

Immunization Coverage in Three Districts of North West Frontier Province (NWFP)

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Abstract

Aim: This community-based study was conducted to assess the progress of Expanded Programme on Immunization (EPI) in North West Frontier Province (NWFP) of Pakistan.

Method: In this cross sectional survey, 120 randomly selected clusters in 03 districts of NWFP were included, 2673 children in the age group 12-35 months of 2583 randomly selected families were visited.

Results: The results showed that 65% of children were fully immunized, but out of them only half could be verified by immunization, need of 2nd and 3rd dose and no faith in immunization were the major causes of failure of immunization programme. Moreover, mother too busy, absence of vaccinator and inconvenient place of immunization were the obstacles pointed out by the parents.

Conclusion: This study suggests the areas where improvement can be made to achieve the real target of immunization coverage, It is concluded that despite of more than 20 years of efforts by EPI, the ultimate objectives have not been achieved (OPMA 49:301,1999).

Introduction

According to UNICEF, immunization saves the lives of 03 million children every year and this is one of the most important strategies to ensure good health and achievement of “health for all by 2000 AD¹”.

The Expanded Programme on Immunization (EPI) was launched in Pakistan in 1978 with the objective of reducing morbidity and mortality in children caused by six controllable disease i.e., Diphtheria, Pertussis, Neonatal tetanus, poliomyelitis, measles and tuberculosis. The adoption of most potent and cost effective strategies (immunization) was to prevent deaths and disability in human population. Under EPI, BCG vaccine and Oral Polio Vaccine (OPV) is administered to the new born within 15 days of birth. The first shot of DPT is to be given to a 45 days old child. Two further doses of DPI are to be given at intervals of one month each. Measles vaccine is given at nine months. All the vaccines used under EPI are safe and do not produce any life threatening complication, but human error in handling these vaccines could be dangerous for human life. As all these vaccines require low temperatures for their storage, therefore, it is important to maintain a very good “cold chain” i.e., system of storage and transportation. However, in this study preparation and transportation of vaccines from the manufacturer to the vaccination location and its storage shall not be dealt. We have studied the coverage rate of immunization against six target diseases and reasons for its failure in North West Frontier Province.

In 1982 a study was conducted to assess the progress of the EPI and it was found that only 2% of children under five had been immunized. These disappointing results prompted the Pakistan government to launch a 2-year Accelerated Health Programme (AHP) in 1983. By 1985, 23% of children less than 12 months and 66% between 12 and 23 months were reported to be fully

immunized². In 1991, a coverage survey in North West Frontier Province (NWFP), reported that immunization rate was 86.4% by cards and 99% by verbal history. Another survey in NWFP in 1993 reported that 69% children less than 1 year were fully immunized³. However, these figures were viewed with skepticism by independent observers.

In 1986 the Pakistan Medical Research Council (PMRC), Peshawar conducted a study to evaluate the extent of child immunization in Budhni Village (20 km from Peshawar). It was found that only 5% of children under 5 year's age had been immunized⁴. Following this an EPI centre was established in the village and 1990 recorded 59% of children under 5 year's age as fully immunized⁵. The main reason for the slow progress of this initiative was the lack of motivation and information on the part of mothers to bring apparently healthy infants to a health care centre. However, in 1992 when an intense door to door motivational programme was undertaken, the coverage increased to 94.6%⁶.

In 1994 Pakistan observed two national polio days. It was estimated that more than 3.5 million children in NWFP and Tribal Areas were given 2 doses of the oral polio vaccine. In spite of these programmes, Pakistan is still reported to have one of the highest prevalence of polio virus⁷. The latest figures (1998) issued by EPI department of NWFP shows that during the 09 months (January-September, 1998), 63 cases of polio, 355 of measles, 533 of neonatal tetanus, 35 of pertussis, 02 of diphtheria and 8 cases of tuberculosis were reported⁸ in NWFP. Unfortunately, such a large number of incidents become a deterrent, to most potent and publicized strategy (EPI) Therefore it was important that an independent evaluation of the programme be carried out. This study was conducted to examine the extent of coverage of the EPI Programme in the NWFP and to identify the differences in coverage and efficacy across identified districts and reports the reasons for lack of compliance and immunization failure.

