ORIGINAL PROF-1539

VACCINE REFUSAL;
AN OBSTACLE TO A POLIO-FREE WORLD

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Article Citation:
Shukr RI, Ali S, Manzoor F, Sahi N, Sattar S. Vaccine refusal; an obstacle to a polio-free World. Professional Med J Mar 2010;17(1):145-150.

ABSTRACT...Objective: To evaluate the pattern and reasons of reluctance/ refusal to polio vaccination with an aim to gain insights and learn lessons during Polio campaign. **Setting:** Polio campaign days during 2009 in Muzaffar Garah district between January to April 2009. **Study design:** Cross sectional survey. **Material and Methods:** Survey done during intensive polio days during the three campaigns this year by detailed interview with parents, senior members of the family regarding reluctance to administer oral polio drops in the Muzaffar Garah district. Reasons and frequency of reluctance were documented. After counseling the WHO team managed to convince part of the reluctant population. The data was once again collected from the unconvinced population of parents who declined till the end. **Results:** During the survey there were 404 reluctant parents.236(58%) of these were convinced and the remaining stayed unvaccinated despite counseling. Amongst the group that showed initial reluctance. 132(32.5%) refused to cooperate due to religious misconceptions. Of the confirmed deniers 116(69%) belonged to a conservative religious group .The most easy to convince group was the group demanding monitory benefits for cooperating in Polio campaign 13(7%). **Conclusion:** People refuse Polio vaccination due to misinformation /misconception especially on religious grounds. The die hard refusals were mostly linked to religious reasons. Education of religious leaders is the way forward to drive Polio to extinction.

Key words: Polio eradication, vaccination refusal, WHO.

ABBREVIATIONS

AFP	Acute Flaccid Paralysis
CSP	Campaign Support Person
EPI	Expanded Programme of Immunization
FATA	Federally Administrated Tribal Areas
NID	National immunization Days
SIA's	Supplementary Immunization Activities
tOPV	Trivalent Oral Polio Vaccine
UC	Union Council
UNICEF	United Nations Children Fund
WHO	World Health Organization
WPV	Wild Polio Virus

cVDPVs Vaccine-derived polio viruses
iVDPVs- Immunodeficiency-associated vaccine-derived polio viruses.

INTRODUCTION

Poliomyelitis is an old disease. Clay pictures and hieroglyphs suggest that polio occurred among the ancient Egyptians[1].

Article received on: 20/06/2009
Accepted for Publication: 04/09/2009
Received after proof reading: 08/12/2009
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In the United States, the most vividand well-described epidemics occurred in the 20th century. The frequency of paralytic polio increased in the first half of that century, reaching its peak in the 1950s[2]. Subsequently, the introduction of polio vaccine and mass campaigns resulted in the eradication of wild-type polio in the United States; the last case of indigenously acquired wild-virus infection was reported in 1979[3].

In 1988, the World Health Assembly resolved to eradicate polio worldwide. The Global Polio Eradication Initiative (PEI) of the World Health Organization (WHO) has led to a decline in global polio incidence, from an estimated 350,000 cases in 1988 to fewer than 2,000 reported cases in 2005[5,6,7]. In the same year three World Health Organization (WHO) regions (Americas, Western Pacific, and European) have been certified as polio-free[1] ,and reduced the number of countries that have never succeeded in interrupting WPV transmission from 125 to four[8]. Thus polio remains endemic to only four countries (Afghanistan, India, Nigeria, and Pakistan)[9]. Pakistan is one of the 4 countries where wild polio virus (WPV) transmission has never been interrupted[10,11].

The WHO defines eradication as "complete interruption of wild polio virus transmission[12]." As there is no cure for this disease, Dr. Hull emphasized that eradication would be the only indication to stop immunization[13]. The eradication of polio from the world is a major operation, involving four global partners — UNICEF, the World Health Organization, Rotary International and the US Centres for Disease Control and Prevention[14,15].

