Global eradication of poliomyelitis and measles.*

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In September, 1985, the Pan American Health Organization (PAHO) targeted poliomyelitis to be eradicated from the Americas by 1990 (1). The strategy for poliomyelitis eradication included routine vaccination with oral poliomyelitis vaccine (OPV), complemented by national immunization days (NIDs) with OPV, aimed at rapidly interrupting chains of transmission. The NIDs, together with surveillance for detection of cases of acute flaccid paralysis (AFP) with laboratory investigation for the presence of wild poliovirus in their stools proved to be two key components of eradication. The third key component of the strategy was the implementation of special "mop-up" operations of house OPV vaccination in those few municipalities where poliomyelitis was still prevalent (2).

In September 1994 an International Commission for the Certification of Poliomyelitis in the Americas certified that wild poliovirus transmission had been interrupted in the Western Hemisphere (3). By October 1996, over five years have elapsed since the last confirmed case of paralytic poliomyelitis due to wild polio virus was detected 23 August 1991, in Peru. This fact is of historical significance in the annals of public health.

The eradication of poliomyelitis from the Americas was only possible because of the high level of political commitment of governments of all countries concerned, with allocation of national resources, a sound epidemiological strategy and a well coordinated international support to aid the national efforts.

The strategies developed by PAHO are now being implemented worldwide for the achievement of global polio eradication by the year 2000 (5). According to the World Health Organization’s (WHO) reports, during 1995 there were less than 10,000 polio cases reported worldwide, the lowest number ever reported and the target of global eradication by the year 2000 is well in our grasp. By October 1996 practically every endemic country...
in the world was engaged in activities related to the eradication of poliomyelitis and major international support was forthcoming, particularly from the governments of the United States of America, Japan and Denmark, just to cite a few.

Still, much remains to be done if the target is to be met. Financial support in the order of US$500 million will be needed between now and the year 2000 for the global eradication to be accomplished. However, benefits accrued will be enormous, besides the fact that no child will ever again be paralyzed or die from this dreadful disease. WHO estimates that, after polio eradicated, there will be annual savings of US$3 billion, resources that can be used to tackle other health problems. The experience in the Americas has also demonstrated that the health infrastructure has greatly benefited from the effort and is now better prepared to deal with the control or eradication of other infectious diseases (6).

One such a disease is measles, which in spite of the existence of an excellent vaccine for over three decades, still kills annually over 1 million children worldwide. With poliomyelitis eradicated from the Americas, the PAHO set the target of measles eradication from the Western Hemisphere by the year 2000. Strategies recommended by PAHO to achieve this goal include national immunization campaigns conducted in a short period of time, usually one month, aimed at immunizing all children between one and fourteen years of age with measles vaccine regardless of previous vaccination status and maintenance of high immunization levels in each new cohort of infants. These campaigns, aiming at interrupting all chains of transmission, are followed by intense surveillance of suspected measles cases, prompt investigation and collection of blood specimen for laboratory diagnosis (7). A measles reference laboratory network organized by PAHO and with participation of twelve laboratories in eleven countries is now supporting the work of all national laboratories involved in measles diagnosis.

As a result of implementation of this strategy, only 6,482 confirmed measles cases were reported in 1995, the lowest number of total measles cases since measles surveillance began in the Americas. In the decade of the eighties, an average of over 150,000 were reported annually in the region. In the English speaking Caribbean, it has now been over five years since the last laboratory confirmed case and no cases of measles have been reported for the past 3 years in Cuba and Chile. Measles surveillance systems now in place in every country of the Americas do not detect evidence of measles virus circulation in most countries of the region (8).

One obstacle to measles eradication is the accumulation of susceptible children which occurs in preschool aged children among 1-4 years old because the vaccine is not 100% efficacious and coverage never reaches 100%. To prevent this accumulation of susceptibles and prevent outbreaks, PAHO recommends that countries conduct "follow-up" vaccination campaigns targeting all children 1-4 years of age, regardless of previous vaccination status, every four to five years (7). These "follow-up" campaigns offer a second opportunity for those children that were never vaccinated to receive a first dose of the measles vaccine and most of the children will receive a second dose, boosting their measles immunity. This is also an opportunity for those small number of children that were vaccinated, but did not respond to the vaccine.

A second obstacle to measles eradication in the Americas at this moment is the high incidence of measles in other regions of the world and the frequency of international travel that occasionally produces importations from those areas. In 1995, 60% of the 309 measles cases reported in the United States were either a direct importation or secondary cases linked to an imported case by routine investigation or by molecular epidemiology methods (9). For the last two years there was not a single importation of measles from Latin America.
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and the Caribbean into the United States, a fact that indicates that measles is now a very rare disease in those areas.

A recent meeting of experts convened by the WHO, the PAHO and the Centers for DIases Prevention and Control (CDC), that met in Atlanta, Georgia, in July 1996, concluded that measles can be eradicated with the present existing vaccine, if political will and proper strategies, such as the ones recommended by PAHO, are implemented (10). Continued success of measles eradication in the Americas will set the stage for the global eradication of this disease and this goal should be sought for the end of the first decade of the 21th century.

Nearly 200 years elapsed from Jenner’s first vaccination against smallpox and its eradication. Nearly 40 years have slapsed Sabin’s development of the oral poliomyelitis vaccine and the demonstration that the disease could be eradicated from a vast area such as the Western Hemisphere, launching the stage for its global eradication by the year 2000. It now appears that approximately 50 years will have slapsed from Enders’ development of the measles vaccine and the eradication of the disease. It is incumbent upon us, physicians and health practitioners to advocate for the prompt utilization of technologies that save human lives, as soon as they become available. The biotechnology revolution, which will make the 21st century the "century of the vaccines", must be accompanied by a revolution in which preventive medicine rates high in the priority setting and allocation of limited resources. Only then humankind will benefit from these developments from science and technology, as was the case with the eradication of smallpox and in the near future with the eradication of poliomyelitis and measles.

REFERENCES.


