

PAHO give support to the initiatives in Brazil, Chile, Cuba, the Central American countries, and the English-speaking Caribbean, as they represent valuable steps toward assessing the feasibility of measles elimination throughout the Western Hemisphere. These initiatives should be pursued within the context of

the overall PAHO policies on strengthening the health infrastructure and decentralizing services.

As lessons are learned and barriers are further identified and removed, PAHO should continuously reassess the feasibility and timing of a measles elimination goal for the Western Hemisphere.



## Control of Acute Respiratory Infections in the Americas

### MAGNITUDE OF THE PROBLEM

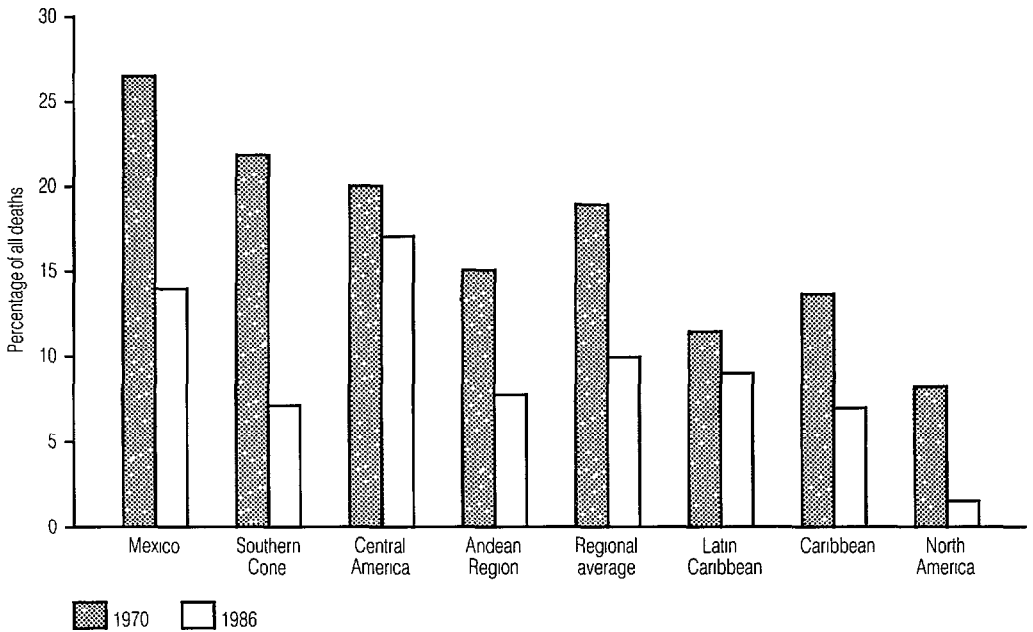
Acute respiratory infections (ARI) are now recognized as one of the principal health problems in children under five years old in developing countries. It is estimated that worldwide each year some 4 million children die from ARI, 80% to 90% from pneumonia. In the Region of the Americas, pneumonia mortality constitutes an important problem in children under five. Annually, more than 100,000 children under one and more than 40,000 children one to four years old die from this cause. Most of these deaths take place in the developing countries of the Region, with only 1% occurring in the industrialized countries of North America.

Pneumonia is responsible for 10% to 25% of all deaths among children under five in the developing countries of the Americas, while the proportion is only 1% to 3% in industrialized countries (Figure 1). It is among the three leading causes of death in children under one year in 18 countries, the fourth cause of death in five countries, and the fifth in three. Only in one country is pneumonia not one of

