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STATUS OF ROUTINE IMMUNIZATION IN POLIO PATIENTS

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ABSTRACT:

Objective: To determine the status of supplementary Polio doses given on National Immunization days and the status of routine immunization of all cases of Polio in Sindh.
Study Design: Descriptive/ Cross-sectional
Setting: All the districts of Sindh.
Methodology: All polio cases reported confirmed by virus isolation in all the districts of Sindh were evaluated for the status of routine and supplementary immunization.
Results: A total of 245 children with confirmed Polio were analysed. In 2000 35.3% children with P1W received no supplementary doses while none received 7+ doses while in 2009 all effected children received supplementary doses with 83.3% receiving 7+ doses with a similar pattern for P3W cases.
Routine immunization of these children showed that in 2000, 48.4% of P1W cases had not received any routine polio doses as compared to 2009 where 50% were not immunized. A similar pattern was also seen with P3W cases with 41.2% and 66.7% in 2000 and 2009 respectively who did not receive any routine doses
Conclusion: Routine immunization of polio patients is poor .Strengthening of routine immunization is an important step to achieve polio eradication.

INTRODUCTION:

Immunization is one of the most effective tools for the prevention of infectious diseases. Expanded program of immunization (EPI) initiated by WHO in 1974 made tremendous progress in the initial years of launching. The immunization coverage in Pakistan showed a dramatic increase from a mere 5% in 1982 to 70% in 1984[1]. The last three decades unfortunately have not been that glorious. The high rates of coverage have not been sustained. In 1995-96[2], immunization coverage of one year old children against tuberculosis was 93%, DPT and Polio was 77% and for measles was 78%. In 2002[3], the rates plummeted. Immunization coverage against tuberculosis dropped to 78%, DPT and Polio coverage to 56% and 58% respectively and measles to 54%.
In addition to EPI, in accordance to the World Health Assembly's resolution of global eradication of Polio by 2000[4], supplementary immunization doses of Polio have been administered to children under 5 years through national immunization days (NID's). This programme is active in Pakistan since 1994.
At present Pakistan is one of the four countries along with Nigeria, India and Afghanistan where Polio is still endemic [5] Polio eradication requires both supplementary immunization as well as routine immunization. A total of 118 cases of Polio were reported in 2008 [6] while 89 in 2009[7]. A number of reasons have been cited for the failure to eradicate poliomyelitis one of the possible reasons being below par routine immunization.
In view of the fact that Polio cases are still being reported we decided to review the status of supplementary Polio doses given on NID's and the status of routine immunization of polio of all cases of Polio in Sindh from the year 2000 to September 2009.

METHODOLOGY:

Study Design: Descriptive/Cross-sectional
Setting: All the districts of Sindh

An analysis of all the cases of Polio reported in Sindh from the year 2000-2009 was carried out. The status of routine Polio immunization was determined verbally from the care givers. The number of supplementary immunization doses of Polio given on NID's was also recorded. The recording of this information is part of the Polio Surveillance of all cases of suspected/probable cases of AFP diagnosed by virus isolation.

Data was analysed using EPI Info V2 of Windows. Results were described in percentages and frequencies.

RESULTS:

A total of 245 children were confirmed as polio cases over a period of about nine years from the year 2000- September 2009.Out of these 169 cases were of P1W while the remaining 76 were P3W. The break up of cases by type and year is given in Table1. Supplementary Polio doses given from 2000-2009 is also shown in Table 1. It shows that the number of supplementary doses given to affected children has increased over the years.

In 2000 35.3% of children having polio with P1W received no supplementary doses and none received 7+ doses.

In 2001 there were 31 cases of P1W out of which 4.3% received no supplementary doses, while 17.4% received 7+ doses. In 2002 12.9% received 0 doses, while 22.6% received 7+ doses. In 2003 40% received 1-2 doses, 35% received 4-6 doses and 20% received 7+ doses. In 2004 nearly half of the Polio cases (46.2%) had received 7+ doses. In 2005 all children with confirmed Polio had received 7+ doses. Fifty percent of Polio cases in 2006 received 3 doses while none had received 7+ doses.

