

## An Observational Study to Estimate the Coverage of MR Vaccination Campaign and to Determine the Reasons for Non-Immunization of the Children

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### Abstract

**Aim:** To estimate the MR vaccination campaign coverage and determine the reasons for non-immunization of the children.

**Material & Methods:** A Community based cross sectional study was conducted under the urban field practice area of Darbhanga Medical College, Department of Community Medicine by using purposive sampling technique 500 children aged less than or achieved 15 years of age were included.

**Results:** 88% of the children have been immunized with the MR vaccine and 12% of the children have not been immunized. A majority (69.3%) of the children were immunized in the schools, while 24.2% get vaccinated at Anganwadi and 6.5% in the government hospitals.

**Conclusion:** In our study, we conclude that campaign performance was below the target coverage of 90% set by the Government of India. Enhancing awareness about rubella disease and its prevention is an important mechanism for increasing understanding of the rationale of the MR vaccine over traditional measles vaccine.

**Keywords:** Measles rubella vaccination, coverage, factors, non-immunization, campaign

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### Introduction

Among children under the age of five, Measles is one of the most common vaccine-preventable diseases, in India. [1] India's routine immunization coverage was 90% for the first dose of measles and only 66% for the second dose in year 2014, which was far below the global target of 95% coverage needed for elimination of measles. [2-3] Prevalence of

Rubella transmission is also very high in Indian communities and there is significant risk of Congenital Rubella Syndrome in children born to infected pregnant women. [4-5] In 2014, Measles-Rubella (MR) vaccine was introduced in the routine immunization program in India after recommendation of the National Technical Advisory Group on Immunization

(NTAGI) [2] Following that there was launch of MR campaign in a phased manner, in February 2017 and the aim was to cover about 405 million children in the age group of nine months to 15 years.

Measles-Rubella (MR) vaccine coverage in India is far below the global target of 90–95% coverage, needed for elimination of these diseases [6]. Therefore, the Ministry of Health and Family Welfare (MOHFW) of the Government of India implemented MR campaign in January-February 2017 to increase MR vaccination coverage [7]. Strategically, the MOHFW used both routine immunization centers and educational institutions for providing vaccine to the children aged nine months to less than 15 years [8].

Thus, we aim to estimate the coverage of MR vaccination campaign and to determine the reasons for non-immunization of the children.

#### Material & Methods:

It was a Community based cross sectional study conducted by the department of community medicine, Darbhanga Medical College and Hospital, for the period of one year.

