Chapter 10: Republic of Indonesia

Lesson Learned from Polio Outbreak Experience

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1. Introduction

Since the declaration of the Global Polio Eradication Initiative in 1988, the incidence of polio decreased dramatically and had been cut by 99 % globally. Since 1995, Indonesia had been polio free for almost 10 years until the first imported polio virus outbreak reported in Cidahu, Sukabumi in April 2005. It had been recorded that between 2003 and 2006, polio eradication faced several challenges, and four countries (Nigeria, Afghanistan, India, Pakistan) continued to have transmission of wild polio virus.

Rapid international transportation and population movement facilitates international spread of infection from three countries, resulted in re-infection of previously polio free countries such as Indonesia. Remergence of polio cases in the previously polio free countries generated questions about whether polio eradication was feasible.

To respond the questions raised, the Global Polio Eradication Initiative has initiated the development of new generation approaches as an intensified polio eradication effort, targeting type 1 polio virus as the most paralytic one and type 3 polio virus consecutively. This new effort launched in 2007 marked a turning point of polio eradication initiative.

To interrupt polio virus transmission during imported polio virus outbreak in Cidahu, Sukabumi, the new generation approaches had been implemented in series of containment measures following the outbreak. So far, EPI programme is considered as the most cost effective public health intervention since Indonesia is part of global community participated in the reduction of vaccine preventable diseases and in the Global Polio Eradication initiative as well. In addition to the routine polio immunization, series of National Immunization Days had been conducted in 1995, 1996, 1997, 2002, 2005, 2006 and as well as other non routine immunization activities such as School Children Immunization activities in 1998, Mopping Up immunization in Papua in 1998, and series of Sub National Immunization Days in various provinces in 2001.

2. The Good Practice

Indonesia had been polio free since 1995 until the first case of positive wild polio virus confirmed, a 20-month-old boy reported on 13 March 2005 from Girijaya Village, Cidahu Subdistrict, Sukabumi District, West Java. The infection was due to importation of wild polio virus of Nigerian origin.

In the course of 2005, 9 reinfected provinces which reported polio cases following the first polio case were Banten, Jakarta, Lampung, Nangroe Aceh Darusalam, North Sumatera, South Sumatera, Riau, Central Java and East Java. Until the end of December 2005, the total number of polio cases reported was 303. In 2006 following intensified control effort conducted since 2005, only two polio cases were reported -- one case reported on 26 January 2006 from Bondowoso, East Java and one case on 20 February 2006 from South East Aceh. Since then, no case had been reported from affected provinces and from the rest of the country (Graph I).

The key factor that facilitated the success of the control efforts was the collective capacies and collective leaderships of the national and international communities to overcome the remaining hurdles in stopping wild polio virus transmission in Indonesia as part of world wide effort. Engaging the Head of the State, Ministers, Arm Forces, Police Department, local authority leaders, NGO, international institutions and other stakeholders was one of the hard works for success of the control efforts.

This intensified effort optimized the implementation of key principles, concepts and method of polio eradication and using of powerful monovalent oral polio vaccines (m-OPV), tailored tactics to ensure that all children under five were reached with the vaccines.

Questions about whether polio eradication is feasible or general disease eradication are potentially effective public health strategy will be answered if we could implement the key principles, concepts and method of disease (polio) eradication.

The key principles of the disease eradicability are:

(1) Effective intervention measures are available to cut the transmission of the disease agent.

(2) Simple and practical diagnostic tools are available with high sensitivity and specificity to detect levels of infection that could lead to transmission of infection.

(3) Humans are the only host for the life cycle of the agent, no other animal reservoir, and the agent does not amplify in the surrounding environment.

(4) Strong health system and high level of community participation are needed to ensure high coverage of intervention measures.

Polio eradication initiative has met the principal indicators of eradicability for both biological and operational dimensions. Since meeting the biological and operational considerations is just one aspect of the success of the polio eradication initiative, economic as well as social and political criteria should also be taken into consideration.

Limited resources of cross-sectors has always been a major problem in any public health intervention. The costs and benefits of polio eradication initiative can be grouped into two categories: direct effects of polio eradication initiative are that no more morbidity, mortality or disability due to polio, and collateral effects are those affect positively on the existing health care delivery system.

This costs and benefits of polio eradication initiative should be advocated to the decision makers to set full support since the success of disease eradication, like any other public health interventions, is very much depend on the level of social, political and international community commitment since from the beginning to the end of initiative. Polio eradication initiative is conceptually simple, focusing only on one disease. However, its implementation is very difficult due to time-driven operational challenges, especially in a large archipelagic country like Indonesia with more than 225 million population.

