
Abstracts and Reports



Plan to Eliminate Indigenous Transmission of Measles in the English-Speaking Caribbean Countries

Since the Expanded Program on Immunization (EPI) was launched in the Americas in 1977, the English-speaking Caribbean has experienced a steady reduction in the number of cases of those diseases for which immunizations are given. Poliomyelitis was last reported in the subregion in 1982. Incidences of diphtheria, pertussis (whooping cough), and tetanus have declined to the point that, even allowing for underreporting, it is possible to conclude that these EPI diseases are under control there.

Only measles presents a major challenge to the EPI effort in the subregion. It remains endemic in most of the 19 English-speaking Caribbean countries, which include Guyana and Suriname on continental South America and Belize in Central America. However, a steady decline in case numbers has been observed during the past decade. In 1982, the countries reported 8,897 cases; in 1988, the number had dropped to only 1,546 cases, with two countries reporting none

and nine other countries reporting less than 10.

Measles vaccine was introduced into the English-speaking Caribbean during the late 1970s. By 1982, all countries had incorporated measles vaccine into their EPI activities. Coverage with measles vaccine has increased annually since 1982 to an overall coverage rate of 71% of children in the target age group in 1988.

The impressive, rapid reduction in measles incidence resulting from increased vaccine coverage paved the way for the decision to eliminate indigenous transmission of measles in the subregion by 1995. The CARICOM Ministers Responsible for Health, meeting on 25 September 1988, unanimously resolved to include this goal as a project within the Caribbean Cooperation in Health initiative, and they requested PAHO to develop a Plan of Action to achieve it.

The vaccine of choice for measles elimination will be the combined measles-mumps-rubella (MMR) vaccine, currently employed in 11 of the 19 countries. Its use to prevent transmission of measles virus will give the English-speaking Caribbean countries the added benefits of eliminating both congenital rubella syndrome and mumps; both these diseases

Source: Pan American Health Organization, "Elimination of Indigenous Transmission of Measles in the English-speaking Caribbean Countries—Plan of Action," Washington, D.C., 31 August 1989.

cost a country more per year than the increased cost of the triple vaccine. PAHO strongly supports the decision of the countries to use MMR as the preferred vaccine for measles elimination and to incorporate the triple vaccine into the countries' routine EPI activities.

As has been the case in the effort to eradicate polio, activities related to the eradication of measles must be carried out within the context of the EPI. The proposed plan of action has three primary objectives:

- to promote the overall development of the Expanded Program on Immunization in the subregion in order to hasten the attainment of its goals;
- to eliminate indigenous transmission of measles in the English-speaking Caribbean countries by 1995; and
- to set up a surveillance system at subregional and national levels, so that all suspected cases will be investigated immediately and appropriate control measures implemented rapidly to stop transmission when importation from non-measles-free countries occurs.

To achieve the stated objectives, national political commitment will be required. In some cases, legislative action by Member Countries will be needed. For example, because many of the measles cases are now occurring in school-aged children, countries will be urged to pass legislation making complete vaccination with DPT, polio vaccine, and MMR mandatory for school entry. Sufficient national resources will have to be available and allocated for the effort. In addition, international commitment will be necessary to assist in the provision of resources, which will require coordination with international agencies at the subregional and country levels. Present EPI strategies will need to be intensified and adapted to this effort.

STRATEGIES AND TECHNICAL COMPONENTS OF THE PLAN OF ACTION

The components of the key strategies recommended for the elimination of indigenous measles virus transmission are outlined below.

Mobilization of Country Resources

Recognizing that resources within the ministries of health are limited, it will be crucial to mobilize other resources within the country to complement them. To this end, intersectoral coordination will be essential. The education and agriculture sectors, social security, and other organizations will play key roles. In addition, communities and community groups will be called on to add their resources and talents to the effort to eliminate measles. Private voluntary organizations, religious groups, and mass media organizations will also be tapped to assist in promotional activities, distribution of supplies, provision of personnel, and participation in vaccination activities. Technical cooperation between countries will be important at all stages, and particularly in the areas of outbreak investigation and control and laboratory support.

