

## SPECIAL COMMUNICATION

## POLIO ELIMINATION IN PAKISTAN: STILL A DREAM?

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Pakistan has failed to achieve polio elimination till yet. Poliomyelitis is a crippling childhood disease, which causes paralysis for life. Aim of this study is to compare the frequency of polio cases in different provinces of Pakistan from 2010 till 2017. Results showed that total of 144 cases of polio were reported in 2010, a rise up to 198 was reported in 2011, a decline in cases was seen in 2012, i.e., 58, again cases rouse up to 93 cases, in 2013. In 2014, 306 cases were reported the rate declined considerably in 2015, i.e., 54 cases and in 2016 only 20 cases were seen. In 2017 only 8 cases were reported. So, it can be concluded that progressive improvement is seen in Pakistan regarding polio. Focused efforts should be continued till its complete elimination from the country as this will also give a positive message to the world about Pakistan being a responsible and peaceful nation.

**Keywords:** Polio; Pakistan; Review; Eradiction

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## INTRODUCTION

Polio is considered a disease of past in many countries but it is still a menace in Pakistan. Pakistan is the last reservoir of wild polio virus serotype 3 in Asia. Poliovirus is an enterovirus belonging to "Picornaviridae" family. This virus principally affects children under 5 years of age. Mode of transmission is mainly feco-oral and less commonly respiratory. Replication of poliovirus occurs in motor neurons of the anterior horn cells of spinal cord and brain stem cells result in typical manifestations of poliomyelitis. Polio causes "paralysis", "deformities of limbs", "difficulty in breathing" and eventually death. Polio is a self-limiting disease in majority of the cases. One out of 200 cases of poliomyelitis lead to irreversible paralysis usually in legs. Vaccination can completely prevent this infection.<sup>1</sup> Persistence of polio virus in Pakistan is a serious global public health concern. In Pakistan and Afghanistan, it is still endemic. Pakistan is leading Afghanistan in numbers of polio cases.<sup>2</sup>

Pakistan has more polio cases than any of the other country in the world. Nigeria has eclipsed Pakistan as the biggest threat to polio eradication. Polio virus is contagious so the world is at risk till its complete eradication throughout the world.<sup>3</sup> Pakistani government took initiatives such as arresting parents who refused polio vaccination for their children. Main cause of failure of vaccination programs is not parental refusal instead it is suggested that security issues play more important role.<sup>4</sup> UN's Secretary General showed concern over reconnaissance of polio in Pakistan. This issue has gained attention in addition to security issues as without its elimination from all countries eradication of polio worldwide is still a dream. It is stated that even a single case of polio is a threat to all children of all the other countries and this would be the second time in

history when global goal could not be achieved. In Pakistan, Polio eradication initiative was commenced in year 1994. Since 2000 a lot of effort has been done, vaccination is given several times to all children aged under 5 country-wide. Initially remarkable success of Polio Eradication Initiative was seen. Number of cases of acute flaccid paralysis as shown by surveillance data revealed a marked reduction in number from 1997 till 2005. Resurgence of polio was seen since 2007. In 2008 in Punjab 8 cases of polio were seen.<sup>5</sup>

Mass media has played a vital role in success of immunization programs. However, reaching the farthest area of the country was an issue. Findings showed that improved communication strategies might have contributed on success of these programs on several levels. This may include mobilization of social networks and leaders, political will, improving knowledge, assessing individual demands and also of community, overcoming the gender barriers, resistance to get vaccinated and better approach to the poorest and distant populations of the country.<sup>6</sup>

Pakistan faced failure in Global Eradication Initiative after its success until 2005. After 2005 new polio cases continued to rise every year. Repeated polio outbreaks have placed the country on the watch by WHO. Key social factors identified are religion, political environment, public awareness, security issues, inequity, bad governance and social issues are found to be the key social factors responsible for the failure of vaccination campaigns. Proposed interventions that could lead to the improvement include effective modern mass media, education of vaccinators and targeting social and cultural issues of the targeted community.<sup>7</sup>

Effort to eradicate polio just like smallpox began in 1988. In that year 350,000 people developed polio. The Global Polio Eradication Initiative which was led by WHO hoped to achieve the target by 2000.