Polio outbreaks continue to be associated with circulating vaccine- derived polioviruses (cVDPVs) in areas with low oral polio vaccine (OPV) coverage. In addition, long term excretion of neurovirulent immunodeficiency associated vaccine-derived polio viruses(cVDPVs) in areas with a low oral polio virus vaccine (OPV) coverage. In addition, long term excretion of neurvirulent immunodeficient –associated vaccine derived polio viruses (iVDPVs) can lead to polio virus spread to contacts[16].

Overcoming these obstacles is challenging. WHO maintains an iVDPV registry to keep an account of vaccine associated paraluses. The risk of such an event is minimal if the vaccine coverage is high which is being maintained by SIA's.Unlike the situation in the 3rd world ,Trivalent IPV is the only vaccine that is available for routine immunization in the United states and is preferred vaccine for developed countries as it does not cause vaccine associated poliomyelitis. Many countries expect to stop using OPV after certification of the world as free of circulating wild polio viruses and all countries will need to stop using OPV at essentially the same time. Coordination of the end game is an obvious requirement for success, but cooperation is not being ensured[20].

Therefore in 2009, the number of planned National Immunization Days (NIDs) has been increased to 6 rounds (i.e., one round every 2 months to achieve eradication .Therefore the number of Polio days observed in Pakistan are on the rise. However, two additional obstacles to global eradication are refusal for polio vaccine and in access to target population because of security conditions.

In those areas where SIAs can still be conducted, a climate of fear prevails and often prevents vaccination teams from entering districts, leading to a further decrease in SIA coverage[21]. NWFP in Pakistan as well as parts of the Eastern Region of Afghanistan was often too dangerous to allow vaccination campaigns to be conducted. Several SIA workers have been kidnaped and held for prolonged periods. In September 2008, 2 Afghan doctors and their driver, who were working for WHO, were murdered while traveling in Kandahar Province to conduct an SIA. In those areas where SIAs can still be conducted, a climate of fear prevails. In accessible areas of Pakistan, continued managerial and operational problems impeded full implementation of SIAs and adversely affected vaccination coverage. Finally, countries at war provide a unique obstacle to the international efforts[2].

The WHO target could not be achieved in 2000 but the forecast for success was postponed till 2005 and then to 2008.Due to failure of coordinated activity the end game

is getting prolonged before driving Polio to extinction. The cost of prolonged SIA's world wide is astronomical. A recent WHO report said that one more billion dollars are required to wipe out Polio. WHO fears that its goal of eradicating Polio is now under threat[3].

MATERIAL AND METHODS

The present survey was done during intensive polio days during the three campaigns this year by detailed interview with parents, senior members of the family upon reluctance to administer oral polio drops in the district Muzaffar Garah. The Polio Days were observed on 22nd Jan, 19th March, and 13th April 2009.Each of the SIA was conducted for four days – three day routine and one day of catch up. Reasons and frequency of reluctance were documented .The algorithm shown in figure 1 was followed for counseling. After counseling the WHO team managed to convince part of the reluctant population. The data was once again collected for the unconvinced population of parents who declined till the end.

RESULTS

During the three SIA's there were a total of 1468192 successful vaccinations and 404 reluctant parents. 236(58%) of these were convinced and the remaining stayed unvaccinated despite counseling. Amongst the group that showed initial reluctance 132(32.5%) refused to cooperate due to religious misconceptions. Of the confirmed deniers 116(69%) belonged to a conservative religious group.