Vaccination Tactics

The most essential requirement of the strategy will be to achieve and maintain an immunization coverage among children of at least 95% with potent MMR vaccine. The primary target age group for routine immunization will be 12 to 15 months of age.

In addition to routine vaccination, special activities will be directed at interrupting transmission of the measles virus among older susceptibles, who are estimated to now represent only 5% of the total population of the countries. These

are individuals who have either never had measles and never been vaccinated, or in whom the vaccine failed. In order to assure vaccination of susceptibles, all individuals under 15 years of age will be vaccinated regardless of their history of vaccination or reported measles infection, a policy that takes into account prior deficiencies in the cold chain and the possibility of diagnostic errors.

A subregional "Measles Elimination Month" will be held in May 1991 to interrupt transmission in all the countries of the subregion simultaneously. The proposed scheduling of the month allows time to identify the needed additional funding and to develop the necessary communication strategies, training materials, and logistical systems. It also coincides with the celebration of "Child's Month" in many Caribbean countries. The mass media and professional advertising firms will be used to publicize the effort and to "sell" the concept of measles elimination and vaccination of older individuals. This campaign is expected to be a one-time endeavor, with efforts immediately reverting to a concentration on routine vaccination of children.

Logistical Support

Efficient vaccine distribution will be essential to the activities. To guarantee that immunization activities will not be interrupted, a stockpile of vaccines will be maintained in the Region in case of emergency. To this end, manufacturers will be requested to have 500,000 doses on hand at all times. PAHO will oversee the inventory of these emergency stocks and arrange distribution when needed. The countries are expected to order their vaccine supplies on a routine basis and should ensure that the vaccines used in the program meet WHO requirements.

Cold chain deficiencies will be identified and plans made to fix them. Cooper-

ation from donor agencies should include the procurement and maintenance of cold chain equipment. The countries will be encouraged to design cold chain systems that rely on low-maintenance equipment.

Training

PAHO will prepare a manual on the technical aspects of measles elimination for distribution to all the countries in the subregion. This manual will serve as the basis for the countries to produce their own manuals adapted to local circumstances. PAHO will provide technical assistance in adapting, producing, and distributing these manuals, as well as in planning and carrying out training courses as needed.

Epidemiologic Surveillance and Outbreak Control

In view of the relatively small number of cases being reported annually in the subregion, it is important that every suspected case be investigated immediately. One of the primary objectives of epidemiologic surveillance during the first two years of this effort will be to better define the epidemiology of measles, rubella, and mumps in the subregion.

For operational purposes, the following provisional definitions are proposed: A *suspected measles case* is any illness with a rash and fever. A *probable measles case* is an illness with a generalized maculopapular rash of more than two to three days duration, fever higher than 101°F, and cough, coryza, or conjunctivitis. A *confirmed measles case* meets the above definition for a probable case and is either epidemiologically linked to another confirmed or probable case or is serologically confirmed. Confirmed cases will also be classified as indigenous or imported. Cases following an importation will be

further identified by generation (primary, secondary, and so on).

Case Identification and Reporting

All potential sources of notification of suspected cases of measles will be contacted and incorporated into surveillance activities. Weekly calls to all acute care hospitals and outpatient facilities that might see acute cases will be part of the surveillance mechanism. Once suspected cases are identified, thorough community investigations to search for additional cases and determine routes of transmission will be conducted. Each country will send PAHO weekly reports of probable and confirmed cases of measles.

In many countries, measles is still considered to be a normal childhood occurrence. A mother who suspects measles may simply keep her child at home and not seek care from the health sector. The population must be educated about the importance of reporting the disease, and the mass media will be useful for this purpose. Families, neighbors, and school teachers will be encouraged to report suspected cases to the health sector as early as possible.

Since the private sector is an important provider of health care in many countries in the subregion, methods to incorporate it into public surveillance activities will be determined through operational research.

Outbreak Investigation and Control

For operational purposes, an outbreak is defined as the occurrence of one probable or confirmed case of measles. When an outbreak is identified, the ministry of health should make an official announcement alerting all health personnel and the general public, in order to increase public awareness of the need for immuni-

zation and the need to report all suspected cases promptly.

PAHO will assist by mobilizing investigation teams within 24 to 48 hours of a case notification. The team will investigate the outbreak, including its source, search for additional (secondary) cases, and implement control measures.

