Polio eradication program

Poliomyelitis was a serious public health concern in Sri Lanka from 1951 to 1986. During this time the disease resulted in high morbidity and mortality in the country. In 1962, the country experienced a major epidemic with 1810 cases and 180 deaths. However, with extensive surveillance mechanisms and high immunization coverage, the country was able to achieve a polio-free status in South East Asia Region (SEAR) in 2015, while the last case of poliomyelitis was reported in 1993.

The strong leadership of the National poliomyelitis eradication program that led to the above achievement was given by the Epidemiology Unit of Sri Lanka. The strategies adopted to eradicate poliomyelitis in Sri Lanka were in par with the Global polio eradication initiatives. These included maintenance of sustainable high immunization coverage among infants with 3 doses of OPV in the first year of life, conducting national immunization days for five consecutive years, stringent Acute Flaccid Paralysis (AFP) surveillance mechanisms, outbreak control, and prevention.

AFP Surveillance

AFP surveillance in national poliomyelitis initiative has been well recognized by the global experts. With sound collaboration between the preventive, curative health, and laboratory sectors, each and every suspected acute poliomyelitis case has been notified, tested, treated, closely monitored, and followed up since 1944. In 1990, under the global strategy of enhanced surveillance, notification of each and every AFP among children less than 15 years as a suspected case of poliomyelitis was initiated. Under the AFP surveillance each and every AFP case and

five contacts of the index case are laboratory tested for poliomyelitis at National reference laboratory at Medical Research Institute (MRI). In addition, all AFP cases are followed-up at the field level for 180 days.

The last virologically confirmed wild poliomyelitis case was reported in Sri Lanka in November 1993 and the patient was from Monaragala district.

Immunization against Polio

Oral Polio Vaccine (OPV) has been used in Sri Lanka since 1963. Initially, immunization was done using Trivalent Oral Polio Vaccine (tOPV) which gave protection against wild Polio types 1, 2, and 3. The injectable Polio vaccine (IPV) was then introduced into the schedule in year 2015, prior to the polio switch. At present, every child in the country receives five doses of bivalent OPV (bOPV) and two doses of injectable polio vaccines as fractional doses.

Polio Switch

In 2016, there was a globally synchronized "switch" to replace trivalent oral poliovirus vaccine (tOPV) with bivalent oral poliovirus vaccine (bOPV) containing only types 1 and 3. This was due to the longstanding absence of wild poliovirus type-2 (WPV2) and the burden of paralytic cases caused by both type 2 vaccine-associated paralytic poliomyelitis (VAPP) and circulating vaccine-derived poliovirus type 2 (cVDPV2). The polio switch date for Sri Lanka was 30th April 2016.

In line with the Global Polio eradication plan, injectable polio vaccine was introduced into the NIP in July, 2015. Injectable Polio Vaccine (IPV) was first introduced as an single dose of intramuscular injection at the age of 4 months to be given together with the 2nd dose of pentavalent vaccine and the OPV.

Introduction of Fractional dose IPV (fIPV)

The injectable, inactivated polio vaccine was introduced to the NIP as a single dose in 2015 where 0.5ml dose was given intra-muscularly at the age of 4 months together with the 2nd dose of Oral Polio vaccine and Pentavalent vaccine. It was introduced as an initial measure to ensure immunity to Poliovirus type-2, before polio switch over from trivalent OPV to bivalent OPV. In 2016, due to the global scarcity of IPV production, Sri Lanka faced difficulty in obtaining adequate stocks of IPV considering its' low-risk status. Considering the situation, Advisory Committee on Communicable Diseases (ACCD) decided to change from the full dose IPV schedule (0.5ml IM) to the fractional dose IPV schedule (0.1ml ID, 2 doses) in July 2016 based on several global and local evidence on the effectiveness of fIPV. Furthermore, sero-surveys that were carried out locally after the introduction of two fractional doses of IPV indicated that immunity generated were not inferior to full dose IPV.

The History of Poliomyelitis in Sri Lanka

1944 –	**Poliomyelitis was made a notifiable disease**
1962 –	**First major epidemic with 1810 cases and 180 deaths**
1968 –	**Epidemic – 1009 cases**
1974 –	**Epidemic – 608 cases**
1980 –	**Epidemic – 264 cases**
1986 –	**Anticipated epidemic year but only 9 cases reported**
1990-	**Broadening of the surveillance case definition from poliomyelitis to AFP**
1993 –	**November- Last virologically confirmed case reported**
1995-2000-	**National Immunization days conducted for five consecutive years**
2015-	**Introduction of injectable, inactivated polio vaccine**
2016-	**Polio Switch**
2016-	**Change from single dose IPV to fractional dose IPV**
2016-	**South East Asian Region Polio free status declared**

Even at a time when the country was experiencing civil unrest for nearly three decades (1983-2009) in the Northern and Eastern provinces which resulted in the periodic displacement of large sections of the population, the Ministry of Health was still able to achieve near 100% immunization coverage among children including the conflict-affected areas. This was proven during the immunization surveys done in affected district soon after the conflict.

Despite a drastic drop in child immunization coverage experienced during Covid-19 pandemic both globally and regionally, country's immunization

program was able to sustain the high vaccine coverage and to keep the country's polio-free status on track.

Sources

(Polio Eradication: Polio virus type 2 withdrawall plan: tOPV- bOPV Switch; 14.3.2016)

(Change of Polio vaccination schedule: Injectable Inactivated Polio Vaccine (IPV): Introduction of Fractional dose IPV (fIPV); 4.7.2016