**Sample size: 500 (Based on previous study by Almasi H et al.) [9]**

**Sampling technique:** Purposive sampling method to achieve the sample of 500 children.

**Study instrument:** Pre tested, semi structured questionnaire by interview technique.

**Inclusion criteria:** Children aged  $\leq 15$  years

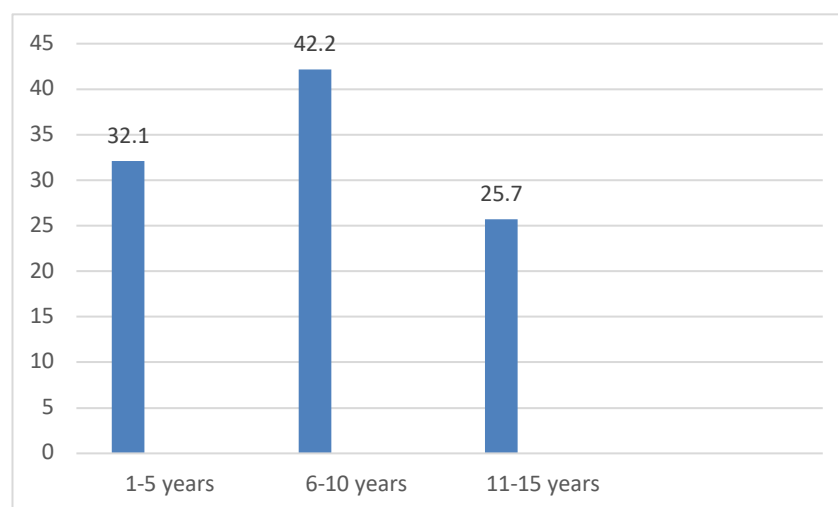
#### Exclusion criteria

1. Children above 15 years of age
2. Those caretakers were not willing to participate in the study.

#### Methodology

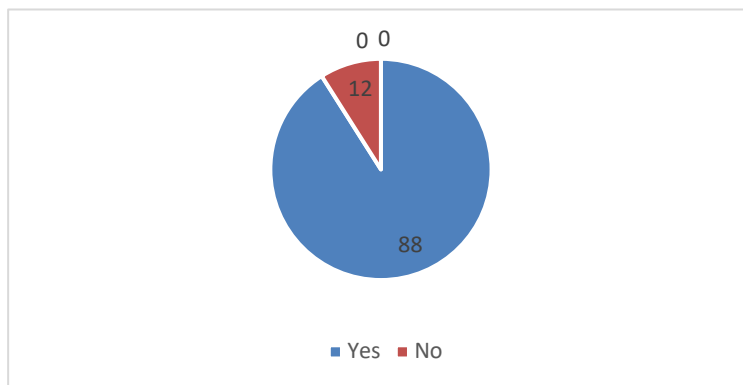
After obtaining the Ethical Clearance from the Institutional Ethical Committee of Darbhanga Medical College & Hospital, a post-campaign cross-sectional study was conducted among 500 children aged  $\leq 15$  years in the urban field practice area. Informed consent was obtained from the study participants after explaining the purpose of study. Data was collected using pre-tested, semi-structured Proforma. The data collected was analyzed using SPSS version 20. Statistical analysis was done using percentages, Chi square test etc.

#### Results:



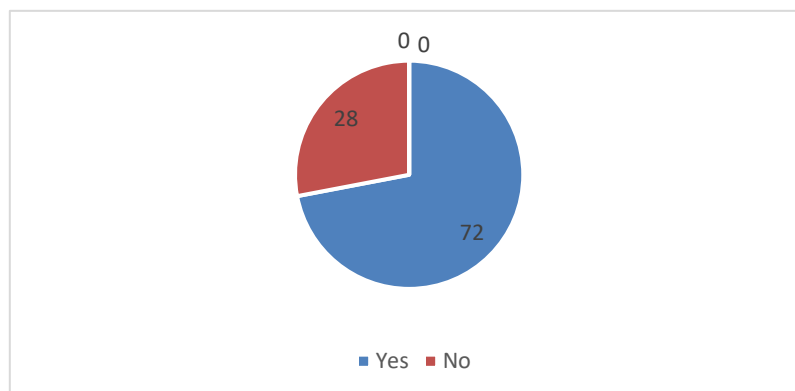
**Figure 1: Distribution based on age of the children**

The above figure shows that out of 500 children majority of the children (42.2%) were in the age group of 6 to 10 years followed by 32.1% in the age group of 1 to 5 years and 25.7% in the age group of 11 to 15 years. (Figure 1)



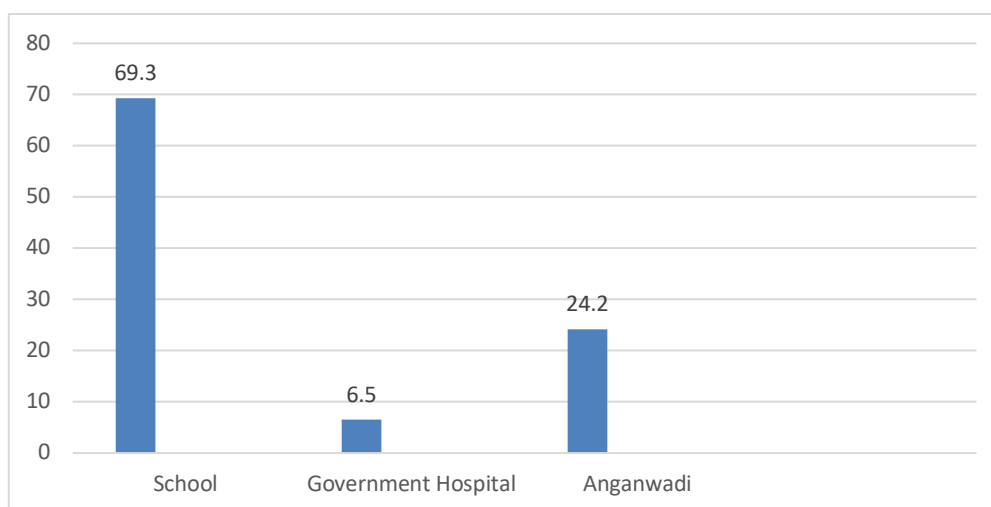
**Figure 2: Distribution based on MR Vaccine received**

