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## A study to estimate the coverage of measles rubella vaccination campaign and various reasons for non-immunization: An observational study

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### Abstract

**Aim:** Aim of this study is to estimate the coverage of measles rubella vaccination campaign and reasons for non-immunization.

**Methods:** The present prospective study was conducted in the Department of Community Health Nursing for a period of one and half years. 400 Children aged between 9 months and 15 completed years as on the day of study were included in this study.

**Results:** Out of 400 children, majority of the children; 42% were in the age group of 5 to 10 years followed by 35% in the age group of 1 to 5 years and 23% in the age group of 10 to 15 years. 90% of the children have been immunized with the MR vaccine and 10% of the children have not been immunized. Among males, 204 (56.67%) children were immunized and 16 (40%) were not immunized. Among females, 156 (43.33%) children were immunized and 24 (60%) were not immunized. When the immunization status was compared based on gender of children, it was observed that the percentage of fully immunized children among male and female children was 56.67% and 43.33% respectively. There was a statistically significant difference of immunization status among male and female children ( $p < 0.05$ ). The distribution of the children based on the presence of MR-Immunization card. 65% of the children had the card while 35% of them did not have the immunization card with them. 14 children (3.5%) had any adverse effects following vaccination while 386 children (96.5%) did not have any adverse effects.

**Conclusion:** An emphasis should be placed on effectively disseminating campaign messages for implementation of nationwide vaccination awareness in future for better utilization of the services. Enhancing population perception about rubella disease and its prevention is an important mechanism for increasing understanding of the rationale of MR vaccine over traditional measles vaccine.

**Keywords:** vaccination, MR, children

### Introduction

India along with other member nations of World Health Organization-South East Asia Region (WHO-SEAR) countries, in September 2013, resolved to eliminate measles and control rubella/congenital rubella syndrome (CRS) by 2020. India is a priority geographic area for intensified vaccination as it accounts for 47% of global measles deaths <sup>[1]</sup>. The Ministry of Health and Family Welfare (MOHFW), Government of India (GoI), consistent with World Health Organization (WHO) recommendation, proposed to introduce Rubella vaccine in its Universal Immunization Programme (UIP) <sup>[2]</sup>.

In accordance with the WHO Strategic Plan for Measles Elimination and Rubella/CRS Control in SEAR, India's National Technical Advisory Group on Immunization (NTAGI) planned a 3-year MR mass vaccination campaign in phases across the country. This wide age-range vaccination campaign, targeting children aged 9 months to less than 15 years will rapidly build up immunity and help reduce measles and rubella transmission in the community. Subsequently, MR vaccine has replaced the Measles vaccine given at 9 months and 14-16 months in the UIP <sup>[3]</sup>.

The vaccine was given to children aged 9 months to < 15 years. For those who had already received MMR or MR Vaccine earlier, the campaign dose was given as a booster dose. All immunized children received a vaccination card to verify the MR vaccine administration. The vaccination campaign was held in government, private and aided schools, Integrated Child Development Services (ICDS) centres, health sub-centres and mobile posts in villages and urban areas.

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Around 1,500 doctors and 10,000 nurses—besides Anganwadi workers and volunteers were involved in the programme. During the mass vaccination campaign, there were several rumours regarding inefficiency and adverse effects caused by the vaccine [4] Hence the present study was undertaken with the aim to estimate the coverage of measles rubella vaccination campaign and reasons for non-immunization.

### Material and methods

The present Prospective study was conducted in the Department Community Health Nursing for a period of one and half years, after taking the approval of protocol review committee and institutional ethics committee.

### Methodology

Total 400 Children aged between 9 months and 15 completed years as on the day of study were included in this study. Children below 9 months and above 15 years and those caretakers not willing to participate in the study were excluded from this study. Pre tested, semi structured questionnaire by interview technique was used in this study.

**Statistical analysis:** Analyzed using SPSS v 22. Descriptive statistics was applied.

### Results

The above figure shows that out of 400 children majority of the children (42%) were in the age group of 5 to 10 years followed by 35% in the age group of 1 to 5 years and 23% in the age group of 10 to 15 years.

