

# Poliomyelitis, security issues and pakistan

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## Editorial

Poliomyelitis was recognised as an important contagious disease, almost a century ago and efforts were made to develop control programme, after launching mass scale vaccination campaigns, in 1950s. Gradually, it led to decline of Poliomyelitis in the industrialised developed countries.<sup>1</sup> In the United States (US), there was no indigenous case seen after 1979. The travellers continued to bring the back the causative virus from abroad, till 1993.<sup>2</sup> The Global Polio Eradication Initiative (GPEI) was launched as a result the resolution adopted by the 41<sup>st</sup> World Health Assembly for the global eradication of poliomyelitis. The campaign was successful due the joint efforts of respective national governments, WHO, Rotary International, the US Centres for Disease Control and Prevention (CDC), UNICEF. There was a generous support by many key partners like the Bill and Melinda Gates Foundation.<sup>3</sup> Polio has been eradicated from the world, except two neighbouring countries; Pakistan and Afghanistan and that two in mainly in their contiguous areas.<sup>4</sup> A localised endemicity of the disease may endanger the whole world, as a traveller may carry the virus in his intestine, to any part of globe. Pakistani passengers are restricted in their foreign travel, unless get the poliovaccine drops or show a valid certificate of specific immunization.<sup>5</sup>

For a decade or so, I served as a member of the Polio Eradication Certification Committee of the WHO, till the year 2009. Our laboratory was isolating, identifying and typing the strains of Poliovirus. We were engaged in the studies of Polio-vaccination coverage and efficacy, in Pakistan. By the end of 1996, we had to intervene at national level to ensure the national campaign of vaccination. Then the questions were raised by the media as well as our general public about the efficacy, reliability, safety and complications of Polio-vaccine, which had already been procured and stored. It was ready to be dispensed. I was called to give the answer. We collected the samples of vaccine, from various points and ensured that vaccination campaign was carried out. The National Institute of Biological Standards and Control (NIBSC), Potters Bar, England helped us in the provision of scientific proof for the potency and efficacy of the vaccine. Public confidence was gained and all went well. With our perpetual efforts, we did well, even better than neighbouring India, over the next one decade. Then we lost the battle against Polio and there was a sudden upsurge of the paralytic polio cases, after 2007, which coincided with worsening law and order situation.<sup>6</sup>

A case of paralytic polio is a tip of the iceberg, with which there may be thousands of those who have no symptoms but actively secrete the virus. Their faeces passed the viral strains to the sewage, which was making way back to the potable water. Moreover, the virus was being exported by highly mobile population of militants, who were hiding inside our lawless, out of reach areas. Once displaced, they carried the virus to other disturbed areas of the world, where they went to join the fight. The year 2014 was perhaps the worst, with a five-fold increase in reporting of paralytic cases, an affected by the Wild Poliovirus type-1 (WPV1), compared 2013. Eighty seven per cent of cases were seen in the Federally Administered Tribal Areas (FATA) and the province of KP. The wild Poliovirus trickled g into major urban centres, where internally displaced people took refuge. In the sewage of metropolitan

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areas, the WPV1 along with vaccine-derived poliovirus (cVDPV) 2 strains were discovered. The affected cities had sporadic cases and there was no major outbreak. Viral transmission could not sustain itself. It was mainly due to herd immunity of the urban population. There was a winter of opportunity during winter months, with a low transmission of WPV. If the vaccination campaigns were then intensified, the virus might be eradicated. There was a need to reach the children of the inaccessible, zones of insecurity.<sup>7</sup>

As we mentioned, the militants were a mobile population. China, since 1994 was free from the Poliovirus. In 2011, in troubled Xinjiang Province, close to the Pakistani border, the virus made its appearance and there were seven of paralytic polio confirmed cases, there. The causative strain was WPV1, genetically similar to that circulating Pakistan.<sup>8</sup> Syrian conflict had attracted many militants from abroad, who brought back Poliovirus with them, in a country, where its last indigenous case had occurred in 1999. That outbreak has physically crippled, at least 13 children, by October 2013. Genetically, it was proven that the causative viral strain had come from Pakistan. Then the same virus circulated in the Middle East and North Africa. Molecular testing and Genetic sequencing of the strains of Poliovirus, isolated in the sewage of Egypt, Israel and Palestine, in the 2012 had an established link to such strains.<sup>9</sup> From the Mediterranean coast to China, same strains were circulating, which had their origin in Pakistan. In Pakistan, we faced a big problem. People of FATA and adjacent KPK areas, as well as Baluchistan and Karachi suffered because of refusal of the vaccine, attack on Polio teams.<sup>10</sup> In the year 2000, a circulating cVDPVs strain emerged. Moreover, genetically unstable Sabin-strain viruses imposed a risk, due to a possibility of genetic reversion to the virulent parent strain. These circulated in a population, which had a low level immunity.<sup>11</sup> With improved law and order situation, in Pakistan, vaccination campaigns have been resumed. Much depended upon the safety, security and peace, this produced a conducive environment, for reaching the people, who needed vaccine.<sup>12</sup>

With improved law and order, the year 2016 was the year of lowest number of cases of Poliomyelitis, which were 20. By now, in the year 2017, we had just two cases. The most recent case had onset of paralysis on 13 February, from Diamir district, Gilgit Baltistan. In

Afghanistan, there were 13 cases in the year 2016 and three cases in 2107. The last case was in Kunduz province. Still, in Nigeria, WPV1 and vaccine-derived poliovirus type 2 (cVDPV2) is circulating.<sup>13</sup>

Still much needs to be done. After sacrificing many lives of polio-vaccine workers and achieving control over the situation, we have reaching to this stage. Still much needs to be done, in terms of continuous surveillance and watch over the sewage and water resources. Efforts are made to vaccinate the children at border crossing between Pakistan and Afghanistan and local transport .<sup>14</sup> Under very difficult situation, the nation has made many sacrifices of lives, in an attempt to vaccinate left out children and reach the most dangerous areas of the world, with courage .<sup>15</sup> It depended upon international support, development of strategies and commitment.

## Acknowledgments

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## Conflicts of interest

None.

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