

## Incomplete Immunization Coverage in Delhi: Reasons and Solutions

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### Abstract

**Background:** Immunization is considered as a cost-effective public health intervention to reduce the morbidity and mortality associated with infectious diseases. This study was planned with an objective to find the reasons for defaulters of immunization in an urban resettlement area in Delhi.

**Methods:** The study was conducted over a period of 6 months in four blocks of an urban resettlement colony in Delhi. Children who were not completely immunized as per records were tracked by the research team and caretakers were interviewed to find reasons for incomplete immunization, using a semi structured, pre tested questionnaire.

**Results:** Out of 87 incompletely immunized children, only 44 could be traced. The reasons reported were non availability of vaccine at the centre, long waiting time and poor awareness of parents about importance of immunization despite the fact that most of the parents were literate and employed. However 22.7% were wrongly classified as their immunization was not recorded by the health worker in the centre.

**Conclusion:** Sustained efforts are required to raise the awareness of community about importance of immunization. Workers need to be trained about need for maintaining appropriate records and use the MCTS system.

**Keywords:** Defaulters; Immunization; Delhi

### Introduction

Preventing under-5 mortality is one of the key focus areas of policy makers nationally and internationally. The Sustainable Development Goals' target 3.2 in alignment with WHO global strategy for mother and child 2016-2030 aims to achieve reduction of under-5 mortality to less than 25 per 1000 live births in every country [1,2]. The Government of India 12<sup>th</sup> five year plan and also the reproductive, maternal, newborn, child and adolescent health (RMNCH+A) strategy 2013 focuses on bringing down under 5 mortality rate [3]. About 25%, of under-5 mortality is due to vaccine-preventable diseases globally [4]. Vaccine preventable diseases put a huge financial and social burden on individuals, families and society. Children who contract these preventable diseases usually suffer from impaired physical growth, cognitive development, emotional development, and social skills [5]. In India, vaccine-preventable mortality was estimated to be that of the 826,000 deaths in under-5 children, almost 604,000 deaths were due to vaccine-preventable diseases including diarrhea, pertussis, measles, meningitis, and pneumonia [6]. Immunization is considered as a cost-effective public health intervention to reduce the morbidity and mortality associated with infectious diseases. As per estimates, over two million deaths are delayed through immunization each year worldwide [7]. Within SEARO region, India has the lowest immunization coverage of 70% whereas in every other country like Bangladesh (85%); Indonesia (83%); Nepal (79%), Myanmar (82%), etc. the coverage is more than India [8].

India's immunization programme, launched in 1985, is one of the largest health programmes of its kind in the world catering to a birth cohort of 27 million children annually. The programme targets immunization against seven vaccine preventable diseases (diphtheria, whooping cough, tetanus, polio, tuberculosis, measles and hepatitis B) in the country. The programme has been operational for over 30 years and yet only 65% children in India received all vaccines during infancy. It has been calculated that over 89 lakh children in the country do not receive all vaccines that are available under the immunization programme which is highest compared to other countries in the world [9].

To improve the rate of full immunization coverage, it is important

to investigate the reasons for incomplete immunization. This will help to frame future policies to improve immunization services and involve all stakeholders in the planning process. Keeping the above points in view, this study was planned with an objective to find the reasons for defaulters of immunization in an urban resettlement area in Delhi.

### Methodology

The study was conducted over a period of 6 months in four blocks of an urban resettlement colony in Delhi which were catered by one Urban Health Centre (UHC). The UHC in the area offers multiple services including general OPD, ante natal and post natal care, immunization, breastfeeding counseling and growth monitoring. It caters primarily to 4 blocks of the Gokulpuri (urban resettlement colony) with adjoining slums. The centre is also teaching centre for interns and post graduates from Maulana Azad Medical College. The centre has two medical officers, 2 Lady Health visitors, ANMs, social worker and other staff. A total of 790 under 2 years old children were registered in UHC from all 4 blocks. First, a list of all the defaulters (child missing any vaccine) was prepared by the Auxiliary Nurse Midwife (ANM) from the records in immunization register at the UHC. From the list, all defaulters were then segregated block wise. A team of two field investigators, ANM responsible for that block and a field supervisor was constituted under the guidance of medical officer in charge of the centre. Before starting survey, all team members were trained and explained about the purpose of the survey, data collection and interviewing techniques so as to minimize interviewer bias. At the end of the day, all the data collected through questionnaires was analyzed by a senior supervisor. A semi

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structured, pre tested questionnaire was prepared in local language consisting of items on socio demographic profile like age, gender of the child, education and occupation status of parents. Details of the immunization of the children were assessed. The information was cross checked with immunization card available with the family. All efforts were made to interview mothers as they are the primary caregiver at home. In case, the mother was not available at the time of visit, repeat visits were made later. However, those defaulter families' which were reported to be shifted out of the area were not visited again. At the end of the interview, the mother was explained about the importance of the immunization and was counseled to complete the immunization of her child as soon as possible. The data were fed into Excel sheet and analyzed using SPSS version 17 (USA II Chicago). Errors while entering data and analyzing were minimized by cross checking by the senior supervisor of the team. The study is approved by institutional ethical committee. Informed verbal consent was obtained from all the subjects before the start of interview. The subjects were assured about the anonymity of the data and voluntary participation in the study.

## Results

There were a total of 87 defaulters as per records available (11%). Immunization coverage in the area is 89%. Out of 87, only 44 families could be traced, the remaining families could not be traced due to a number of reasons. For 26 families, wrong addresses were found written on records while surveying and rest 17 families were found to have left the areas.