Polio eradication initiative can be distinguished from ongoing disease control programme by the urgency of the eradication programme and the requirements for good quality of targeted surveillance, rapid response capability, high standard, performance, and dedicated focal point at all levels. The polio eradication program is an example of multi-partner leadership. Rotary international is one of the primary partners, but not the only partner. Leadership is also coming from many other partners -- WHO, UNICEF, World Bank, CDC Atlanta, USAID, AusAID --and from other members of the UN family, government, institutions, and NGO. This multi-partner leadership facilitated well since the goal of polio eradication initiative is easily understood and progress is easily measurable. In conclusion, polio eradication program is a laudable goal as it carries an awesome responsibility, and there is no room for mistake and failure. The only question is whether this goal could be achieved in the present time or some next generations.

3. Benefits and Outcomes

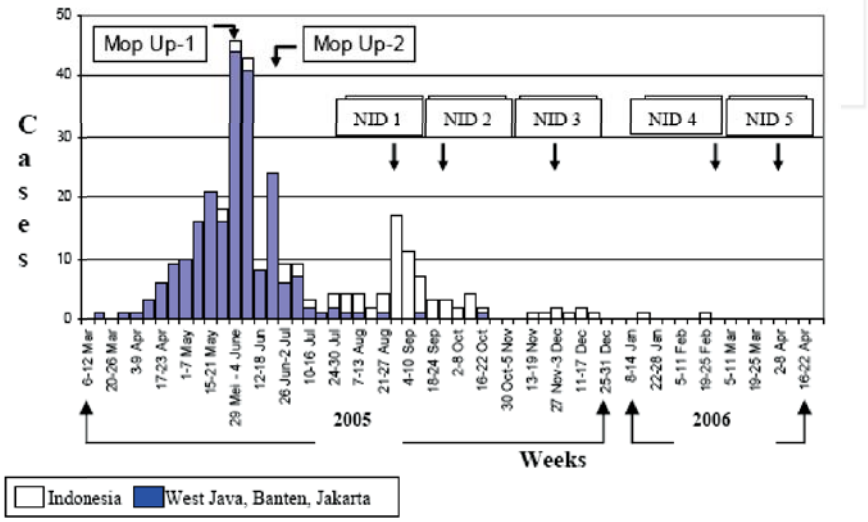
Disease elimination and eradication have always been the ultimate goals of public health.

Polio eradication initiative has provided us with an attractive model of disease eradication which can be used as a good example of effective public health strategy with typical multi-partners' leadership pattern. Outcome and impact of polio eradication program in Indonesia is presented below by using available data, demonstrating improvement in people's health and well-being as well as in the health system.

Table 1: *National Immunization Days (NID) Conducted in 2005-2006, in Indonesia Following Polio Outbreak in Cidahu.*

No		NID	Date Conducted	Target Population
1		1st NID	30-8-2005	25 million under five
2		2nd NID	27-9-2005	25 million under five
3		3rd NID	30-11-2005	25 million under five
4		4th NID	27-2-2006	25 million under five
5		5th NID	12-4-2006	25 million under five

Graph 1: *Epidemic Curve of Polio Cases Before and After Polio Outbreak Response 2005-2006.*