In 2007 there were 28.6% children who did not receive any dose of Polio in SIA's with 57.1% receiving 7+ doses. In 2008 and 2009 there were 16 and 6 cases of P1W out of which 62.5% and 83.3% received 7+ doses.

A similar pattern is seen for P_3W cases reported from 2000-2009 as shown in Table 1.

Routine immunization status of confirmed Polio cases was then reviewed. The breakup of cases by type and year is given in Table 2. From 2000-2009 no change is seen in the routine immunization status of children with Polio (P1W). Majority (60.9%) of the children did not receive any dose of Polio vaccine. While only 20.1% received 3 doses.

A similar pattern is seen with P_3W cases with 42 out of 76 ie 55.3% who did not receive any Polio vaccination with 21.1% receiving 1-2 doses and 23.7% receiving 3 doses.

DISCUSSION:

The millennium development goals are to be met by 2015. Out of the eight, MDG 4 pertains to the reduction of child mortality. Most of the children die from diseases which are largely preventable. Immunization holds the key to achieve MDG 4. Inspite of the fact that NIDs have been around for the past 16 years, polio cases are still being reported in Pakistan. Although the number of polio cases since then have reduced but we are still short of achieving the targets. The number of polio cases have decreased from 199 in 2000 [8] to 89 in 2009 [7]. In Sindh the number of cases in 1998 were 290 [9] while in 2009 only twelve cases were reported [10]. Strategy for the eradication of polio includes routine vaccination, surveillance, supplementary vaccination on NID's and mopping up. Supplementary vaccination on NID's have shown a steady improvement .None of the children with confirmed polio due to P1W and 5.9% with P3W had received +7 doses in 2000 vs 83.3 % for P1W and 66.7 % for P3W in 2009. This indicates an improved coverage of the NID's. This may be due to the fact that the vaccines are provided free and at their door steps. It reduces their cost of travelling and time incurred by visiting a health facility .Inspite of this we still have polio cases being reported.

As mentioned earlier polio eradication cannot be achieved alone with supplementary immunizations unless complemented by high coverage of routine vaccination .Our data clearly shows poor coverage of routine immunization of polio. In Sindh in the year

TABLE-I

CAMPAIGN DOSES STATUS OF CONFIRMED POLIO CASES BY TYPE & BY YEAR, 2000-2009* SINDH PREVINCE

SIAs Doses
P1W

Year/Rout.Doses	0 Dose		1-2 Doses		3 Doses		4-6 Doses		7+ Doses		Total # of P1W
	#	%	#	%	#	%	#	%	#	%	
2000	11	35.5	8	25.8	2	6.5	10	32.3	0	0.0	31
2001	1	4.3	7	30.4	4	17.4	7	30.4	4	17.4	23
2002	4	12.9	7	22.6	6	19.4	7	22.6	7	22.6	31
2003	1	5.0	8	40.0	0	0.0	7	35.0	4	20.0	20
2004	1	3.8	7	26.9	1	3.8	5	19.2	12	46.2	26
2005	0	0.0	0	0.0	0	0.0	0	0.0	5	100.0	5
2006	0	0.0	1	25.0	2	50.0	1	25.0	0	0.0	4
2007	2	28.6	0	0.0	0	0.0	1	14.3	4	57.1	7
2008	1	6.3	1	6.3	1	6.3	3	18.8	10	62.5	16
2009	0	0.0	0	0.0	0	0.0	1	16.7	5	83.3	6
Total	21	12.4	39	23.1	16	9.5	42	24.9	51	30.2	169

