The push and pull for global polio eradication

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Received 13 July 2013; accepted 15 July 2013

The last 18–24 months have seen frenetic activity with regards to polio, given the realization that WHO’s stipulated target of eradication could not be realized by 2015. Given the huge challenge of scaling up polio eradication strategies in areas of armed conflict, insurgency and population displacement, the World Health Organization implemented emergency plans for polio eradication in Afghanistan, Pakistan and Nigeria in 2011. This has now been followed by the development of the global Polio Eradication and Endgame Strategic Plan targeting consolidation of the post-eradication goals in many key geographies and pragmatic approaches for polio eradication by 2018. The revised polio strategy takes several recent gains as well as challenges into account and has recently received donor funding for over US$4 billion (of the required US$5.5 billion). The most welcome development in recent years is the eradication of disease from India which has now been polio-free for well over two years. There is global progress also in that the last case of wild poliovirus (WPV) type 2 was detected in 1999 and that no case of disease with WPV-3 has been detected since November 2012 from Yobe State, Nigeria.

Major challenges still remain in the three countries with persistent circulation and cases of poliomyelitis. These host spots have several common challenges: both Pakistan and Afghanistan have had armed conflict in high-risk areas and large scale population displacement related to either conflict or natural disasters. Pakistan and Nigeria have also had targeted attacks on polio vaccinators and support workers and the refusal of access to polio workers in lieu of political demands. Despite these myriad challenges there are major net gains globally. There were 223 cases of poliomyelitis due to wild virus worldwide in 2012 compared to 1352 in 2010.

These gains are, however, tenuous as considerable risks of reintroduction of polio remain in countries which though polio free have weak health and immunization systems and variable coverage. The outbreak of polio in the Xinxiang province of China bordering Pakistan, the discovery of WPV-1 strains in the sewers of Cairo bearing the genetic fingerprints of strains from Pakistan and its subsequent detection in Israel underscore global vulnerabilities to the spread of the virus in an age of rapid transportation. Concurrently the enormous investment in polio surveillance globally appears to be bearing fruit as the emergence of a case infected with WPV-1 in Somalia was rapidly detected and remedial measures undertaken. However the outbreak continues with over 80 cases detected to-date. Similarly, the emergence of circulating vaccine-derived polio viruses has rung alarm bells in terms of measures needed to withdraw oral polio vaccine (OPV) 2 containing trivalent vaccine and provision of an injectable trivalent polio vaccine dose with the third dose of diphtheria, pertussis and tetanus (DPT) vaccine to ensure protection.

The virus, now cornered in some of the most difficult geographies of the world, has found a home in the midst of conflict, insurgency and disrupted health services. This ‘last mile’ in global polio eradication is fraught with huge challenges. These include variable access to populations affected by conflict and insecurity and failing community demand for the vaccination strategy, through repeated door to door campaigns that have now lost their appeal for many. The current situation with many national polio programs also underscores the difficulty in following a narrow mission in settings when so much else is wrong with primary care and public health systems. In countries like Pakistan and Afghanistan where maternal and child mortality rates remain among the highest in south Asia and malnutrition rates have not changed for decades, it is difficult to point out a single factor as a determinant of the failure to eradicate polio. The issues are multiple and complex, compounded by conflict and insecurity and frequent population displacement. The desperate efforts to eradicate polio in the midst of a yawning governance gap and dysfunctional health services have led to a situation where polio eradication receives a disproportionate amount of attention at the policy level. With huge unmet needs in maternal and child health programs, isolated programs for polio eradication with significantly better funding levels and human resources compared to others also serve as a lightning rod for suspicion and criticism.

What can be done? A range of actions have been proposed including innovations to reach all sections of the population and improve the quality of immunization rounds. In 2012 the WHO Strategic Advisory Committee for Vaccines recommended the inclusion of inactivated polio vaccine (IPV) in the polio endgame to facilitate withdrawal of trivalent vaccine and reduction in the risk of vaccine derived polio due to OPV2. This is an important component of the new global polio eradication plan and places a huge burden of responsibility on manufacturers to develop sufficient IPV stocks, for authorities to undertake the requisite planning to do so and for the Global Alliance for Vaccines Initiative to develop mechanisms for facilitating access to countries.
To be effective these ‘push’ mechanisms must be accompanied with adequate ‘pull’ strategies. Winning the hearts and minds of people and generating a groundswell of support for polio eradication among communities is critical and requires a review of the current strategies for engagement and public education. Large sections of the population still remain unaware of the basic nature of and risks associated with infectious disorders, especially enteric infections of which polio is one. Over half of the population at-risk in many of the residual burden countries has no access to basic sanitation or adequate water for domestic use and hygiene. What is also uncertain is the rapidity with which we can achieve effective integration of polio and Expanded Programme on Immunization (EPI) programs, and in turn potential integration with primary care strategies, notably those that impact on maternal and child health, priorities in some of the very populations that are the focus of the final push for polio eradication.

The relatively recent and worrying politicization of the polio program by some factions, deliberate spread of misinformation about the vaccine and targeted killings of polio workers has raised the specter of regression of polio gains in these countries. Concrete and concerted steps are needed to address these challenges including provision of full security for health and immunization staff, field intelligence to detect and deter terrorists and engagement of communities to build confidence in strategies to address polio.

Efforts to create confidence around the program for polio eradication must be focused on integrating polio activities with the routine immunization system as well as maternal and child health services. Strengthening routine immunization systems and tackling basic determinants such as environmental sanitation, hygiene and addressing rampant malnutrition must be an integral part of the mission to make polio history.

**Competing interests:** The author is a member of the WHO Strategic Advisory Group on Immunizations (SAGE) and its Polio committee and declares no conflict of interests related to this editorial, reflecting his personal views.

### References