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## A study to estimate the coverage of measles rubella vaccination campaign in urban field practice area of MR Medical College, Kalaburagi, Karnataka

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### Abstract

**Introduction:** Measles and rubella are among the most infectious diseases of humans. Seroprevalence studies suggest that coverage in the range of 90–95% is needed for elimination. The Ministry of Health and Family Welfare of the Government of India implemented Measles Rubella (MR) campaign in January-February 2017 to increase MR vaccination coverage. This study was carried out to assess the post-campaign coverage of MR vaccination in the urban field practice area of M. R. Medical College. The purpose of this study was to identify factors associated with who is missed in a mass campaign.

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

**Methodology:** Community based cross sectional study was conducted in the urban field practice area of M. R. Medical College, Kalaburagi for a duration of one month during march 2017 and April 2017 among 400 children aged 9 months to 15 completed years using a pre tested, semi structured questionnaire after obtaining informed consent from the study subjects. The data were analyzed using SPSS v 20.

**Results:** Of the 400 children that were studied, the total coverage for MR vaccine was 88.0%. Significant differences in coverage were observed between male (53.41%) and female children (46.59%). The most commonly reported reason for non-vaccination was being child was ill (37.5%) followed by unaware of the campaign (33.33%).

**Conclusion:** In our study, the campaign performance was below the target coverage of 90% set by the Government of India. Enhancing population 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

### 1. Introduction

Measles and rubella are among the most infectious diseases of humans. High level of herd immunity is required for its elimination <sup>[1]</sup>. Seroprevalence studies suggest that coverage in the range of 90–95% is needed <sup>[2]</sup>. Measles and rubella are vaccine-preventable diseases with similar symptoms and are frequently confused with each other. Both viruses cause rash and fever <sup>[3]</sup>. Measles can be deadly for children with poor nutrition and weakened immune systems. Rubella is also very contagious but causes relatively mild disease in children, in pregnant women, rubella can lead to miscarriage or severe birth defects (congenital rubella syndrome), including blindness, deafness, and heart problems <sup>[4]</sup>. Rubella and measles are a public health problem in poor countries in Africa and Asia, where uptake of the measles and rubella vaccine is relatively low and increasing access to immunization through large scale vaccination campaigns can significantly reduce deaths and illnesses <sup>[5]</sup>. Measles-Rubella (MR) vaccine coverage in India is suboptimal whereas 90–95% coverage is needed for elimination of these diseases <sup>[6]</sup>. 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 <sup>[7]</sup>. Strategically, the MOHFW used both routine immunization centers and educational institutions for providing vaccine to the children aged 9 months to less than 15 years <sup>[8]</sup>. This study was carried out to assess the post-campaign coverage of MR vaccination in the urban field practice area of M. R. Medical College.

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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. 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.

**2. Objectives**

1. To estimate the coverage of MR vaccination campaign
2. To determine the reasons for non-immunization of the children

**3. Materials and Methods**

**3.1. Study design:** Community based cross sectional study

**3.2. Study area:** The present study was carried out in the urban field practice area of MR Medical College, Kalaburagi, Karnataka.

**3.3. Study period:** March 2017 - April 2017

**3.4. Study subjects:** Children aged between 9 months and 15 completed years as on the date of study.

**3.5. Sample size:** 400 (Based on previous study by Almasi H *et al.*) [4]. Informed consent was taken from the study subjects.