Pakistan initially was successful in reducing the burden of the disease from 1,155 cases (1997) to 28 (2005).<sup>8</sup> Few children who were not vaccinated were those who were absent from home or due to inaccessibility of polio workers to that area. Refusal rate of the community was 0.3% and the reason of refusal was also not purely religious. According to Global Polio Eradication Initiative in Pakistan, data indicated that resistance of the community is not the main reason to eradicate polio in the country. Repeated military operations in tribal areas may also be the reason. A need arises to strengthen routine immunization programmes especially in “FATA”, “NWFP” and “Baluchistan”.<sup>9</sup>

A mixed method study that started with cross-sectional survey was done in Karachi, Pakistan. This was done by using a structured questionnaire, assessment of parental knowledge was done regarding polio Supplementary Immunization Activities which were conducted in September and October, 2011. In addition, 30 Pashtun parents who refused for the vaccination of their child were interviewed in depth. Results showed that of 1017 parents surveyed, 41% had never heard of polio, 13% had not participated in one of the SIA and 15.4% were those who had not participated in either SIA. Among non-participants, 21.6% reported they were not contacted by a vaccinator, 73.9% were those who refused to participate and 4.5% reported that the child was not present at the time when the vaccinator visited. Refusals clustered in low-income Pashtun (9.8%) and high-income families of any ethnic background (46.4%). Low-income Pashtuns were more likely to not have participated in polio SIAs than low-income non-Pashtuns. Reasons commonly cited among Pashtuns for refusal of vaccination were fear of sterility, lack of faith in the vaccine, uncertainty about the programme, and doubt that the vaccine might contain religiously forbidden products in it. Integrated and participatory community measures should be taken in high risk population.<sup>10</sup>

Another study was done in 2007, to investigate community perceptions about OPV and estimated the prevalence of OPV refusal in three districts in Swat

Valley, KPP which are polio-endemic. Results of this study suggested that among the three districts studied, the proportion of LHWs who encountered OPV refusal ranged from 0 to 33%, whereas among the districts, the proportions of mothers unwilling to give OPV to their children ranged from 0.5 to 5.7%. Refusal of other injectable vaccines was almost equally prevalent for reasons that were very similar.<sup>11</sup>

Aim of this study was to compare the frequency of polio cases in different provinces of Pakistan from 2010 till 2017. Data from official website was taken.<sup>12</sup>

## RESULTS

Results showed that number of cases reported in Punjab in 2010 were 7, in 2011, 9 cases were reported, in 2012, 2 cases were reported, in 2013, 7, in 2014, 5, in 2015, 2 and none case was reported in 2016 and in 2017 1 case was reported.

In Sindh 27 cases were detected in 2010, 33 in 2011, 4 in 2012, 10 in 2013, 30 in 2014, 12 in 2015, 8 in 2016 and 2 in 2017.

In Khyber Pakhtunkhwa 27 cases were reported in 2010, 23 cases in 2011, 27 in 2012, 11 in 2013, 68 in 2014, 17 in 2015, 8 in 2016, 1 in 2017.

In FATA 74 cases were reported in 2010, 59 in 2011, 20 in 2012, 65 in 2013, 179 in 2014, 16 in 2015, 2 in 2016 and none in 2017.

In Balochistan 12 cases were reported in 2010, 73 in 2011, 4 in 2012, none in 2013, 25 in 2014, 7 in 2015, 2 in 2016 and 3 in 2017.

In Gilgit-Baltistan no case was reported in 2010, in 2011, 1 case was reported, in 2011, 1 case was reported, none in 2012, 2013, 2014, 2015, 2016 and 1 case in 2017.

No case was seen in Azad Jammu & Kashmir from 2010-2017.

So, a total of 144 cases were seen in Pakistan in 2010, 198 in 2011, 58 in 2012, 93 in 2013, 306 in 2014, 54 in 2015, 20 in 2016 and 8 in 2017.

**Table-1: Province wise distribution of polio cases.**

| Province             | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|----------------------|------|------|------|------|------|------|------|------|
| Punjab               | 7    | 9    | 2    | 7    | 5    | 2    | 0    | 1    |
| Sindh                | 27   | 33   | 4    | 10   | 30   | 12   | 8    | 2    |
| KPK                  | 24   | 23   | 27   | 11   | 68   | 17   | 8    | 1    |
| FATA                 | 74   | 59   | 20   | 65   | 179  | 16   | 2    | 0    |
| Balochistan          | 12   | 73   | 4    | 0    | 25   | 7    | 2    | 3    |
| Gilgit-Baltistan     | 0    | 1    | 1    | 0    | 0    | 0    | 0    | 1    |
| Azad Jammu & Kashmir | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Total                | 144  | 198  | 58   | 93   | 306  | 54   | 20   | 8    |

## DISCUSSION

Pakistan is unfortunately one of those countries in which polio is still endemic. Lack of proper

governance and accountability along with opposition from local groups regarding vaccination are negatively affecting the efforts to get rid of this disease. However, political and official commitment

