

## A Study to Assess the Prevalence of Vaccination Card Retention of Children between 12 to 23 months age by their Parents in a Rural Area of Tripura.

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### Abstract:

**Introduction:** low card retention and utilization has been shown by different studies determining immunization coverage in developing countries. The present study aims at assessing the prevalence of vaccination card retention of children between 12 to 23 months age by their parents in a rural area of Tripura.

**Material and Methods:** a community based cross-sectional study has been conducted among parents of 330 children of 12 to 23 months using Lot Quality Assurance Sampling (LQAS) technique in Mohanpur, the rural field practice area under Department of Community Medicine, Agartala Government Medical College. Data was collected using pre-designed semi-structured questionnaire and analysed using computer software SPSS version 20.0. Univariate analysis was done to find the factors associated with non-retention of vaccination card.

**Results:** the prevalence of vaccination card retention is found to be 97.9%. Majority (71.4%) said that they have lost the card and rest 28.6% of the parents mentioned that the card is with the local ASHA. Card retention was higher among children with higher educational status of both the parents and those children who were delivered institutionally.

**Conclusion:** the present study reveals that vaccination card retention by parents of the study children is higher than previously conducted studies elsewhere.

**Keywords:** Children, rural, Tripura, vaccination card retention.

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### I. Introduction

EPI (Expanded Programme on Immunization) issues vaccination cards to children on their first vaccination regardless of their age at the time. This EPI vaccination card records the child's name, father's name, child's age, vaccinations received and due date of next vaccine.<sup>[1]</sup> Mother and Child Protection (MCP) card provided under National Health Mission is used as vaccination card for children in India.<sup>[2]</sup> The caretaker is asked to keep the card secure and provide it to the vaccinator on every routine visit. Frequently though, the cards are lost by the caretakers. The issuing and retention of immunization cards are important indicators of the seriousness of the effort by the Health system and level of awareness among families. Low card retention and utilization has been shown by different studies determining immunization coverage in developing countries. Retention of immunization card can also be considered a proxy indicator to gauge mothers' engagement in routine immunization.<sup>[1]</sup>

Moreover coverage survey results for multi-dose antigens (vaccines) are increasingly subject to bias as vaccination card retention rates decline and reliance on maternal recall for more vaccines and multiple doses increases.<sup>[3]</sup>

Despite the importance of basic childhood immunization, its coverage extends to only a minority of the children in the country, varies widely across states, and differs by economic and social status of household (Kumar & Mohanty).<sup>[4]</sup> Most health indicators are low in states where immunization coverage is low. Although the NRHM focuses strongly in those states, the gap between target and achievement of child immunization is large. The above circumstances warrant the need of a study similar to this present one.

### II. Objectives

1. To assess the prevalence of vaccination card retention of children between 12 to 23 months age by their parents of Mohanpur area, Tripura.

### III. Material & Methods

**Study design & study setting:** A community based cross-sectional study has been conducted among the parents of 12 to 23 months old children in Mohanpur, the rural field practice area under Department of Community Medicine, Agartala Government Medical College, Tripura. All twenty two sub-centres under Mohanpur community health centre has been selected for the purpose of the study considering each sub-centre as a lot. The study was conducted between November 2013 and October 2014 for a period of one year.

**Sampling technique:** Lot Quality Assurance Sampling Technique have been used to calculate the required total sample population and number of children required from each lot. Children from each lot have been selected from the immunization register within the age group of 12 to 23 months, available at each sub-centre by lottery method and their those parents were interviewed during home visit.

**Sample size calculation:** sample size is calculated by following steps -

- i. At 95% confidence interval and  $\pm 5\%$  desired level of accuracy, the first estimate of total sample size is made based on accuracy level and confidence limit using Lemeshow and Taber LQAS table, which gives a sample size of 384 children.<sup>[5]</sup>
- ii. Estimation of target population = total population  $\times$  birth rate of state in rural  $\times (1 - \text{infant mortality rate of the state, rural}) \div 1000$

Total population under Mohanpur community health centre area is 1, 04,830.

(Birth rate of Tripura, rural areas = 15.6 per 1000 population)

Infant mortality rate of Tripura, rural areas = 29 per 1000 live births)<sup>[6]</sup>

Therefore, target population =  $104830 \times 15.6 \times (1 - 29 \div 1000) \div 1000 = 1588$  children.

- iii. Sampling fraction (%) <sup>[5]</sup> = total sample size  $\div$  target population  $\times 100 = 384 \div 1588 \times 100 = 24.181\%$ .

As sampling fraction should be less than 10% total sample size is reduced by the formula

Revised total sample size <sup>[5]</sup> = total sample size  $\div (1 + \text{sampling fraction}) = 384 \div 1.241 = 309.4$ .

For convenience of calculation 310 as the initial assessment of total sample size has been done.

- iv. Number of lots studied = 22 lots.

- v. The minimum lot sample size = revised total sample size  $\div$  number of lots  
=  $310 \div 22 = 14.09$ .

Therefore, 15 children have been selected from each lot.