Subjects and Methods

During the months of September to November 1994 a cross sectional cluster survey was conducted in three districts of the NWFP. Out of total 401 sites (Towns and villages) 120 were randomly selected (40 from each district). The districts surveyed were Peshawar, Malakand and Karak. Peshawar is the Provincial Capital (population 1.59 million) and houses the headquarters of the province health services and EPI department, Malakand is situated 125 Km from Peshawar (population 0.37 million), it is an area of mountainous vegetation that has a characteristically cold climate, Karak is 185 Km from Peshawar and has a population of 0.34 million. It is very dry, mountainous and not easily accessible. These three districts were chosen for their diverse characteristics. It was hoped that they would provide a representative view of the extent of EPI coverage in the whole of NWFP.

The study population were children of 12-35 months of age. The respondents were mothers or other female caretakers of the selected children. From each study site 20 to 25 children were selected and 15 to 25 families were visited. Ten teams each consisting of two Lady Health Visitors (LHV) visited the site. They interviewed mothers and in their absence, a female caretaker. In this study 99.5% mothers were interviewed. All information regarding immunization status and reasons for failure or partial immunizations were recorded on a questionnaire. During this whole survey two supervisors used to check each questionnaire for accuracy and completeness and corrections were made before travelling to another cluster.

Results

Table 1. District-wise number of children studied.

Name of District	Total Clusters	Families Visited	Total (Children)
Peshawar	40	984	1022
Malakand	40	964	997
Karak	38*	635	654
Total	118	2583	2673

* = Two clusters of district Karak could not be visited because local administration did not allow survey team to visit the area due to some security reasons.

Table 1 shows total number of children surveyed were 2673 and families visited were 2583 across the three districts. Crude immunization coverage rate of three districts was 65%, which included information obtained by both cards and verbal history. Among three districts, Malakand was leading with 72% coverage rate, followed by Peshawar and Karak with 66% and 53% respectively (Table 2).

Table 2. Immunization coverage rate of three districts.

District	Total Children	Fully*	Partially*	Not
		Immunized No. (%)	Immunized No. (%)	Immunized No. (%)
Peshawar	1022	677 (66)	169 (16.5)	176 (17.5)
Malakand	997	715 (72)	143 (14)	139 (14)
Karak	654	345 (53)	139 (21)	170 (26)
Total	2673	1737 (65)	451 (17)	485 (18)

* = This includes both categories of children verified by the immunization cards and verbal information by mothers at the time of survey.

In case of immunization failure District Karak was leading with 26% of children not immunized followed by Peshawar and Malakand with 17.5% and 14% rate of failure respectively. The drop out (partially immunized) rate of three districts was also very high, as it was 21%, 16.5% and 14% in districts Karak, Peshawar and Malakand respectively.

Table 3. Immunization coverage rates recorded by cards and verbal information in three districts.

Immunization Status	Total		Varified		Verbal	
	Children		by Cards		History	
	No.	(%)	No.	(%)	No.	(%)
Fully Immunized	1737	(65)	806	(46.5)	931	(53.5)
Partially Immunized	451	(17)	156	(34.5)	295	(65.5)
Not Immunized	485	(18)	-	-	-	-
Total	2673		962	(36)	1226	(46)

Table 3 shows that among total 2673 children studied, crude immunization (fully immunized) coverage rate of three districts was 65%; but out of 1737 fully immunized children cards could verify only (806) 46.5%. Similarly only 962 (36%) mothers of children in three districts could produce cards in support of information regarding immunization status of their child. If we take immunization card the only reliable source of information to confirm immunization status of a child, then the immunization coverage rate of three districts come to only 30%.

Table 4. District-wise coverage and dropout rate recorded from cards and verbal information.

District	Fully Immunized						Partially Immunized					
	Total		By cards		Verbal history		Total		By card		Verbal history	
	No.	(%)	No.	(%)	No.	(%)	No.	(%)	No.	(%)	No.	(%)
Peshawar	677		334	50	343	50	169		46	27	123	73
Malakand	715		371	52	344	48	143		49	34	94	66
Karak	345		101	29	244	71	139		61	44	78	56
Total	1737		806	46.4	931	53.6	451		156	34.5	295	65.5

Table 4 indicates districtwise coverage rate recorded by cards and verbal information separately. in district Malakand 52% cards could verify fully immunized children, while in district Peshawar and Karak the verification rate was 50% and 29% respectively. The availability of immunization cards in support of partially immunized (dropout) children in district Karak was 44% as against 34% and 27% in Peshawar and Malakand respectively.

Reasons for immunization failure in three districts are shown in Table 5.

Table 5. Reasons for Immunization failure in three districts (n=936).

