

Polio eradication: Current status and challenges

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ABSTRACT

For more than two decades mankind has been dreaming of a “polio-free world.” However the dream is yet to be realized owing to various problems related to transmission of wild polio virus transmission as well as vaccine-derived polio virus. These problems are as much scientific as human. The article briefly discusses the current status of polio control across the globe, and various challenges associated with it in a nation-wise manner.

Keywords: Polio eradication, polio transmission, vaccine derived polio virus, wild polio virus

In 1988, the World Health Assembly passed a resolution declaring its commitment to eradicate polio by the year 2000. However that deadline was missed and in all probability the third deadline of 2012 will be missed too. The world, it seems, is now caught between attempts to eradicate wild polio on one hand and the menace of vaccine-derived polio virus (VDPV) on the other. The challenges in polio eradication however seem to be more due to human and program-related obstacles rather than due to science. While on one hand Europe celebrates a decade without polio there are other nations who are still struggling to get control of wild polio virus transmission.

Wild Polio Transmission: Status and Challenges

India, after years of struggling with polio, has finally achieved the remarkable feat of spending more than a year without a single case of wild poliovirus.^[1] The last polio case was reported on January 13, 2011 from the state of West Bengal, and was a case of wild polio virus-1 (WPV 1). The virus has not been detected in sewage samples during this period in India.^[1] India must sustain this feat of zero new case for another 2 years (all the time maintaining international standards of surveillance and demonstrating the ability to detect, report and respond to imported polio) to be declared “polio-free.” In India the main obstacle had been the refusal of polio vaccine by certain communities on account of illiteracy and misinformation. However the Government of India

along with other stakeholders, including media, employed more than 2.5 million health workers and at the moment appears to have successfully eradicated polio. However, challenges remain, especially in some pockets where oral polio vaccination (OPV) immunization rate is barely optimal. Sustained efforts and vigilant surveillance will be the key to get the polio-free status for India. However the drive for polio eradication still remains a challenge for mankind as Pakistan, Nigeria, and Afghanistan (the remaining polio endemic nations) continue to have cases of endemic wild polio. In Pakistan, which has been dubbed the polio capital of the world, polio transmission has reached such alarming levels that the WHO has declared that there will be a global polio emergency in Pakistan if it fails to control new polio transmission within the next three months. Till June 2012, 22 cases of polio have been reported in Pakistan,^[2] mainly from FATA, K-P, Sindh and Balochistan, and Punjab. The polio endemic areas thus consist of three groups of districts, Karachi city, a group of districts in Balochistan, and a group of districts in Federally Administered Tribal Areas and North-West Frontier Province. These are also the areas with incomplete vaccination coverage primarily due to poor security situation although poor administration and corruption are also responsible. For example, media sources^[3] claim that more than 1 million children have been deprived of polio vaccine in the North Waziristan Agency region only. Not only are there problems in convincing people to get their children immunized, but also there are problems with poor organization, corruption, and lack of determination among health care workers. Even the media and health activist groups until lately too have failed to lobby effectively to pressurize the government. Security issues also crop up in some regions of

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Pakistan often thereby leading to failure of vaccination programs. In addition, Pakistan and neighboring Afghanistan repeatedly keep on re-infecting one another due to substantial population shifts between the two countries.

Afghanistan which for years has seen a decline in the number of polio cases has also suddenly seen a threefold rise in the number of cases this year.^[4] Almost all cases of polio in Afghanistan are from the provinces of Kandahar, Helmand, and Uruzgan. In Afghanistan the primary challenges in controlling polio transmission include poor security situation and inaccessible areas with geographical barriers. Children are mostly inaccessible and health workers face difficulty in maintaining polio campaigns successfully.

Nigeria has seen 40 new cases by June 2012^[2] and the Centre for Disease Control has declared that the ongoing endemic transmission in Nigeria is a major threat to the success of Global Polio Eradication Initiative.^[5] The challenge in Nigeria is that parents refuse vaccination for religious and superstitious reasons. The Nigerian is facing a serious information war with some miscreants who had spread rumors questioning the safety and efficacy of the vaccine. The need in Nigeria is to “stop politicizing polio.” Achieving control over Nigeria is of utmost importance because it is the only infective focus in the whole of Africa. With the Nigerian situation is still not in control the CDC’s recommendation of vigilant surveillance and maintaining high population level immunity across Africa is something that is to be taken seriously.^[5]

Vaccine-Derived Polio Virus: Status and Challenges

The “endgame strategy” for polio eradication has taken the scientific community by storm. Almost everything from the choice of vaccine, tactical strategies to the achievability of the eradication target, are being questioned^[6] on account of the problem of vaccine-derived polio virus (VDPV). VDPV causes vaccine-associated paralytic polio (VAPP) in a miniscule of OPV receivers. Though high rates of OPV coverage will prevent all poliovirus spread, including spread of VDPVs, it will not prevent establishment of prolonged VDPV infections in certain persons with B-cell immune-deficiencies.^[6] Moreover inevitable gaps in vaccination coverage will give rise to VDPVs as long as OPV use continues. Thus even when wild polio transmission is stopped OPV will continue to generate VDPV which in effect means that the risk of polio although very small will remain. The developing consensus is now in favor of eliminating OPV use as soon as

possible after the post-eradication era when the herd immunity will be high and the surveillance sensitivity will also be higher.^[7]

Conclusion

The globe-trotting, multilateral, public-private partnership to ensure a “polio-free world” is sure to be the benchmark of all future public health programs. The polio struggle has also taught valuable lessons which will be useful to fight malaria, TB, HIV/AIDS, and all such diseases which humans desire to conquer. With more than 8 billion US \$ of international investment and the efforts of 20 million volunteers across 200 nations across the world, mankind cannot afford to be negligent in the final lap to eradicate polio from the face of the planet. The feat when achieved will not only be a scientific accomplishment but also a showcase of how much can be achieved in spite of adversities if mankind fights as one.

The need now is not to be lax with regard to polio, step up surveillance, and continue funding polio efforts. Polio anywhere is after all polio everywhere.

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