The above figure shows that 88% of the children have been immunized with the MR vaccine and 12% of the children have not been immunized. (Figure 2)



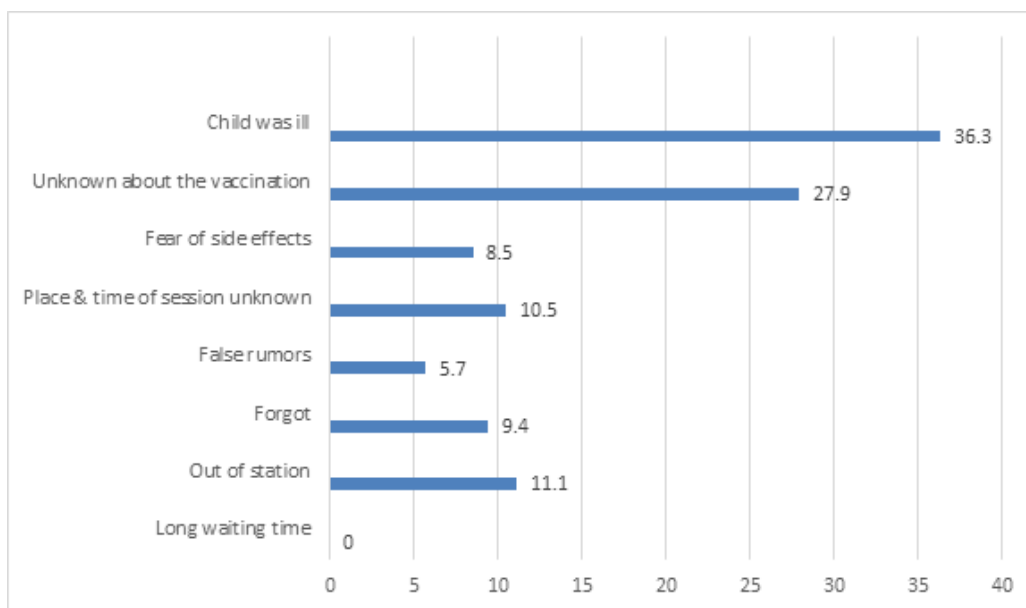
**Figure 3: Distribution based on presence of MR-Immunization card**

In the above figure we can see the distribution of the children based on the presence of MR-Immunization card. 72% of the children had the card while 28% of them did not have the immunization card with them. (Figure 3)



**Figure 4: Distribution showing place of immunization**

The above figure shows the distribution of the children based on the place of immunization given to the children. Majority (69.3%) of the children were immunized in the schools followed by 24.2% of the children in the Anganwadi and 6.5% of the children in the government hospitals. (Figure 4)



**Figure 5: Reasons for not immunizing the children**

The above figure shows the reasons for not immunizing the children. The major reason for not immunizing the children was that the child was ill (36.3%), 27.9% of the unvaccinated children were not aware about the immunization campaign,

11.1% of the unvaccinated children were out of station or travelling, 9.4% of them forgot about the session. While 8.5% of the caregivers had fear of side effects. (Figure 6)

**Table 1: Distribution of children based on any adverse effects following vaccination**

Any adverse effects following vaccination	Frequency	Percentage
Yes	17	3.4%
No	483	96.6%
Total	500	100

The above table shows that 17 children (3.4%) had any adverse effects following vaccination while 483 children (96.6%) did not have any adverse effects. [Table 1]

**Discussion:**

The purpose of this study was to identify factors associated with who is missed in a mass campaign. This is an important first step in the process of identifying potential pockets of unvaccinated persons. Then, if one or more of these associated factors are known to be clustered in a geographically-

focused site within a larger programme area, we may consider this site as having a higher likelihood of being or becoming a pocket of unvaccinated persons. Understanding such factors and then how they are distributed can help us predict if and where potential pockets of unvaccinated persons might exist in a population. If potential pockets of unvaccinated persons are suspected, we can take additional steps before, during, and after a mass vaccination campaign to

verify, prevent or address the potential problem.

A study by Giri BR et al. [10] in Bhutan in the year 2006 showed an overall coverage of 98.17%. In our study the major source of information regarding MR Vaccine Campaign was from the school teachers, followed by Anganwadi teachers. Dasgupta S et al. [11], in their study showed that major source of information was from Anganwadi workers (34.6%) followed by miking (30.9%).