Graph 2: *An Increasing Trend of NID's Coverage from 1st NID to 5th NID.*

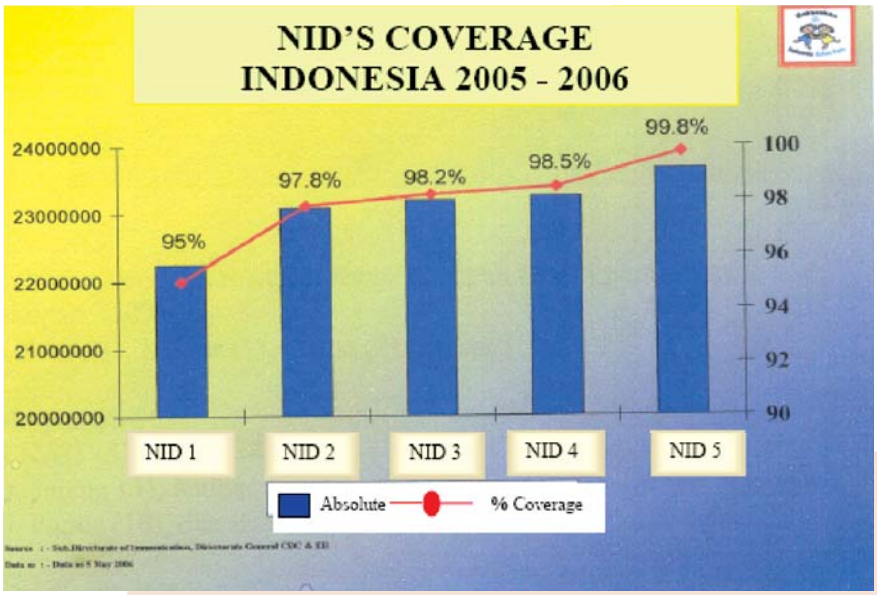


Figure 1: *Map of 1st NID Coverage 2005, Indonesia*

Figure 2: *Map of 2nd NID Coverage 2005, Indonesia.*

Figure 3: *Map of 3rd NID Coverage 2005, Indonesia.*

Figure 4: *Map of 4th NID Coverage 2006, Indonesia*

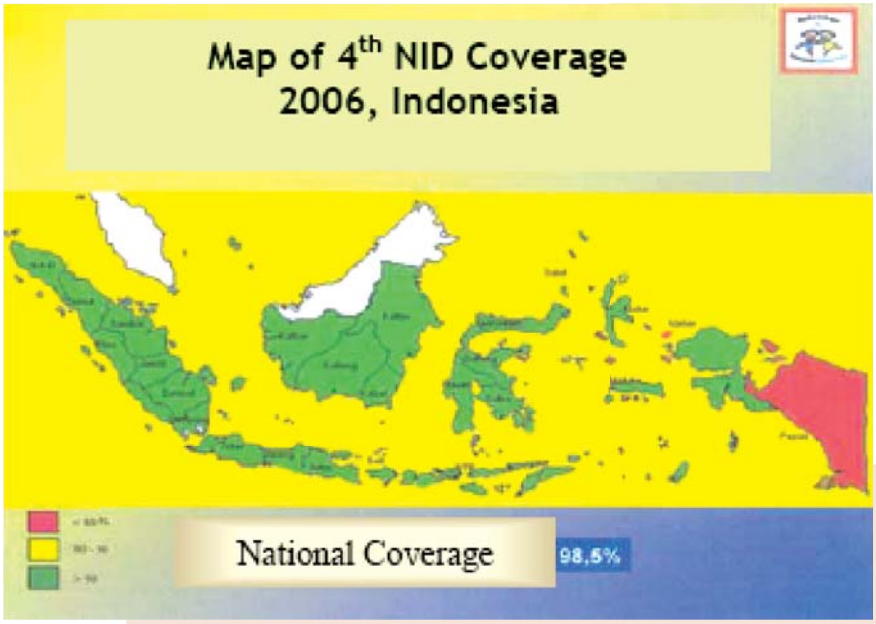


Figure 5: *Map of 5th NID Coverage 2006, Indonesia.*

Figures 1 to 4 show the area maps of coverage, only Papua did not reach more than 80% coverage. But in 5th NID, Papua has achieved more than 80% coverage, while Maluku was left behind.

4. Insights and Lessons

Strategy for polio eradication initiative was derived from the virological and epidemiological characteristics of the poliomyelitis. The intervention technology, logistic requirement and the resource needed were available.

While the routine disease control measures usually depend on routine health care delivery system being maintained in a long term perspective, polio eradication activities are characterized as intensive, time limited, labor intensive, involving many partners, targeted and well organized program with mass campaign elements as prominent activity. The success of the polio eradication campaign is derived, in part, from the lessons learned and success of the small polio eradication program, and from the preceding failure of the disease eradication campaign such as malaria eradication program.

Since the beginning of the polio eradication program, AFP surveillance was a basic strategy of the campaign program. Effective mass campaign that required the development of a solid management structure extending from Jakarta, the capital city, to the most remote villages has been developed. Mechanism has been established to assure that fully potent OPV and other supplies distributed throughout the country reach most of the target population within the existing health care delivery system structure.

Problems and constraints faced during polio eradication campaign are limited time for preparation, insufficient funding and geographically unreached target population.

In turn, polio eradication campaign provided important lessons learned with respect to other prospective disease eradication in the future.

5. Recommendation for Adaptation

Polio eradication program offered both opportunities and challenges to the health system. Implementing on vertical operations sometimes led to division of resources. This framework may be adapted to other targeted vertical health programs in order to strengthen the coordination of health system development and disease control efforts for mutual benefit. Much more studies and evaluation are needed to articulate the comprehensive analysis of polio eradication campaign.