

## Review

## Article

## Polio eradication in India: New Initiatives in sanitation

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**Abstract:** Polio eradication continues to be a priority in the South-East Asia Region. For developing countries, considering that the practice of open defecation and fecal contamination of drinking water easily precipitates virus transmissions, the eradication of polio called for rounds after rounds of campaign. In the districts of western Uttar Pradesh (UP), in India, which continues to be polio endemic, key challenge is the low levels of sanitation and personal hygiene. The residents of polio endemic areas are now reluctant to frequent pulse polio immunization rounds and are using these rounds to raise their voice against chronic apathy to providing the basic amenities such as adequate sanitation facilities. Newer initiatives such as Urban Sanitation and Hygiene Action (USHA) Project, in western UP and “107 block” campaign launched in UP and Bihar aiming to improve sanitation, water quality and routine immunizations in the high risk polio endemic administrative blocks have the potential to significantly strengthen eradication efforts, especially in high risk areas for wild poliovirus transmission in North India.

**Keywords:** Polio Eradication, sanitation, new initiatives, India.

### Introduction:

In its history of more than two decades, the Global Polio Eradication Initiative (GPEI), led by national governments and the World Health Organization, has made remarkable headway. Under the GPEI Strategic Plan 2009–2013, the goal, now, is to achieve polio eradication by 2013<sup>1</sup>. On present trends, the South-East Asia Region is set to be declared polio-free in Jan 2014. In India, the principal challenge is overcoming suboptimal vaccine efficacy in the districts of western Uttar Pradesh (UP) which continues to be polio endemic. The challenge now is that, the Region remains at risk with wild poliovirus circulating in the endemic countries-Afghanistan, Pakistan and Nigeria. High immunity level has to be maintained in the community to prevent re-infection<sup>2</sup>. The poliovirus being transmitted via the oral-faecal route, a lack of sanitation infrastructure thus facilitates its spread. WHO South East Asia office has recommended that national efforts in the region should be focused on maintaining the acute flaccid paralysis surveillance system, increasing and sustaining the high-level routine immunization coverage, improving water and sanitation, and addressing issues of importation of polio cases<sup>2</sup>. The present work focuses on the new

initiatives in improving sanitation that have the potential to significantly strengthen the polio eradication efforts.

### The role of sanitation in polio eradication: experience to date

Examining the progress made towards polio eradication, it can be gauged that improved sanitation played an important role in eradicating polio from the United States of America (USA) in the early 1960s, when only about two-thirds of the population was immunized whereas poor sanitation and crowding have permitted the continued transmission of poliovirus in certain poor countries in Africa and Asia, despite massive global efforts to eradicate polio<sup>3</sup>. For high-income countries the elimination of polio was relatively straightforward because of the temperate climate, high levels of sanitation and strong health systems. In contrast, eliminating polio from the low-income countries has required massive and sustained efforts<sup>4</sup>.

In industrialized countries children were sufficiently protected after receiving three doses of oral polio vaccine (OPV), usually through routine immunization. For developing countries, it is yet to be exactly determined how many doses are enough considering that the practice of open defecation and fecal contamination of drinking water easily precipitates virus transmissions<sup>3</sup>.

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Even with a high district level coverage, clusters of perpetually unimmunized children, however minuscule, may sustain low levels of wild polio virus circulation, particularly among densely populated settlements with undernourished children suffering from intestinal infections, poor environmental hygiene, and low routine immunization coverage<sup>1</sup>. The eradication of polio thus called for rounds after rounds of campaign in India<sup>3</sup>.

#### **The decade and a half of Pulse Polio Immunisation (PPI) in India: the effects**

PPI over these years has been effective in limiting the geographic circulation of the wild polio virus (WPV) to the states of UP and Bihar. The residents of polio endemic areas are now reluctant and are using these rounds to raise their voice against chronic apathy to providing the basic amenities such as adequate sanitation facilities<sup>3</sup>. The provision of basic sanitation still being an area of concern in these parts, people have started asking "why only polio?"<sup>1</sup>. Voices have been raised, by residents of Meerut and Aligarh both in western UP, up to the extent that the residents refused to allow their children to be vaccinated in protest. The community bargained for better civic amenities in lieu of polio immunization<sup>3, 5</sup>. This reluctance of the community can prove to be a great obstacle in achieving the basic objective of PPI rounds i.e. coverage of all the children less than 5 years of age.