		No.	%
Lack of information			
n=398			
(42.5%)	1. Unaware of need for immunization	144	15
	2. Unaware of need to return for 2nd or 3rd dose	89	9.5
	3. Fear of side effects	67	7
	4. Perceived ideas about contraindication	56	6
	5. Place or time of immunization unknown	42	4.5
Miscellaneous			
n=337			
(36%)	1. Vaccinator absent	187	20
	2. Place of immunization inconvenient	65	7
	3. Mother or guardian ill	25	3
	4. Child ill - not brought	19	2
	5. Child ill - brought but not given immunization	16	1.7
	6. Vaccine not available	13	1
	7. Long waiting time	08	0.8
	8. Time of immunization inconvenient	04	0.5
Lack of motivation			
n=201			
(21.5%)	1. No faith in immunization	101	11
	2. Mother too busy	93	10
	3. Postponed until another time	07	0.7

Of 2583 mothers interviewed (936) 36% failed to have their children immunized of them, 42.5% could not get their child immunized because they were not properly informed, while 36% explained miscellaneous reasons like vaccinator absent, place of immunization not convenient and mother's illness. The remaining 21.5% mothers showed lack of motivation and answered that either they had no faith in immunization or were busy and postponed their child's vaccination.

Table 6. District wise reasons for Immunization failure.

Reasons	Peshawar		Malakand		Karak		Total	
	No.	(%)	No.	(%)	No.	(%)	No.	(%)
Lack of information	177	44.5	124	31	97	24.5	398	100
Miscellaneous	92	27	97	29	148	44	337	100
Lack of motivation	76	38	61	30	64	32	201	100
Total	345	37	282	30	309	33	936	100

Table 6 reveals that out of total 398 mothers/caretakers, who responded lack of information is a reason for immunization failure. Of these 44.5% were from district Peshawar, 31% and 24.5% were from Malakand and Karak respectively. Under miscellaneous reasons for non-immunization, of total 337 mothers 44% were from district Karak, 29% from Malakand and 27% from Peshawar. The third main reason for immunization failure was lack of motivation, under this category, out of total 201 mothers, 38%, 32% and 30% were from Peshawar, Karak and Malakand respectively. The most interesting fact is that Peshawar being Provincial Headquarter of health and Expanded Programme on Immunization is leading among three districts with more than 1/3 (37%) of non immunized children and the main reasons for their immunization failure were lack of information (44.5%) and motivation (38%).

Discussion

This study shows that Expanded Programme of Immunization (EPI), despite 20 years of struggle, could not establish an organized information/motivation programme for masses and to educate them on the importance of child immunization. Moreover, a doubt in the mind of mothers about the non-availability of vaccine or absence of vaccinator at place of immunization was also an important factor in failure of immunization programme. All this shows inefficiency of the programme and requires a serious thought by EPI department.

When the community does not have an information/motivation programme, to educate them the importance of immunization or easy access to the immunization programme, the coverage rate will be naturally low. Moreover, one should keep in mind that in a population in which an overburdened mother of several children finds it difficult to bring a sick child to the health centre, how can she be expected to find time to bring an apparently healthy child for immunization to a place and time which is not convenient to her. To remove the doubts from the mind of people, EPI department has to improve performance at health centre as well as at outreach level.

The other important aspect revealed in this study was parents/caretakers perception regarding the importance of the immunization card. In this study only 36% mothers could produce the immunization card in support of their child's immunization status. This showed that immunization card was not considered as an important document. The reliable source of information is the immunization card and one cannot say how reliable is information provided by the mother/caretaker based on her/his "recall". Data of EPI department mostly depends on its measure convergence rate "by card" and "by verbal history". Therefore routine reports from health centres about immunization coverage may be inaccurate

or misleading. We suggest that for the ultimate success of immunization programme community should be educated about importance of complete immunization, especially mother should understand why immunization as well as cards is very important for her child.

It is also important to refer to EPI department that proper training of the field staff, regular supervision and monitoring can play an important role in success of immunization programme. Monitoring of vaccination programme requires that “an ongoing systematic collection, analysis and interpretation of health data essential to planning, implementation and evaluation of public health practice be made⁹.”

Conclusion

It is recommended that to prove immunization to be a most potent and effective strategy to prevent morbidity, mortality and disability in human population, EPI department should take some drastic measures like (i) well effective on the target out reach programme i.e., to bring immunization as close as possible to the home of every child; (ii) community involvement at all levels through health education, information and motivation; (iii) a well organized system of follow up for children who do not return for subsequent doses; (iv) strict monitoring and supervision and help to solve problems of field staff and (v) evaluation of programme after every six month or a year.

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