Proper containment actions should be taken to prevent the spread of measles. These include immunization of contacts and containment vaccination within a demarcated area (whose extent should be determined by an experienced epidemiologist or health worker) of all members of the target age group, even those with documentary proof of immunization or history of measles. It must be borne in mind that some children could be incubating the disease during containment vaccination. A health education message will have to communicate the fact that these children will not be protected from measles by being immunized at that time, so that health workers do not lose credibility.

In the event of an outbreak, all countries in the subregion will be notified immediately by PAHO Headquarters so that travelers' advisories can be issued.

Whether the case is indigenous or imported will be determined within 24 to 48 hours of notification. When a case has been imported from within the subregion, the country of origin will be notified and a team will be made available to assist in the investigation.

It is expected that surveillance activities related to measles elimination will be carried out in conjunction with the ongoing polio eradication activities in the countries.

Laboratory Support

A major component of surveillance activities will be laboratory confirmation of probable cases of measles. Upon identifi-

cation of a probable case, specimens will immediately be collected and sent to the nearest laboratory for serologic study. If a probable case is clinically and epidemiologically compatible with a diagnosis of measles, but serologic studies are either negative or inconclusive, original specimens will be sent to a reference laboratory for confirmation.

A subregional laboratory network will be developed, giving all the countries access to laboratory facilities for measles serology studies. The logistics of transport of specimens and distribution of supplies, such as standardized reagents, will be strengthened.

It is expected that the laboratories of the Caribbean Epidemiology Center (CAREC) in Trinidad and the University of the West Indies (UWI) in Jamaica will be certified as reference laboratories. A team of internationally recognized virologists, under the auspices of PAHO, will work with the CAREC and UWI laboratories to ensure standardization of the serologic work. The reference laboratories will aid those countries without laboratories, assist countries to develop in-country virology support, and confirm the results of the country laboratories. In addition to their work in surveillance, support from the reference laboratories will be required for potency testing of vaccines.

As part of the laboratory network development, a manual will be produced that covers testing procedures; specimen collection, shipping, and handling; quality control procedures; and data collection and processing. The manual will be ready by July 1990 and will be distributed to participating laboratories. Training workshops will be held for laboratory personnel starting in August 1990.

Information Dissemination

All issues of PAHO's *EPI Newsletter* and the *CAREC Surveillance Report* will con-

tain a section on measles that will include information on the current epidemiology of measles in the Region; the number of cases reported since the previous issue, by week of report and country; individual case studies of outbreaks and investigations; issues related to the elimination effort; and topics of interest in measles research. The countries will be encouraged to include a section on measles in their national epidemiologic bulletins. In addition, a weekly measles activity report bulletin will be prepared at PAHO Headquarters and distributed to all countries in the subregion, and PAHO will make available periodic literature reviews on measles.

Meetings of EPI program managers for the English-speaking Caribbean countries will be held as often as necessary to discuss progress made and problems encountered. Findings and recommendations of the meetings will be published and disseminated in the subregion.

Identification of Research Needs

The EPI Technical Advisory Group (TAG) will identify problems requiring research, as well as sources of funding, and will review protocols and results. Once areas have been identified, PAHO will facilitate the initiation of research. The participation of all Member Countries in addressing research needs will be encouraged.

One of the areas already targeted for research is the identification of additional population groups for catch-up vaccination after Measles Elimination Month. For this purpose, an age-specific serologic survey for measles antibodies will be conducted among the 16-29-year-olds in the subregion as a priority activity. If seroprevalence rates are found to be lower than 95%, consideration will be given to vaccinating this age group.

Evaluation

International observers will participate in all country evaluations, and reports of findings will be widely distributed. Coverage surveys may be performed in some countries. They will include questions on reasons for compliance and noncompliance, as well as knowledge, attitudes, and practices related to measles and its prevention. Results will help determine if any modification of strategies is needed. The laboratory network will also be evaluated periodically. This process will include the retesting of original specimens by the reference laboratories, and testing of reference specimens by the country laboratories.