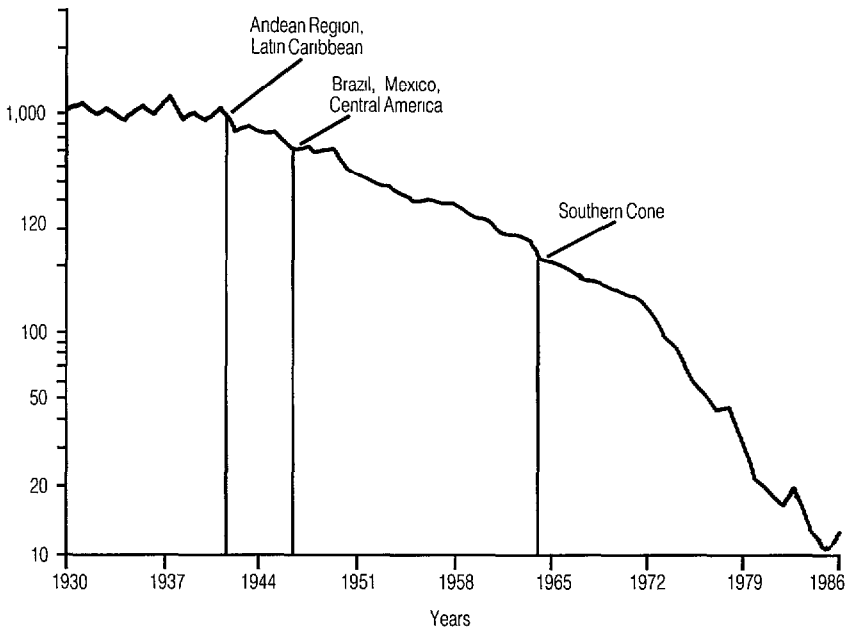
the five leading causes of infant death. Among children one to four years of age, pneumonia is the leading cause of death in one country, the second or third cause in 17 countries, and the fifth cause in two countries. There are only two countries where pneumonia is not among the leading causes of death in this age group.

The contrast in the magnitude of this problem between the developed and developing countries of the Region deepened in the 1980s. In 1987, some subregions of the Americas had pneumonia mortality rates similar to those in the United States and Canada almost 50 years ago (Figure 2). While the developed countries continued to reduce mortality by 13% to 16% in the 1980s, the reductions in the developing countries were much less: only seven countries achieved decreases of 10%, nine between 5% and 10%, and six less than 5%; in four countries the rates remained stable.

In addition to being one of the principal causes of death in children under five, ARI are the main cause of consultation at health services, representing 30% to 60% of total visits and 20% to 40% of



**Figure 1.** Proportion of deaths from pneumonia and influenza in children 1 to 4 years old, by subregion of the Americas, 1970 and 1986.



**Figure 2.** Comparison of mortality rates from pneumonia in subregions of the Americas in 1987 with mortality rates in North America (United States and Canada) since 1930.

pediatric hospitalizations. Thus, the countries are committing a large proportion of their health care resources to ARI cases. However, this high expenditure does not translate into a large impact on the problem for several reasons, especially inaccessibility of health services and deficient quality of care.

In the developing countries of the Region, an estimated 130 million people do not have access to health services. Lack of access means that many children with pneumonia do not receive the necessary care early enough, or that they die at home. In many countries, between 20% and 60% of deaths from pneumonia among children under five occur at home.

Even where geographic access to health services is adequate, the care given to cases of ARI is often not. This problem, which contributes to elevated mortality rates from pneumonia in developing countries, is also reflected in the high rates of complications, such as hypacusis and deafness or rheumatic fever, as a consequence of inadequate treatment of some acute infections of the upper respiratory tract (acute otitis media and streptococcal pharyngitis).

Problems pertaining to quality of care also are expressed in the excessive or inappropriate administration of antibiotics for treatment of ARI, which is associated with an increase in bacterial resistance, the risk of producing toxic side effects in the child, and an increase in the cost of treatment without any increased benefit. In addition, the inappropriate use of antibiotics exhausts the reserves of the health services, making these drugs unavailable when they are really needed. For this reason, many who suffer from pneumonia run a grave risk of dying for lack of timely access to effective antibiotics.

Malnutrition, low birth weight, lack of breast-feeding, lack of immunization, and contamination of household air (with smoke from cooking or parental cigarette

smoking) are frequent risk factors in the Region's developing countries which tend to increase the incidence and severity of ARI episodes in children.

## **REGIONAL PROGRAM FOR THE CONTROL OF ARI**

Because of the magnitude of the ARI problem among children in developing countries, in the late 1970s PAHO/WHO began a search for strategies to achieve four principal objectives:

1. Reduce mortality from pneumonia in children under five;
2. Reduce the inappropriate use of antibiotics and other medications in the treatment of ARI in children;
3. Reduce the severity and avoid complications of acute infections of the upper respiratory system in children (deafness subsequent to otitis media; rheumatic fever subsequent to streptococcal pharyngitis);
4. Reduce the complications of acute infections of the lower respiratory tract (pneumonia, bronchiolitis) through early diagnosis and effective treatment.

PAHO and the countries of the Americas played an important role in studying and investigating these strategies, since this Region was a pioneer in establishing activities to control ARI, beginning in Costa Rica in 1970 and Pará, Brazil, in 1980. The experiences of both countries were important in the analysis carried out by WHO in the late 1980s, which led to the design of control strategies.

