Determine the Extent of Measles Rubella Vaccination Campaign Coverage: An Epidemiological Study

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Abstract

Aim: To determine the extent of measles rubella vaccination campaign coverage in the urban field practice area in the Bihar region.

Materials and Methods: A Community based cross-sectional study was conducted in the Department of Community Medicine, Darbhanga Medical College and Hospital, Laheriasarai, Darbhanga, Bihar, India from March 2018 to February 2019. Children aged between 9 months and 15 completed years as on the date of study. 400 participants were included in this study. Informed consent was taken from the study subjects. Pre tested, semi structured questionnaire by interview technique. 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 15years and Those caretakers not willing to participate in the study were excluded from the study.

Results: 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. 88% of the children have been immunized with the MR vaccine and 12% of the children have not been immunized. 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). 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. 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. 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%), neighbors (3%) and ANM (2%).

Conclusion: In the present study done in Bihar, the campaignperformance 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 increasingunderstanding of the rationale of the MR vaccine over traditional measles vaccine.

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

Introduction

India, along with other 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. [1] 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). [2] 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. [3] 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. Around 1,500 doctors and 10,000 nurses—besides Anganwadi workers and volunteers—were involved in the programme. [4-7] During the mass vaccination campaign, there were several rumours regarding inefficiency and adverse effects caused by the vaccine. [7-9] This led to a large number of parents refusing vaccines for their children, resulting in a low coverage in the anticipated time duration.

Materials and Methods

A Community based cross-sectional study was conducted in the Department of Community Medicine, Darbhanga Medical College and Hospital, Laheriasarai, Darbhanga, Bihar, India from March 2018 to February 2019. Children aged between 9 months and 15 completed years as on the date of study. 400 participants were included in this study. Informed consent was taken from the study subjects. Pre tested, semi structured questionnaire by interview technique. 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 15years and Those caretakers not willing to participate in the study were excluded from the study.

Statistical analysis: Analysed using SPSS v 20. Descriptive statistics was applied. Informed consent was obtained from the study participants after explaining the purpose of study. Data was collected using pre-tested, semi-structured Proforma. Thedata collected was analyzed using SPSS version 20. Statistical analysis was done using percentages, Chi square test etc.

Results

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. 88% of the children have been immunized with the MR vaccine and 12% of the children have not been immunized. 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 ($p < 0.05$). 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. 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. 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%), neighbors (3%) and ANM (2%). 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.

Table 1: Age Distribution of Children

Age Group	Number of Children	Percentage (%)
1 to 5 years	138	34.5%
6 to 10 years	166	41.5%
11 to 15 years	96	24.0%
Total	**400**	**100%**

Table 2: Immunization Status by Gender

Gender	Immunized (n)	Immunized (%)	Not Immunized (n)	Not Immunized (%)	Total (n)
Male	198	53.4%	20	41.7%	218
Female	164	46.6%	28	58.3%	192
Total	**362**	**100%**	**48**	**100%**	**400**

Table 3: Presence of MR-Immunization Card

Card Status	Number of Children	Percentage (%)
Have Card	256	64%
No Card	144	36%
Total	**400**	**100%**

Table 4: Place of Immunization

Place of Immunization	Number of Children	Percentage (%)
School	244	67.61%
Anganwadi	88	24.43%
Government Hospital	28	7.96%
Total	**360**	**100%**

Table 5: Reasons for Not Immunizing Children

Reason	Number of Children	Percentage (%)
Child was ill	15	37.5%
Not aware of the campaign	11	27.33%
Out of station/traveling	5	12.33%
Forgot about the session	4	10.33%
Fear of side effects	3	8.33%
Other	2	4.16%
Total	**40**	**100%**

Table 6: Adverse Effects Following Vaccination

Adverse Effect Status	Number of Children	Percentage (%)
Had Adverse Effects	12	3%
No Adverse Effects	388	97%
Total	**400**	**100%**

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 programmed 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 Bihar 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%)

Conclusion

In the present study done in Bihar, 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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