RESULTS

Table-I. Data for Distt Muzafar Garah for Polio days 2009

Month	Vaccinated	Reluctant (%)	Agreed	Decline
January	689731	119 (29.5%)	71 (30%)	48 (28.5%)
March	699325	131 (32.5	94 (40%)	37 (22.5%)
April	709136	154 (38%)	71 (30%)	83 (49%)
Total	2098192	404	236	168

Table-II. Reason for reluctance (N=404)

Reason	Reluctant	Decline
Religious	132 (32.5%)	116 (96%)
Ignorance / Mistrust of modern medicine	142 (35%)	39 (23%)
Govt. Demands	132 (32%)	13 (7%)
	404	168

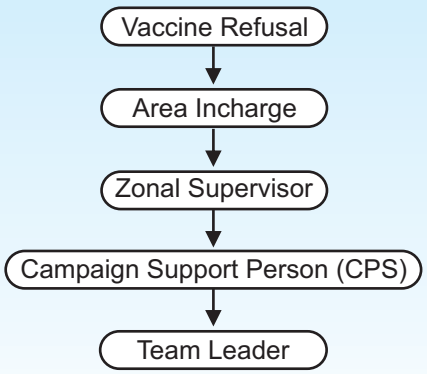

Fig-1. Cascade followed by WHO team for counseling parents reluctant for vaccination.

DISCUSSION

The present survey was conducted along with dedicated WHO team for Polio eradication to estimate magnitude and cause of patient refusal. The goal is to learn more about the extent of refusals and to design district specific strategies to handle them. The emphasis was placed on having locally appropriate strategies and area specific micro plans to reach every child.

Immunization against Polio virus infection represent one of the world's greatest medical achievements. The last cases of naturally occurring, wild type Poliomyelitis in the United States occurred during a small outbreak in a religious community in 1978-79[20].Currently, all nations in the western hemisphere , the Pacific region (including China) and Europe are free of Poliomyelitis[20].

Considering the epidemiology, all Pakistan is considered at risk of wild Polio virus transmission. The experts called upon Pakistan to carry out analyses of missed children in the community to focus on building linkages between routine immunization and polio eradication. The current focus of vaccination is children under one year of age who are often missed because they are sick or sleeping. More women have been inducted into the Polio teams to improve access into households.

During 2008 , both Pakistan and Afghanistan continued to conduct SIA's .In total 149 WPV cases (31 in Afghanistan and 118 in Pakistan)were confirmed in 2008 , compared to 49 cases in 2007[22].

To improve monitoring of SIA's and to evaluate coverage afterwards finger marking of children was introduced in 2008.Analyses of SIA coverage using finger marking showed persistent gaps in vaccination coverage in Pakistan. Due to ongoing security situation in parts of NWFP remained neglected. As of Feb 2009 , there were four confirmed cases of Polio this year. One type I case from Mohammad agency in FATA and three type 3 cases (two from Charsada and one from Sialkot). During the present campaign in Southern Punjab extensive advocacy, media and social mobilization activities were conducted before and during the campaign, with the full mobilization of local electronic, cable and print media. Overall the campaign went smoothly in the majority of the districts including district Muzafar Garah.

The dedicated members of the WHO team took Polio refusal very seriously and followed a chain of command, ultimately calling the team leader to convince locals .Majority were convincible .The die hard refusals were those who refused on religious grounds. The main fear in their mind was that the drops harbored contraceptive material. A similar situation has occurred in Nigeria where Muslims have refused Polio vaccination from 2004 -2008.The WHO is carrying out anti-polio vaccinations in the six worst affected states in Nigeria. Datti Ahmed, the president of the Kano-based Sharia (Islamic Law) Supreme council, said the vaccine is laced with anti-fertility drugs and is part of a U.S.-led conspiracy to depopulate the developing world. This led to a 30 percent increase in Polio cases from previous year, in Nigeria, according to a WHO report . This makes Nigeria a hot spot for Polio[15]. In our survey several tribes following one religious leader utterly refused Polio drop upon his directive. The leader apparently had similar notions about the hidden contraceptive properties of drops.