Considering the financial aspect, by 2005, more than 25 billion rupees have been spent in the polio eradication campaign<sup>3</sup>. Budget for polio for a single year 2008-09 was Rs.10.42 billion<sup>6</sup>.

#### **New Indian initiatives in improving sanitation**

Considering the importance of sanitation in polio eradication and the need to address the community's felt need of provision of basic sanitation, inclusive solutions are the need of the hour.

Urban Sanitation and Hygiene Action (USHA) Project, started in 2007 is one such unique example which identified Moradabad, Firozabad and Aligarh in western UP for targeted interventions to overcome the resistance of parents to vaccinate their children and thus contribute in polio eradication campaign<sup>5</sup>. Cleanliness awareness drives were formulated, drains cleaned, streets swept, and garbage gathered and removed by the 80 newly hired sanitary staff of the Aligarh municipality, the number has been gradually increased to 180 by the end of 2008<sup>7</sup>. In 45 high-risk areas for polio eradication, a network of community sanitation mobilizers was created to strengthen and monitor the efforts of the

sanitation staff. These mobilizers also travelled to motivate people to be immunized, with the result being that the number of resistant households in Aligarh fell from 350 in 2008 to just over 100 in 2009<sup>5</sup>. The lanes in the area are now clean as compared to earlier state when they were strewn with filth, human waste and overflowing drains.

In Firozabad the project addressed the issue of dry latrines, managing to bring the number of dry latrines to 998 from 1089 within four months (August 2007 to November 2007)<sup>8</sup>. The USHA project has shown that an integrated approach to health, environmental sanitation and hygienic practices in high-risk polio areas increases the number of children permitted to be vaccinated, and drastically reduces the risk of the spread of poliovirus<sup>5</sup>.

A similar attempt is the "107 block" campaign launched in April 2010 by the government and its partners to reduce the number of polio infections in UP and Bihar. It is a three-pronged strategy which aims to improve sanitation, water quality and routine immunizations in the administrative blocks of Bihar and UP responsible for more than 80% of India's polio cases<sup>9</sup>. In addition to promotion of OPV vaccination and routine immunization, UNICEF's communication strategy for the project involves promotion of hand washing with soap, the use of toilets, the prevention and management of diarrhea, particularly through ORS and Zinc, and exclusive breastfeeding for children up to 6 months. These elements have broader public health benefits and also the potential to improve effectiveness of OPV in these high risk areas. National Polio Surveillance Project on its part has increased the strength of its surveillance medical officers (SMOs) in these 107 blocks to monitor and enhance the quality of immunization rounds. In Khagaria district of Bihar, the block and community mobilization coordinators of social mobilization net, in collaboration with Bihar's Water Environment and Sanitation and Public Health Engineering Departments are working to improve sanitation and hygiene in their communities through the mobilization of households to accept the construction and use of toilets. In all, 41 community mobilization coordinators cover 139 villages and directly interact with 50,283 households. 134 schools have been trained in toilet use and hand washing. In the high risk areas of Bareilly, Rampur, Baghpat, Muzaffarnagar and Saharanpur districts of UP, hand washing drives have been initiated in 200 schools in an effort to improve health and facilitate the

interruption of polio virus transmission. Hand washing is monitored by school teachers as well as by the community and block mobilization coordinators who follow up with each of the 200 schools on a weekly basis<sup>10</sup>.

The wisdom lies in implementing the campaign in areas which are still lagging behind in basic sanitation, polio endemic areas being the first in the line of priority.

### Conclusion

Addressing the need for provision of basic sanitation and hygiene in polio endemic areas can possibly be an answer to social as well as technical hurdles in polio eradication. Newer initiatives in improving sanitation such as USHA project and 107 block campaign have the potential to significantly sustain the stoppage of wild poliovirus transmission in North India.

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