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

**3.7. Statistical analysis:** Analyzed using SPSS v 20. Descriptive statistics was applied.

**3.8. Inclusion criteria:** Children aged between 9 months and 15 completed years as on the day of study.

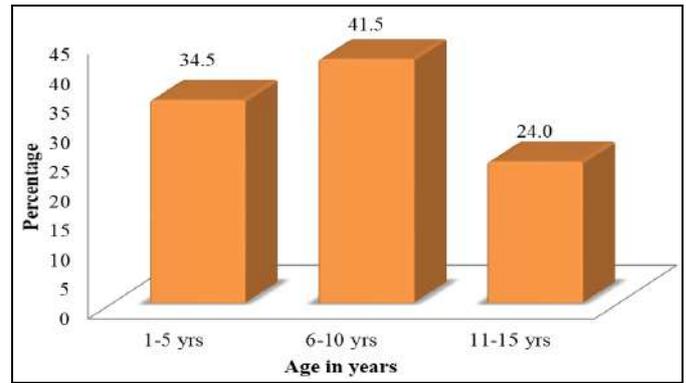
**3.9. Exclusion criteria**

1. Children below 9 months and above 15years.
2. Those caretakers not willing to participate in the study.

**3.10 Ethical clearance**

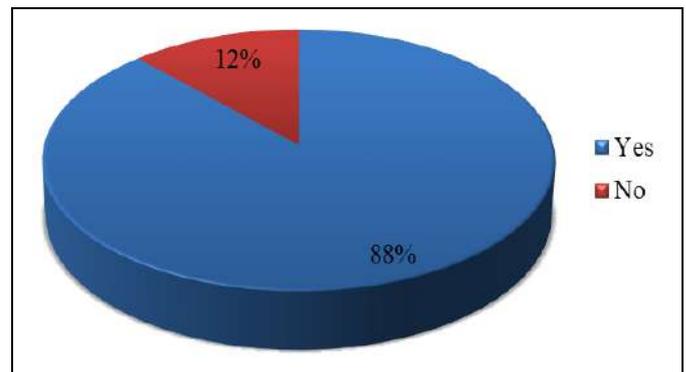
After obtaining Institutional Ethical Clearance from the Institutional Ethical Committee of M. R. Medical College, a post campaign cross-sectional study was conducted among 400 children aged 9 months to 15 years in the urban field practice area of M R Medical College from 1<sup>st</sup> March to 1<sup>st</sup> April 2017. 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.

**4. Results**



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

The above figure shows that out of 400 children majority of the children (41.5%) were in the age group of 6 to 10 years followed by 34.5% in the age group of 1 to 5 years and 24% in the age group of 11 to 15 years. (Figure 1)



**Fig 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)

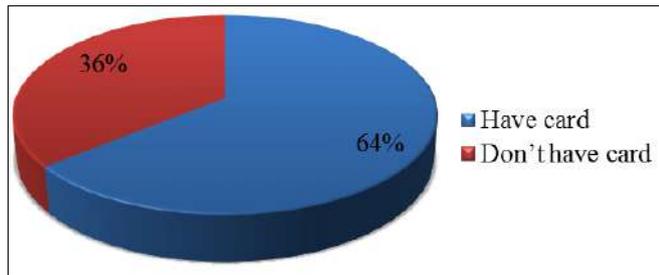
**Table 1:** Association between gender and vaccine received

Gender	MR Vaccine received		Total
	Yes	No	
Male	198 (53.4%)	20 (41.7%)	208
Female	164 (46.6%)	28 (58.3%)	192
Total	352	48	400

$\chi^2 = 1.167, df = 1, p = 0.280$

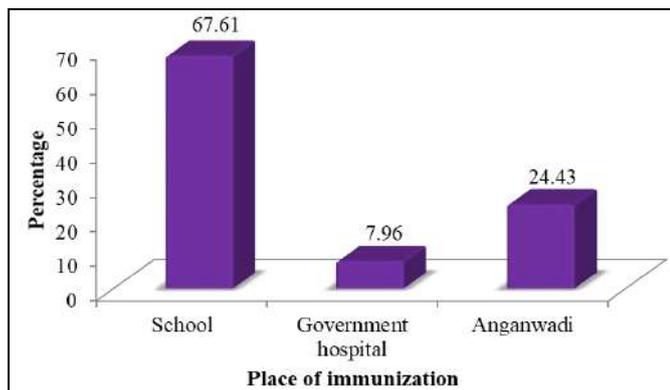
The above table shows that among males, 198(53.4%) children were immunized and 20(41.7%) were not immunized. Among females, 164(46.6%) children were immunized and 28(58.3%) were not immunized. When the immunization status was compared based on gender of the children, it was observed that the percentage of fully

immunized children among male and female children was 53.4% and 46.6% respectively. There was a statistically significant difference of immunization status among male and female children ( $p < 0.05$ ).