A parallel situation was handled amicably in Noshera this year .Here the Nazim refused to support the last polio campaign due to various misconceptions. This was also published by the print media and following his opposition many religious groups also opted for refusal The WHO team met the Nazim before the campaign and listened to his views. The health team shared the detailed information about polio disease including mode of spread and he was convinced. The refusal families were invited to participate in the Jirga. The way forward to improve vaccination uptake is to collaborate with Imam-e Masjid as was done in Nowshera this year. The Khateeb/Imam of that mosque referred to relevant versus from the Holy Quran explained that only healthy child could be proved helpful for parents, family and society. He requested the participants to avail the opportunity of vaccination in early age to keep them healthy. The speakers also highlighted that polio can be eradicated like small pox if every target child is vaccinated in all the campaigns.

Some parents belonging to low socioeconomic class demanded monetary benefits from government to allow their children to be vaccinated. In “Hamza Wale” people demanded vegetable oil as an incentive before thy could cooperate with the vaccination team. The campaign members spend a lot of time in District Muzffar Garah explaining them how much was being spent on the campaign for their betterment and that with their co-operation the game would soon be won and over. Incidences of bargaining Polio vaccination with monitory benefits have not been recorded in NWFP They also briefed them about safety of vaccine and its utilization with successful results by other Islamic countries[25]. Great majority agreed to vaccination due to supportive attitude of the health workers.
Pakistan Peadiatric Association (PPA) also launched campaign activities in Peshawar, reiterating the commitment of paediatricians in improving immunization. The polio control cell established in PTV headquarters remained functional throughout the present campaign to ensure more children are reached[25].

By scaling up interventions that include high EPI coverage & other interventions creating awareness and behaviour change among the general public and healthcare workers. and sending low profile teams and supervisors in the field, the teams succeeded in vaccinating majority of reluctant families. During the February Polio day in our survey one family refused vaccination and upon counseling let their watch dogs loose on the team members to drive them away. Some members were actually beaten up by aggressive refusers .Even then the dedicated members did not give up and called the CSP who managed to administer Polio drops to such resistant families. Still refusals are on the rise in Southern Punjab as shown in our survey. Some deniers were very aggressive and adamant and the members gave up fearing physical abuse by ignorant group of people.

This is a critical time in the fight to eradicate polio. Hopefully, we are now at the bitter end of global eradication of wild polio viruses. We cannot declare success before the war is won to complete polio eradication[25].

Polio is now "Out of sight, out of mind." But polio could come back with a vengeance, and it will most likely be much cheaper, and better from a health perspective9, to finish polio eradication now instead of trying to control the disease and keep it at the current low level of cases said Dr. Kimberly Thompson, Associate Professor and Director of the Kids Risk Project at the Harvard School of Public Health[26].

Achieving successful eradication of a disease requires global cooperation to obtain a shared goal. Coordination of the end game is an obvious requirement for success and the resources used to eradicate polio can then be used to remove other diseases, such as measles, from the globe.

CONCLUSIONS

The need of the hour is for the Government to urgently set up an independent think-tank to guide on Polio refusal. Unsuspecting people are being misled by misinformed religious leaders .Education of and dialogue with these leaders would enlighten them and improve vaccination rates by ensuring trust and co-operation of public to reject all types of anti vaccination propaganda.

REFERENCES

1. Sabin AB. **Properties and behavior of orally administered attenuated poliovirus vaccine.** J Am Med Assoc 1957;164:1216.

2. Hinman A. **Eradication of vaccine-preventable diseases.** Annu Rev Public Health 1999;20:211-229.

3. Aylward B, Hennessey KA, Zagaria N, Olive J-M, Cochi S. **When is a disease eradicable? 100 years of lessons learned.** Am J Public Health 2000;90:1515-1520.

4. Health World Organization Polio Eradication. **Wild Poliovirus Weekly Update.** Available at: http://www.polioeradication.org/ casecount.asp (Accessed October 30, 2008)

5. Barrett S, Hoel M. **Optimal disease eradication.** Environ Dev Econ 2007;12:1-26.

6. Barrett S. **Eradication versus control: the economics of global infectious disease policies.** Bull WHO 2004;82:683-688.

7. Thompson KM, Duintjer Tebbens RJ. **Eradication versus control for poliomyelitis: an economic analysis.** Lancet 2007;369:1363-1371.

