

## Eradication of Poliomyelitis : A Reality in the Year 2000?

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As we are approaching the year which marks "health for all by the year 2000", most Thais believe they would come up with better national health care program resulting in better health for all Thais after the year 2000. Since smallpox was also eradicated from this country by mass vaccination, the same strategy is being used to wipe out other vaccine-preventable infections in particular, hepatitis B virus infection, Japanese B encephalitis, measles and poliomyelitis. Although as much as 20 new infections has been discovered recently including AIDS around the world and old diseases such as tuberculosis has resurfaced, we are still optimistic that at least one of the "old" diseases must be rid of soon from Thailand.

In the past, poliomyelitis was almost inevitable for many individuals living in the so-call under-developed countries. Reported cases of poliomyelitis in Thailand were over 1,000 cases per year in 1952 and the incidence was calculated to be over two cases per 100,000 population. Number of cases had been steady though always under-reported, until in 1979 when a nationwide oral polio vaccination was adopted. Since then the incidence of poliomyelitis has fallen dramatically. The incidence has reached a stage that in 1988 the World Health Organization (WHO) has committed to eradicate poliomyelitis worldwide including Thailand by the year 2000. The appropriate and practical strategies for achieving poliomyelitis eradication are the maintenance of high coverage with oral polio vaccination, conduct national immunization days, effective surveillance for patient with acute flaccid paralysis and aggressive outbreak control by mopping up (1). However, the importance of a constructive and active working relationship between government and the industry can not be overemphasized if the accomplishment is to be accelerated. On a global basis, four leading international

vaccine companies namely, Chiron Vaccines, Pasteur Merieux, Connaught and SmithKline Beecham, have donated 100 million doses of polio vaccine which would be sufficient to fully immunize about 25 million children over a period of three years in those African countries. The Wyeth-Lederle Vaccines and Pediatrics has provided a million US dollars grant to WHO and UNICEF to strengthen laboratory network of disease surveillance to hasten the realization of polio eradication. This substantial funding is the largest ever-combined industry donation to the global effort to eradicate poliomyelitis. The donation was accepted during the sixth annual meeting of the Consultative Group of the Children's Vaccine initiative, held in Dakar, Senegal, by Dr. Hiroshi Nakajima, WHO's Director General and Dr. Denis Broun, chief, health section of UNICEF. It seems poliomyelitis is perhaps the second infectious disease to be wiped out from the world. We hope that the similar donation will happen in Thailand someday.

At present, sporadic cases in Thailand is reported though less than 10 cases have been recently documented each year. The newly diagnosed cases of poliomyelitis are found to be among immigrants and refugees from some countries surrounding Thailand. In this issue, Chuinrudee Jayavasu et al (2) applied the partial genomic sequencing of viral genome to trace the source of reservoirs and transmission in Thai children and the distribution of wild poliovirus type 1 that was isolated from the patients with acute flaccid paralysis. A total of 25 strains of wild type 1 poliovirus isolated from patients were studied. Among these, 12, 6, 2, 1 and 4 strains were isolated from patients living in Thailand, hill tribe, Cambodia, Myanmar and Nepal respectively. The result of genomic sequencing dendrogram showed that these strains could be grouped into 2 genotypes. The first genotype included 9 strains most of

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which were isolated from patients in the eastern provinces of Thailand and their genotype were closely related to strains recently isolated from Cambodian and hill tribe patients living in the eastern provinces of Thailand. Another independent genotype, 16 strains, were related to the strains found in Myanmar and Nepal patients. Her study suggested that the primary source of polioviruses was recently imported to Thailand by patients migrated from these neighboring countries.

If poliomyelitis is determined to be rid off soon, the identification of these patients and the proper management of the cases are important public health priorities. Other factors that become obstacle to the eradication program are unplanned urbanization, disturbance of environmental balance and the increased speed and frequency of travel between and within countries. As WHO has already mentioned, the success achieved in smallpox eradication and the considerable progress made in polio and guinea-worm eradication should not create a sense of complacency. Those countries surrounding Thailand should be alert to develop effective warning mechanism by improving their disease surveillance systems and be ready to respond rapidly to control the disease outbreaks. Those immigrants who brought poliomyelitis to our country also highlight the importance of maintaining and expanding health care services in Thailand that are welcoming to foreign-born persons. The control of poliomyelitis in Thailand will require a coordinated effort that transcends its borders. To improve the surveillance system, more sensitive and specific techniques as well as improved means of data transmission to the Ministry of Public Health and local health departments are needed.

While health day theme focuses on emerging infectious disease this year, diseases such as malaria and tuberculosis, thought to have been controlled, once again threaten the lives of millions of people in Thailand and the growing phenomenon of bacterial resistance to commonly used antimicrobial agents. After many years in decline, diphtheria, yaws, filariasis are on the increase due to the migration of unimmunized hosts or infected patients from neighboring countries. Infectious diseases such as yellow fever, leishmaniasis from distant countries are real threat to be imported to Thailand by direct flight which take less time than the incubation periods of such diseases. Urban overcrowding, crumbling health and sanitation systems which exist in our country, will greatly contribute to the spread of the diseases once the disease is well established in the city such as Bangkok. All these emerging infectious diseases wait to be reported in indigenous Thais. A national

plan to effectively cope with the diseases is urgently needed before an outbreak will be really detected.

On the contrary, poliomyelitis apparently poised on the brink of eradication. We must take these opportunity to seek public attention to other vaccine-preventable infections and call for unified effort to eradicate those diseases. The Ministry of Public Health may consider issuing a law that requires every medical centers to provide other basic vaccinations against diphtheria, pertussis, measles, tetanus and poliomyelitis at the same but lowest cost. The cost of the vaccines must be born by the government and they must be distributed to every governmental and private medical units for the vaccines to be also within the reach of the underprivileged. Ministry of Public Health has to plan an appropriate budget to purchase and bargain for the price of the vaccines as done in hepatitis B vaccination program. If vaccination for all Thais with each of the above vaccines costs only 10 Baht (the cost of the vaccine is subsidized by the government) throughout the country, then the vaccination coverage can be expected to be higher than current situation. Accordingly, eradication of the above diseases can be hasten to accomplish. Co-operation and co-ordination at several levels between government units and private sector as well as individuals are other decisive factors that determine the success or failure of any eradication program but are still lacking in many communities in Thailand. Finally personal interest in caring for one own health must be aroused until self-protection is sustainable. The latter is recently emphasized by the so called "direct observed therapy (DOT)" which is implemented in eight north-eastern provinces to control tuberculosis. The result was so exciting that multi-drug resistant tuberculosis is recently anticipated by the Ministry of Public Health to be completely wiped out in Thailand within five years if there is such across-the-board co-operation and self-effort. We must admit that the current policy for the identification and treatment of the contagious diseases in immigrants and refugees is still obsolete and loosened, we are afraid of entering the next era of many emerging infectious diseases in Thailand though only one disease which is poliomyelitis, is successfully eradicated in exchange, by the year 2000.

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