In our study we found that the major reasons for not immunizing the children were child was ill (37.5%), unaware about the campaign (27.33%), child was out of station (12.33%). On the other hand Scobie HM et al. [12], in their study reported that the primary reason for non-vaccination was lack of awareness of the campaign (69.4%) followed by child was travelling (5.4%) and unawareness of need for vaccination (5.1%).

The strong recommendation that comes through in these analysis is to let caregivers know about the time and place of vaccination campaigns and most will avail themselves of the service. Interpersonal communication to reach out to caregivers with information regarding supplementary immunization activities is a program intervention that can be implemented by program managers with the right plan and resources. Prior communication before an SIA to enhance awareness in the community has also been efficacious in other countries. In Haiti, a similar analysis revealed that children from household with prior awareness of the SIA were significantly more likely to get vaccinated in the SIA [13,14].

### Conclusion:

The campaign performance was below the target coverage of 90% set by the Government of India. Enhancing awareness among population about rubella disease and its prevention is an important mechanism for increasing understanding

of the rationale of the MR vaccine over traditional measles vaccine.

### References:

1. Bassani DG, Kumar R, Awasthi S, Morris SK, Paul VK, Million Death Study Collaborators, et al. Causes of neonatal and child mortality in India: a nationally representative mortality survey. *Lancet*. 2010;376(9755):1853–60.
2. National Operational Guidelines for Introduction of Measles-Rubella Vaccine (Campaign and Routine Immunization). New Delhi (India): Ministry of Health & Family Welfare Government of India; 2016.
3. World Health Organization, Regional Office for South-East Asia. Strategic plan for measles elimination and rubella and congenital rubella syndrome control in the South-East Asia Region, 2014-2020. 2015
4. Murhekar M, Verma S, Singh K, Bavdekar A, Benakappa N, Santhanam S, Sapkal G, Viswanathan R, Singh MP, Nag VL, et al. Epidemiology of Congenital Rubella Syndrome (CRS) in India, 2016-18, based on data from sentinel surveillance. *PLoS Negl Trop Dis*. 2020;14(2):e0007982.
5. Muliyl DE, Singh P, Jois SK, Oti V, Suri V, Varma V, Abraham AM, Raut C, Gupta M, Singh MP, et al. Sero-prevalence of rubella among pregnant women in India, 2017. *Vaccine*. 2018; 36(52):7909–12.
6. Uddin MJ, Adhikary G, Ali MW, Ahmed S, Shamsuzzaman M, Odell C et al. Evaluation of impact of measles rubella campaign on vaccination coverage and routine immunization services in Bangladesh. *BMC Infectious diseases*. 2016; 16:411-20.
7. National Strategic Plan for Measles Elimination and Rubella/CRS Control 2015-2020. MOHFW; 1-38.
8. World Health Organization. India, Measles-Rubella Vaccination Campaign. 2017, 1-5. Available from URL:

- [http://www.who faq\\_measles\\_rubella\\_vaccine\\_english\\_pdf.10 April 2017.](http://www.who faq_measles_rubella_vaccine_english_pdf.10 April 2017)
9. Almasi H, Gilasi HR, Moradi A. Immunization coverage in the Measles-Rubella Control Mass Campaign in Kashan, Iran. *Pakistan J Bio Sci.* 2006; 9(3):558-62.
  10. Giri BR, Namgyal P, Tshering KP, Sharma KP, Dorji T, Tamang C. Mass measles rubella immunization campaign: Bhutan experience. *Indian J Community Med.* 2011; 36:109-13.
  11. Dasgupta S, Bagchi SN, Ghosh P, Sardar JC, Roy AS, Sau M. Monitoring of Mass Measles Campaign in AILA-affected Areas of West Bengal. *Indian J Public Health.* 2010; 54(4):224-7.
  12. Scobie HM, Ray A, Routray S, Bose A, Bahl S, Sosler S et al. Cluster Survey Evaluation of a Measles Vaccination Campaign in Jharkhand, India, 2012. *PLoS ONE.* 2015; 10(5): 1-15.
  13. Tohme RA, Francois J, Wannemuehler K, Magloire R, Danovaro-Holliday MC, Flannery B, et al. Measles and rubella vaccination coverage in Haiti, 2012: progress towards verifying and challenges to maintaining measles and rubella elimination. *Tropical Med Int Health.* 2014;19:1105–15.
  14. Aguilar R. Fatigue symptom and oximetry sign in a patient with a positive Covid-19 antigen test for Sars-Cov-2. *Journal of Medical Research and Health Sciences,* 2022;5(8):2165–2176.