8. Sangrujee NK, Duintjer Tebbens RJ, Caceres VM, Thompson KM. **Policy decision options during the first five years following certification of polio eradication.** MedGenMed. 2003;5(4). Available at: http://www.medscape.com/viewarticle/464841 Accessed July 30, 2008.

9. Centers for Disease Control and Prevention. **Poliomyelitis prevention in the United States: updated recommendations of the Advisory Committee on Immunization Practices (ACIP).** MMWR 2000;49(No. RR-5):1-22.

10. John TJ. **A developing country perspective on vaccine-associated paralytic poliomyelitis.** Bull World Health Organ 2004;82:53-7.

11. CDC. **Progress toward poliomyelitis eradication—Pakistan and Afghanistan, 2007.** MMWR 2008;57:315--9.

12. World Health Organization. Conclusions and recommendations of the Advisory Committee on Poliomyelitis Eradication, Geneva, 11-12 October 2005. Wkly Epidemiol Rec 2005;80:410-416.

13. World Health Organization. Polio Eradication Initiative. **Cessation of Routine Oral Polio Vaccine (OPV) Use After Global Polio Eradication. Framework for National Policy Makers in OPV-Using Countries.** Geneva, Switzerland: World Health Organization; 2005. Report No WHO/POL/05.02.

14. CDC. **Progress toward poliomyelitis eradication—Pakistan and Afghanistan, 2007.** MMWR 2008;57:315--9.

15. CDC. **Progress toward poliomyelitis eradication—Nigeria, 2005–2006.** MMWR 2007;56:278--81.

16. Centers for Disease Control and Prevention. **Laboratory surveillance for wild and vaccine-derived polioviruses, January 2006 to June 2007. MMWR Morbid Mortal Wkly Rep.** 2007;56:965-969. Global Alliance for Vaccines and Immunization. Investment case for the polio stockpile. June 20, 2005.

17. Available at: http://www.vaccinealliance.-org/resources/16brd_07._Polio_Stockpile_investment_case.pdf Accessed July 30, 2008.

18. Asturias, EJ, Dueger, EL, Omer, SB, et al. **Randomized trial of inactivated and live polio vaccine schedules in Guatemalan infants.** J Infect Dis 2007; 196:692.

19. Kew, OM, Wright, PF, Agol, VI, et al. **Circulating vaccine-derived polioviruses: current state of knowledge.** Bull World Health Organ 2004; 82:16.

20. Minor, PD, Dunn, G, Ramsay, ME, Brown, D. **Effect of different immunisation schedules on the excretion and reversion of oral poliovaccine strains.** J Med Virol 2005; 75:153.

21. Update on vaccine-derived poliovirus—worldwie. Januaru2006-August 2007.MMRW Morb Mortal Wkly Rep 2007:56:996.

22. World Health Organization. **WHO vaccine-preventable diseases monitoring system: 2007 global summary.** Geneva, Switzerland: World Health Organization;2007. Available at http://whqlibdoc.who.int/hq/2007/who_ivb_2007_eng.pdf.

23. World Health Organization. **WHO vaccine-preventable diseases monitoring system: 2008 global summary.** Geneva, Switzerland: World Health Organization. Available at http://www.who.int/vaccines/globalsummary/immunization/countryprofileselect.cfm.

24. Duintjer Tebbens RJ, Sangrujee N, Thompson KM. **The costs of future polio risk management policies.** Risk Anal. 2006;26:1507-1531.

25. **Nigeria Makes Progress Toward Poliomyelitis Eradication.** News, Medscape Medical News, March 2007.

26. NID Report .Government of Pakistan 2009.

27. Thompson KM, Duintjer Tebbens RJ, Pallansch MA, et al. **Perspective: development and consideration of global policies for managing the future risks of poliovirus outbreaks: Insights and lessons learned through modeling. Risk Analysis.** 2006;26:1571-1580.