The final sample size =  $15 \times 22 = 330$  children between 12 to 23 months age whose parents have been interviewed.

#### Inclusion criteria:

- i. Parents who are willing to participate in the study.

#### Exclusion criteria:

- i. Parents who are not permanent resident of Mohanpur area.
- ii. Children whose parents were not available at home during home visit.

**Study tool:** A pre-designed, pre-tested, semi-structured Questionnaire has been used to collect the required information.

**Data analysis:** the information collected using the above mentioned tools, is converted into a computer based spread sheet. All data have been expressed in terms of numbers and percentages. Analysis is done using SPSS version 20.0 statistical software.

**Informed consent:** a duly explained written consent has been taken from all the parents. The consent forms were printed in both local language (Bengali) or English (for those who don't understand Bengali) and signed by the respondents before commencement of the study. Confidentiality regarding the information has been maintained during the entire study period.

**Ethical consideration:** has been taken from the Institutional Ethics committee, Agartala Government Medical College before commencement of the study.

### IV. Results

**Table No. 1: Distribution of Socio-Demographic variables according to Retention of Vaccination card of the study Children by their parents during home visit.**

Variables	Presence of Vaccination Card		Total	Significance (P value)
	Yes	No		

Sex of the child	Male	193	4	197	0.588
	Female	130	3	133	
Respondent	Mother	313	6	319	0.213
	Father	10	1	11	
Religion of the child	Hindu	224	6	230	0.627
	Christian	87	1	88	
	Buddhist	12	0	12	
Social caste	General	44	0	44	0.389
	ST	182	6	188	
	SC	50	1	51	
	OBC	47	0	47	
Literacy status of father	Illiterate	12	2	14	<b>0.017</b>
	Literate	19	1	20	
	primary education	160	3	163	
	secondary education	116	1	117	
	higher secondary education	16	0	16	
Literacy status of mother	Illiterate	13	2	15	<b>0.002</b>
	Literate	5	1	6	
	primary education	148	3	151	
	secondary education	155	1	156	
	higher secondary education	2	0	2	
Occupation of the father	unskilled labourer	82	3	85	0.775
	skilled labourer	8	0	8	
	farmer/fisherman/agricultural enterprise	130	3	133	
	Business	82	1	83	
	Service	21	0	21	
Occupation of the mother	household work	255	3	258	0.055
	unskilled labourer	26	2	28	
	farmer/fishing/agricultural enterprise	42	2	44	
Total monthly income of the family	<Rs. 3000	97	3	100	0.739
	Rs. 3000 – 5000	185	4	189	
	Rs. 5000 – 10000	39	0	39	
	>Rs. 10000	2	0	2	
Birth order of the child	1	187	3	190	0.658
	2	131	4	135	
	3	5	0	5	
Place of delivery of the child	Home	74	5	79	<b>0.01</b>
	Institutional	249	2	251	

Table No. 1 shows the distribution of socio-demographic variables as per vaccination card retention by the parents at home where vaccination card retention by the parents have been found to be 97.9% in the present study. It also reveals that the educational status of both the parents and the place of delivery of the child had significant association with retention of vaccination card by the parents at home in univariate analysis. Out of the 7 children among whom vaccination card was not found during the interview the principal reason for 5 of them (71.4%) was the parents have lost the card and for the rest 2 children (28.6%) the parents mentioned that the card is with the local ASHA, as shown in Table No. 2.

**Table No. 2:** Reasons for absence of Vaccination card.

Variables	Frequency	Percentage
<b>Card has been lost</b>	5	71.4%
<b>Card is present but with ASHA</b>	2	28.6%
Total	7	100.0%

## V. Discussion

In this study the prevalence of vaccination card retention at home is found to be 97.9%. Out of those parents who did not have their children's vaccination card at home, majority (71.4%) said that they have lost the card and rest 28.6% of the parents mentioned that the card is with the local ASHA. The present study also reveals that vaccination card retention was higher among children with higher educational status of both the parents and those children who were delivered institutionally.

As per CES report 2009 immunization card retention rate in Tripura is 73.7% in rural areas which is quite lesser than what has been found in our study.<sup>[7]</sup> This may be due to improved retention of immunization card by the caregivers over time, particularly in our study area.

A similar study was done by Saravanan Sivasankaran et al<sup>[8]</sup> in Tamilnadu where they have found that only 21% of the total 438 children were having immunization card which is quite lower than the study conducted in Bellary district on assessment of immunization coverage of children, where vaccination card was found for 75.47% of children at home visit.<sup>[9]</sup>

RACHNA programme (2001-2006) revealed, while there were clear signs of increased effort in most states regarding the use of immunization card of children by their parents, the retention of immunization cards at home became the norm only in West Bengal. Losing the card was found as primary reason for non-retention similar to the present study.<sup>[10]</sup>

## VI. Conclusion

The present study reveals that vaccination card retention by the parents of 12 to 23 months old children of our study area is higher than previously conducted studies elsewhere as well as in rural areas of Tripura but primary reason for non-retention still remains as losing the card.

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