for 1978 and 1983 being 48.7 and 47.2 per 1,000, respectively. Susceptibility studies carried out in Chile, mainly for epidemiologic purposes, have shown that primary resistance dropped from 12.8% in 1970 to 10.1% in 1975 and 7.9% in 1981. Similarly, secondary resistance has greatly decreased, from 48.5% in 1971 to 32.2% in 1975 and 28.2% in 1979.

Radiology as a case-finding method was not included in the guidelines of the tuberculosis control program initially, but was officially incorporated in 1983 for persons over 40 years of age with respiratory symptoms, since they run a greater risk of dying from tuberculosis than do the lower age groups. The results obtained with this method will be evaluated in coming years.

Treatment

Since 1975, treatment has been evaluated on the basis of cohorts of patients diagnosed and followed up until final discharge. Abandonment of treatment has dropped from 25% to 12%, and the number of patients discharged as inactive cases has risen from 55% to 70%. Introduction of the shortened rifampicin treatment has led to a drop in the case-fatality rate from 6% to 3%.

More than 80% of the cases currently receive full follow-up outpatient treatment; less than 20% of the patients commence their treatment with a short period of hospitalization.

Source: Chile, Ministerio de Salud, *Boletín de vigilancia epidemiológica* 11(8), 1984; and World Health Organization, *Weekly Epidemiological Record* 60(9):66-67, 1985.

MEASLES SURVEILLANCE IN PANAMA

Measles in the Republic of Panama occurs in a pattern that makes it possible to predict epidemics every two or three years, especially between November and March. Specifically, on the basis of data obtained from monitoring the December 1981-March 1982 epidemic in Panama, it was predicted that the last trimester of 1984 would be a high-risk period for measles.

Because of this finding, vaccination and surveillance activities were intensified at the local and regional levels, and individual case investigations were conducted to determine people's previous vaccination status and to help ensure the vaccination of all susceptible children.

During the course of these case investigations, cases of measles were defined using the clinical criteria proposed by the United States Centers for Disease Control in Atlanta, these being (a) a fever of 38.3°C or more, (b) a generalized rash lasting three days or more, and (c) at least one of the following: coryza, conjunctivitis, or coughing.

Many suspected cases were found not to be measles cases on the basis of these criteria—especially suspected cases in infants under six months of age and in persons over six years of age.

As of October 1984, a total of 338 measles cases had been reported in the Republic of Panama. This represents a reduction of 36% compared with the same period in 1983.

During the last two years, the monthly number of reported cases in the country has remained below the median of reported cases from 1977 to 1983 (see Figure 1). This pattern can be attributed partly to the increase in vaccination coverage, which reached 71.6% of the children under one year of age during the first trimester of 1984. However, in order to reduce the likelihood of a measles epidemic in the future, it will be necessary to increase vaccination activities, especially for those under one year of age and preschoolers, until a coverage of over 90% is reached. (Health regions such as Panama City and San Blas in