At the beginning of the 1990s and as a result of studies and research by WHO, two main strategies have been defined to achieve the objectives for controlling ARI: standard case treatment for ARI in the primary health care services and first re-

ferral hospitals, and immunization against measles and whooping cough, which will prevent cases of pneumonia that occur as complications of these diseases.

Given that immunization is an activity specific to the Expanded Program on Immunization (EPI), the PAHO ARI control program proposed to concentrate its efforts on effective implementation of standard case treatment and to strengthen immunization coverage by supporting the regular activities of EPI in the countries.

As the principal objective of its activities, the PAHO ARI program has selected the reduction of pneumonia in children under five, in accordance with the goals of the World Summit for Children held in New York in 1990. Two additional objectives, as described above, concern reducing the inappropriate use of antibiotics and other medications in children with ARI and lessening the severity and complications of acute upper respiratory tract infections.

To achieve these objectives, the Regional Program has proposed the following lines of work:

- Assistance to the countries in preparing technical norms that are compatible with the PAHO/WHO proposed guidelines for ARI case management in primary health care establishments.
- Training of national and regional-level ARI control personnel in organizing control activities within the framework of comprehensive child health care.
- Support in preparing and designing plans of operation to implant the strategy of standard case management for ARI in the health services.
- Training of supervisors in implementing control activities at the health service level.
- Support and technical assistance in setting up ARI treatment training

units to accelerate the technical training of health service personnel in applying standard case management.

- Support and technical assistance in integrating instruction on ARI control into the training curricula of health personnel.
- Support and technical assistance in implementing the plans of operation and supervising the progress of this process.
- Establishment of a monitoring and evaluation system to analyze epidemiologic and operational information about ARI and their control in the countries of the Region.
- Development of operational research on ARI control.
- Preparation of documents and dissemination of technical information to broaden and update knowledge of this problem.

In addition to carrying out the above activities with the countries, the Regional Program for ARI Control has proposed establishing coordination and support mechanisms with international agencies of the United Nations system and other nongovernmental organizations (NGOs) to support the effective implementation of the plans of operation for ARI control in the countries of the Region. Also needed is coordination with other PAHO programs (such as Essential Drugs and Health Services Development) to contribute to the integration of the ARI component within the framework of primary health care and local health systems.

Several important advances have already been made along these lines. In 1991, an Interagency Coordinating Committee, with UNICEF and USAID, was set up for the ARI component. All the countries of the Region have now designated a focal point for the control of ARI and have adopted the PAHO/WHO

technical guidelines. Sixteen countries have prepared a plan of operation, 20 have profiled the problem in their country, and 20 already use PAHO training modules. In addition, 20 ARI treatment training units have been established in seven countries. By the end of 1991, 24 countries in the Americas, where 98.9% of the pneumonia deaths occur annually, had begun using the strategy of standard case management for ARI.

The preparation and distribution of documents relating to ARI control is also an important activity. The Program has produced eight modules for organizational courses, six modules on supervisory skills, one module for training of primary health care and hospital personnel, a series of technical documents for professionals on specific aspects of the standard case management strategy, a guide for the establishment of training units, posters on patient care for health personnel, one module for training of community health workers, and periodic bibliographic updates.

## PROSPECTS FOR THE FUTURE

In the next few years, it is hoped that the results of this work will be apparent through improvements in the indicators established by the program to evaluate progress toward the proposed objectives. For this purpose, an initial analysis of the magnitude of the acute respiratory infection problem, its trends, and advances achieved has been prepared.

Future activities will be directed along the following lines:

- Consolidating practical application of the standard case management strategy in primary health care services and first referral hospitals.
- Evaluating the progress of country programs, using as indicators the number of health services with programmed and standardized ARI activities, the quality of the service, and the trends in mortality by cause in children under five.
- Strengthening cooperation between international agencies and with other NGOs to support the countries in implementing the plans of operation.
- Establishing training activities with the instructors in pediatric departments of medical schools and nursing schools.
- Stimulating and supporting evaluation at the local health service level to measure the impact of the control activities.
- Encouraging and supporting the establishment of ARI treatment training units in referral hospitals.
- Strengthening health education and social communication activities, in coordination with training.
- Developing a process to evaluate the program's impact in the following areas: reduced mortality, diminished use of antibiotics in viral cases, and a changing profile of hospitalizations for ARI.