have improved from the last few years but commitment at district level still lacks. In 2006 40 cases of polio were reported in the country as compared to 28 cases detected in 2005. 16 of the total cases were found in NWFP and FATA; 10 cases were reported in Balochistan, 12 in Sindh, and 2 in Punjab provinces, respectively. Religious and tribal area leaders have worsened the situation by declaring polio campaign US conspiracy aimed towards controlling Muslim population. These leaders also question Pakistan's government so much interest in polio eradication alone when clean water, employment opportunities and electricity are more urgently needed. According to WHO 34.1 million children were vaccinated during January 2007, which constitutes 97% of the target population. Global Polio Eradication Initiative was successful worldwide but in three endemics and some non-endemic countries its results are questionable. Pakistan is still endemic and is also a threat to its success. Currently, the Expanded Programme on Immunisation in Pakistan has gained pace by initiating steps such as door to door campaign. Decrease in polio cases were tremendous from 198 (2011) to only 58 (2012) was seen in Pakistan. So, it seemed that hopefully Pakistan will be successful. Reasons found were "war against terrorism", "misconceptions regarding the vaccine", "religious misinterpretations", "lack of security of vaccinators", "poor awareness of the parents", "social factors", "natural disasters", "lack of access to the area" and "inefficient vaccines weakened the campaign". Weak health management is found to be the majority challenge.<sup>13</sup>

Our study showed that in 2010, 144 cases of polio were reported, next year in 2011 the rate of reported polio case was still high, i.e., 198. Sudden decline in reported cases can be seen in year 2012, i.e., 58 cases. Cases rose to 93 in 2013 and up to 306 cases in 2014. A drop in 54 cases was seen in 2015, 20 in 2016 and 8 in 2017.

Unstable security situation in the region might threaten the success of eradication in Pakistan.<sup>14</sup> Making polio eradication part of routine immunization, ensuring that locals take ownership and consider polio eradication as a social problem, continue immunization, directly working with community members and leaders, keeping low profile on international deadlines are considered to be the new strategies for polio eradication. Increase in health coverage and easy accessibility to these services could be helpful in developing an atmosphere of trust between both parties i.e., government and the public.<sup>15</sup>

Executive Board of WHO declared polio eradication a "programmatic emergency". Afghanistan, Pakistan and Nigeria are the only

reservoirs. India has been removed from the list since February 2012. Global polio eradication was hugely successful from January 2011 till March 2012. 52% reduction in number of polio cases was seen all around the world from the year 2011. However, situation was very different in Afghanistan, Nigeria and Pakistan where cases of polio increased in 2011 as compared to number of cases in 2010. So, it can be stated that progress towards polio eradication was huge in 2011, but its presence in Nigeria and Pakistan is a threat to these eradication efforts.<sup>16</sup>

Cases of polio were detected in 14 countries in 2008 but after 2009 polio was endemic in only 4 countries of the world (India, Nigeria, Afghanistan and Pakistan). Major reason for failure in Nigeria, Pakistan and Afghanistan is considered to be religious opposition by Muslim fundamentalists. Religious conflicts raised by these fundamentalist in tribal areas of Pakistan is considered to be a biggest hindrance to effective vaccination. Kidnappings and physical abuse of the vaccinators has also been reported in Pakistan. It is said that no child will be safe in an area till wide vaccination coverage. And this will also prevent exportation to other regions of the world.<sup>17</sup> A study done in Pakistan showed that immunization is better in urban areas than rural areas. Wide variation was seen in different provinces of Pakistan during the last ten years. It was also observed that 10–20% of children who had first dose of OPV were not given the next dose due to poor performance of EPI staff or due to poor knowledge about the immunization schedule. Poor delivery service, lack of clear information about immunization and fewer staffs were identified as the main reasons for the failure of this program.<sup>18</sup>

Poliovirus in Pakistan is considered as a "national emergency". Pakistan is at risk of becoming the last and the only home of the Poliovirus in the world. To improve the situation efforts are being made to stop transmission of Polio virus. National emergency plans are being developed to increase the quality of the campaigns. GPEI organizations are helping by providing technical and financial assistance to the country. Vaccination campaign tactics are improved to ensure that majority of the children are being reached. Better planning strategies are done to ensure better allocation of resources and to yield maximum results. Awareness about polio should be made by involving public and private departments for its eradication. Awareness should be made by combined efforts of religious scholars, health organizations and political leaders so that health education can be imparted to masses in a positive way.<sup>13</sup>

A randomized trial was done in high-risk and insecure areas of Karachi, and border areas of

Pakistan and Afghanistan. Results revealed that an integrated approach is required to gain trust of the community. Challenges which Pakistan faces include issues of security, conflict in various areas and lack of trust on OPV campaigns. Efforts made by the Pakistani government include community mobilization, establishment of health camps on regular basis, strong focus on MCH services and widespread immunisation programs. All these efforts yielded positive results. This approach is also being expanded in Baluchistan.<sup>19</sup> It is stated that signs for polio elimination in Pakistan in future are cautiously positive.<sup>20</sup>

## CONCLUSION

As 1 out of 200 cases of polio lead to irreversible paralysis mainly in children aged under 5 years. Among those paralysed, 5–10% die due to immobilization of respiratory muscles. With the world this close to eradication of polio it is the responsibility of the countries who still have polio virus to play their part. This is a challenge for all the countries to achieve its eradication as soon as possible and make this fatal illness a memory of the past. Health education in distant areas of Pakistan and stable political environment should be ensured to make this dream a reality.

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