ORGANIZATION AND ADMINISTRATION

The Regional EPI office will coordinate all activities related to the measles elimination effort. All reports and requests from the field for assistance will go through the EPI office, which will in turn arrange for assistance as needed from other PAHO units. Technical cooperation in all areas of program operations will be available through PAHO and its Member Countries.

The EPI Technical Advisory Group formed at the beginning of polio eradication activities in the Region of the Americas will assist in guiding the measles elimination activities. The TAG is presently composed of a core of six experts in the field of immunization and calls on additional experts as needed. The Group will be expanded by one member to assure Caribbean representation.

Similarly, the Interagency Coordinating Committee (ICC), consisting of all international agencies that currently have inputs in polio eradication activities, will assume the additional task of coordinating the effort toward measles elimination

in the subregion, and will be expanded to include any other agencies that may wish to participate. It will meet as often as needed (one, two, or four times a year) to review progress and needs for additional assistance. The first meeting of the ICC to address measles elimination was held in October 1989, at which time the subregional Plan of Action was reviewed and types of assistance that each agency could provide were identified. The role of each participating agency is defined so that when additional needs are noted, the appropriate agency will have already been identified. The PAHO EPI program office serves as the Secretary to both the TAG and the ICC.

Each country will develop a National Work Plan that should identify cooperation needed from PAHO and other participating agencies. Technical cooperation is being provided for the drafting of country work plans. Full inventories of existing resources will be made and the roles of all the participating agencies identified. All the international agencies involved should participate at the time the national work plan is prepared to ensure donor coordination and avoid duplication of effort produced by independent project designs.

At the country level, the national EPI unit will serve as the focal point for the measles elimination effort, including coordination of extrasectoral assistance.

PAHO will make available to the countries international experts to help assess needs, strengthen surveillance activities, participate in investigation teams, and review case records for differential diagnosis of measles. It will also post an epidemiologist at PAHO Headquarters and another epidemiologist and a statistician in the Surveillance Unit at CAREC. They will be involved in coordinating surveillance, investigation, and strategy design and in supervising the advisors working in the countries.

FUNDING

To meet the 1995 goal, an estimated US\$14,728,542 will be needed. Approximately two-thirds of this amount will be provided by the Member Countries for their individual efforts and the remaining one-third will be sought from international donor agencies. Nearly US\$2,000,000 has already been committed to the overall EPI effort over the next three years by a combination of resources from the Canadian International Development Agency, through the Canadian

Public Health Association; the U.S. Agency for International Development; the Inter-American Development Bank; and PAHO. The extra resources required will be used mainly to provide vaccines for the "attack phase" (especially during Measles Elimination Month).

PAHO will coordinate with all participating agencies to obtain the necessary funding, and could serve as the coordinating agency for all the financial assistance provided to the effort. It is expected that funding commitments will be identified by June 1990.



World Health Day 1990: Our Planet, Our Health—Think Globally, Act Locally

The pervasive deterioration of the environment is increasingly in the headlines: acid rain, vanishing forests, croplands turned into desert, polluted rivers and oceans, toxic wastes. The impact of the human species on the world carries untold risks for human health. For this reason, WHO's Director-General, Dr. Hiroshi Nakajima, chose as the theme of this year's World Health Day the global environmental crisis and its relationship to health.

World Health Day is celebrated each year in observances held worldwide to commemorate the date 7 April 1948, when the Constitution of the World Health Organization was adopted. During ceremonies that took place at PAHO Headquarters in Washington, D.C., a number of distinguished speakers addressed many facets of the environmental crisis. Dr. Peter Bourne, President of the American Association for World Health (AAWH), presided over the first part of the program.

In his annual World Health Day message, Dr. Carlyle Guerra de Macedo, Director of PAHO, pointed out that human beings are causing severe damage to the very environment they depend on for food, water, air, and shelter. Environmental destruction, combined with poverty, produces a downward spiral that threatens the health and well-being of many of the poorest people in the Region. Although local environmental degradation has already reached alarming levels, the potential for world-scale changes dwarfs current health concerns. Thus, action is imperative at all levels: local, national, and international. Concern for the environment must be integrated with the achievement of health by all people, especially the poorest, who are often most severely affected by environmental contamination.

Pesticides and fertilizers used in efforts to increase food production for a growing population have contaminated food, water, livestock, and fish, and sickened or