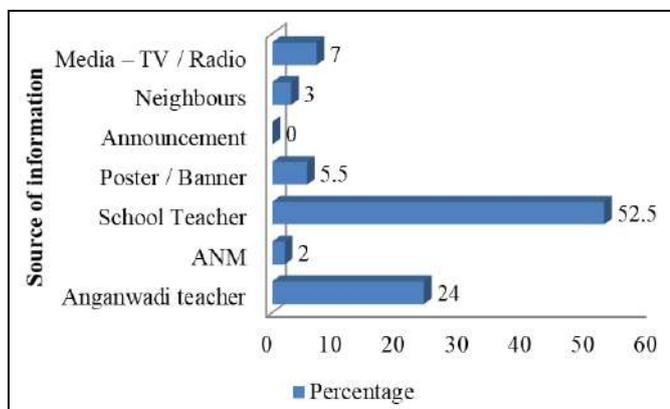
**Fig 3:** Distribution based on presence of MR-Immunization card

In the above figure we can see the distribution of the children based on the presence of MR-Immunization card. 64% of the children had the card while 36% of them did not have the immunization card with them. (Figure 3)



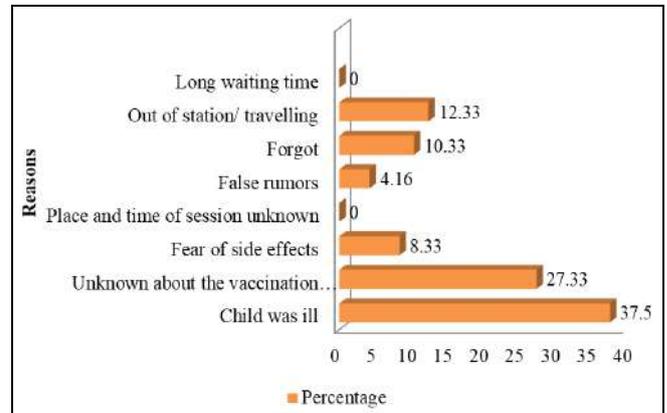
**Fig 4:** Distribution showing place of immunization

The above figure shows the distribution of the children based on the place of immunization given to the children. Majority (67.61%) of the children were immunized in the schools followed by 24.43% of the children in the Anganwadi and 7.96% of the children in the government hospitals. (Figure 4)



**Fig 5:** Source of information regarding MR Vaccination Campaign

In the above figure we can see that the major source of information regarding the MR Vaccination campaign was the school teacher (52.5%) followed by Anganwadi teacher (24%), media – TV/radio (7%), poster or banner (5.5%), neighbours (3%) and ANM (2%). (Figure 5)



**Fig 6:** 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 (37.5%), 27.33% of the unvaccinated children were not aware about the immunization campaign, 12.33% of the unvaccinated children were out of station or travelling, 10.33% of them forgot about the session. While 8.33% of the caregivers had fear of the side effects and 4.16% of the caregivers had fear of side effects. (Figure 6)

**Table 2:** Distribution of children based on any adverse effects following vaccination

Any adverse effects following vaccination	Frequency	Percentage
Yes	12	3%
No	388	97%
Total	400	100

The above table shows that 12 children (3%) had any adverse effects following vaccination while 388 children (97%) did not have any adverse effects.

### 5. 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.

In our study the coverage for MR Vaccine Campaign in Rajapur was 88.0%, 53.41% male children were immunized compared to 46.59% female children. In a study done 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%). 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 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 (66.6%), itching (16.6%) and rash (16.6%). Giri BR *et al.* [10] in their study reported headache, fever, and body ache were the commonest complaints (55%) followed by pain at injection site (24%)

## 6. Conclusion

In the present study done in Rajapur, the campaign performance was below the target coverage of 90% set by the Government of India. An emphasis should be placed on effectively disseminating campaign messages for implementation of the nationwide vaccination campaigns in the future for better utilization of the services. Enhancing population 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. We recommend that social mobilization efforts as part of both future campaigns and routine immunization focus on developing a better understanding of rubella and any of the future mass campaigns be designed as an opportunity to catch up on other vaccines also.

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