P3W

Year/Rout.Doses	0 Dose		1-2 Doses		3 Doses		4-6 Doses		7+ Doses		Total # of P3W
	#	%	#	%	#	%	#	%	#	%	
2000	2	5.9	9	26.5	8	23.5	13	38.2	2	5.9	34
2001	0	0.0	2	40.0	1	20.0	1	20.0	1	20.0	5
2002	0	0.0	2	25.0	2	25.0	3	37.5	1	12.5	8
2003	1	11.1	1	11.1	1	11.1	4	44.4	2	22.2	9
2004	0	0.0	0	0.0	0	0.0	0	0.0	2	100.0	2
2005	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
2006	0	0.0	0	0.0	0	0.0	2	25.0	6	75.0	8
2007	1	20.0	0	0.0	0	0.0	1	20.0	3	60.0	5
2008	0	0.0	0	0.0	0	0.0	0	0.0	2	100.0	2
2009	0	0.0	0	0.0	0	0.0	1	33.3	2	66.7	3
Total	4	5.3	14	18.4	12	15.8	25	32.9	21	27.6	76

TABLE-II

ROUTINE IMMUNIZATION STATUS OF CONFIRMED POLIO CASES BY TYPE & BY YEAR, 2000-2009* SINDH PREVINCE

Routine Immunization
P1W

Year/Rout.Doses	0 Dose		1-2 Doses		3 Doses		Total # of P1W
	#	%	#	%	#	%	
2000	15	48.4	9	29.0	7	22.6	31
2001	14	60.9	3	13.0	6	26.1	23
2002	23	74.2	4	12.9	4	12.9	31
2003	14	70.0	5	25.0	1	5.0	20
2004	16	61.5	5	19.2	5	19.2	26
2005	3	60.0	0	0.0	2	40.0	5
2006	2	50.0	2	50.0	0	0.0	4
2007	4	57.1	1	14.3	2	28.6	7
2008	9	56.3	3	18.8	4	25.0	16
2009	3	50.0	0	0.0	3	50.0	6
Total	103	60.9	32	18.9	34	20.1	169

P3W

Year/Rout.Doses	0 Dose		1-2 Doses		3 Doses		Total # of P3W
	#	%	#	%	#	%	
2000	14	41.2	9	26.5	11	32.4	34
2001	3	60.0	0	0.0	2	40.0	5
2002	6	75.0	1	12.5	1	12.5	8
2003	5	55.6	3	33.3	1	11.1	9
2004	1	50.0	0	0.0	1	50.0	2
2005	0	0.0	0	0.0	0	0.0	0
2006	7	87.5	1	12.5	0	0.0	8
2007	3	60.0	1	20.0	1	20.0	5
2008	1	50.0	0	0.0	1	50.0	2
2009	2	66.7	1	33.3	0	0.0	3
Total	42	55.3	16	21.1	18	23.7	76

2000 only 22.6% of children with polio with P1W had received 3 doses of routine immunization while in 2009 half of the polio cases with P1W had received 3 doses.A similar pattern with P3W cases.This could be one of the reasons of failure of eradication of polio. Countries which have adopted the four pronged approached with great emphasis on routine immunization have successfully eradicated poliomyelitis. Peru is one such example where no cases have been reported since 1991 [11].

Similarly China eradicated polio in 1994 using a similar four pronged strategy [12]. The PDHS 2006-2007 also shows that only 47% of children are fully immunized [13].

This data clearly reflects the poor routine vaccination of Polio. A number of reasons may be responsible like long distances to travel to vaccination sites [14], lack of motivation and doubts about immunization on the part of the recipients and unavailability of vaccinators and vehicles on the part of the providers [15]

During NIDs routine vaccination comes to a halt. Another misconception maybe that polio vaccination on NIDs is enough.

The situation can be improved through health education of masses [16],use of NIDs to publicise the need for routine vaccination, airing of messages on radio and TV [17] ,giving incentives to vaccinators ,better mobility , use of LHWs for vaccine coverage and improved communication skills of health workers.[18].

CONCLUSION

t is concluded that the status of routine immunization of polio is poor. Strengthening of routine immunization in addition to supplementary immunization is an important step to eradicate polio.

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