**Table 1:** Age wise classification of children

Age in years	Number of children's	%
Below 5	140	35
5-10	168	42
10-15	92	23

90% of the children have been immunized with the MR vaccine and 10% of the children have not been immunized.

**Table 2:** status of vaccine

Status	Number of children's	%
Immunized with the MR vaccine	360	90
Not immunized with the MR vaccine	40	10

The above table shows that among males, 204 (56.67%) children were immunized and 8 (40%) were not immunized. Among females, 156 (43.33%) children were immunized and 12 (60%) were not immunized. When the immunization status was compared based on gender of the children, it was observed that the percentage of fully immunized children among male and female children was 56.67% and 43.33% respectively. There was a statistically significant difference of immunization status among male and female children ( $p < 0.05$ ).

**Table 3:** Association between gender and vaccine received

Gender	MR Vaccine received		Total
	Yes	No	
Male	204 (56.67%)	16 (40%)	110
Female	156 (43.33%)	24 (60%)	90
Total	360	40	200

$$\chi^2 = 1.187, df = 1, p = 0.269$$

The distribution of the children based on the presence of MR-Immunization card. 65% of the children had the card while 35% of them did not have the immunization card with them.

The distribution of the children based on the place of immunization given to the children. Majority (70%) of the children were immunized in the schools followed by 22.5% of the children in the Anganwadi and 7.5% of the children in the government hospitals.

The major source of information regarding the MR Vaccination campaign was the school teacher (50.5%) followed by Anganwadi teacher (25%), media – TV/radio (9.5%), poster or banner (6%), neighbours (5%) and ANM (4%).

The major reason for not immunizing the children was that the child was ill (39%), 25.5% of the unvaccinated children were not aware about the immunization campaign, 12.5% of the unvaccinated children were out of station or travelling, 11% of them forgot about the session. While 12% of the caregivers had fear of the side effects.

**Table 4:** Distribution of children based on any adverse effects following vaccination

Any adverse effects following vaccination	Frequency	Percentage
Yes	14	3.5%
No	386	96.5%
Total	400	100

The above table shows that 14 children (3.5%) had any adverse effects following vaccination while 386 children (96.5%) did not have any adverse effects

### Discussion

The purpose of this study was to identify factors associated with who is missed out vaccination in mass campaign. This is an important 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. In our study the coverage for MR Vaccine Campaign in Davanagere; was 90%. 56.67% male children were immunized compared to 43.33% female children. In a study done by Giri B R *et al.* [5] 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.* [6] in their study showed that major source of information was from Anganwadi workers (34.6%) followed by creating awareness using mike system announcements (30.9%)

In our study we found that the major reasons for not immunizing the children as the child was ill (39%), unaware about the campaign (25.5%), child was out of station

(12.5%). Scobie HM *et al.* [7] 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 unaware of need for vaccination (5.1%). In our study among the children who complained of any adverse effects following vaccination the commonest complains were fever (71.43%), itching (14.29%) and rash (14.9%). Giri BR *et al.* [5] in their study reported headache, fever, and body ache were the commonest complaints (55%) followed by pain at injection site (24%).

Support and motivation from community level health workers and physicians was reported as a reason for vaccine acceptance. A study conducted by Gargano L, *et al.* gave similar results concluding that physician recommendation plays a crucial role to improve immunization uptake [8]. In this study, the influence of family and friends on immunization played an important role both as a barrier as well as, as a motivating factor. A study to assess vaccine utilization showed similar results [9].

Fear and misconception of adverse effects in addition to being unaware of the benefits of vaccine was responsible for refusal of the vaccine by majority of the parents of children not immunized. The fear of adverse effects was attributed to various rumours during the vaccination campaign. A review article to assess the barriers for immunization attributed these fears to general lack of information and understanding of vaccines [10, 11].

## Conclusion

In future, an emphasis should be placed on effectively disseminating campaign messages in order to implement nationwide vaccination campaigns and improving service utilization. Raising public awareness about rubella disease and its prevention is an important mechanism for increasing understanding of the MR vaccine's superiority over traditional measles vaccine. We recommend that future campaigns and routine immunization efforts focus on developing a better understanding of rubella and that any future mass campaigns be designed as an opportunity to catch up on other vaccines as well.

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