Table 1 shows socio demographic characteristics of study subjects. A majority of families were Hindu (95.5%) and non migrant (97.7%). Most of the parents were literate and were employed (Table 1).

### Immunization status of children

The number of defaulters approached and interviewed was 44. The investigators went out in the community to survey the defaulters. Out of 44 defaulters, 14 (31.8%) were found to be completely immunized. The reason for misclassification of 10 out of 14 defaulters by ANM was incomplete entry on records or registers. They were completely immunized with correct and complete entry on immunization cards with them. This could be due to the fact that the Mother and Child Tracking System system was operated by a NHRM data entry operator who came on alternate days and the Public Health Nurse at the centre did not inform nor updated the records. In the rest 4 out of 14 defaulters,

Characteristic	Frequency (N=44)	Percentage
<b>Religion</b>		
Hindu	42	95.5
Muslim	2	4.5
<b>Education of mother</b>		
Illiterate	3	6.8
Literate	41	93.2
<b>Education of father</b>		
Illiterate	2	4.5
Literate	42	95.5
<b>Occupation</b>		
Unemployed	1	2.3
Employed	43	97.7
<b>Migration status</b>		
Non migrant	43	97.7
Migrant	1	2.3

Table 1: Demographic characteristics of study subjects.

Reason	Frequency (n=30)	Percentage
No need of vaccination	1	3.3
Vaccine not available	3	10.0
Time is not convenient	2	6.67
Long waiting time	1	3.3
Will get the vaccination later	4	13.3
Weather was not good so didn't go and then forgot	1	3.3
Do not know what vaccines are needed and when	6	20
No time to take child for immunization	3	10.0
Do not know where to take child for immunization	1	3.3
Fear of side effects	2	6.67
Services not available when required	6	20

Table 2: Reason for incomplete immunization.

entry was not being made into the card for the vaccine which the mother claimed to have been given to child. The reasons were enquired regarding the card being partially filled. The reasons for card being incompletely filled were non entry by health staff (5.9%) or mistake of not carrying the card along on the day of receipt of vaccination (5.9%).

Only 30 (68.2%) children were found to have incomplete immunization. Table 2 shows reasons for incomplete vaccination in study subjects. Factors/ reasons for incomplete (partial) immunization of the children were also assessed (Table 2).

Although all the 44 children surveyed had ever received immunization from the urban health centre (UHC), 7 had received some of the vaccines from other government and private hospitals as well, whereas 37 had entire immunization from UHC only. Twenty two (50%) subjects reported that they paid more visits than recommended for vaccination. Most common reason for same was non availability of vaccines (27.5%). Other cited reasons were long waiting queue (18.2%) and non availability of service providers (4.5%).

### Beneficiary satisfaction level

Data were collected regarding the beneficiary satisfaction levels and also about the immunization services provided in UHC. Thirty six (81.8%) were satisfied by services provided there while 7 (15.9%) were dissatisfied from the same and 1 (2.3%) said "cannot say". The reasons for dissatisfaction were also assessed. Long queue and long waiting period (2), insufficient vaccines which finish off before their turn (2) and rough attitude of the staff (3) were reported reasons.

Counseling services were also provided in UHC. Subjects were asked about their perception of counseling services. Forty (90.9%) admitted that side effects of vaccination and their management was explained to them when they went for services. Next visit for immunization was also reported and instruction to bring immunization card in next visit was told to 41 (93.2%).

About frequency of visits of health workers to the community, it was reported that mostly health workers used to pay visit monthly (36.4%) followed by 2-3 times in a month (22.7%), weekly (15.9%), once in a quarter (4.5%), sometimes (11.4%) and never by (9.1%) subjects. On non-reporting at scheduled time for immunization of child, it was revealed by only 21 (47.7%) subjects that health workers paid home visit.

Various sources of information about immunization services were assessed. Anganwadi workers (50%) were the most common sources of information (Table 3).

Source	Frequency (n=44)	Percentage (%)
Health worker staff		
1) ANM	6	13.6
2) ASHA	7	16
3) AWW	22	50
4) Doctors in government settings	16	36.3
5) Doctors in private hospitals	1	2.27
Newspaper	1	2.27
Self from hoardings or boards	3	7

Table 3: Sources of information about immunization.

## Discussion

The present study showed that majority of subjects were Hindu, non migrant with literate and employed parents. Immunization coverage is 89% in the area which is much above then that reported in CES 2009 (71%) for Delhi [10]. Reasons for incomplete immunization were related to both health system and social factors. Non entry by health staff in immunization card on the day of vaccination was found. Such misclassification by health centre staff was an important area which should be improved because it will spuriously gives impression of poor immunization coverage. Health centre staff should be sensitized and trained about the importance of accurate record keeping and records should be cross checked by Medical Officer In charge. Similar findings have been previously reported by other authors as well [11]. Other health system related reasons cited were non availability of vaccine at the centre and long waiting time. Convenience of immunization services are known factor which improves immunization coverage as stated by Mohammed et al [12]. Similar findings were reported by a study conducted by Lim et al where some of the reasons for refusal for immunization of children were long waiting time and unsatisfactory services at the clinic [13]. In another study by Gupta et al from Lucknow, most common reason for partial or non-immunization cited were family problems (24%) of the respondents followed by unawareness of immunization (20%) and fear of side effects (16%) [14]. Other reasons were child too young for immunization, illness of child and parents have no faith in immunization (12%). All efforts should be taken to improve vaccine constant availability at the health canters.

According to CES 2009, reasons for complete immunization were, 28.2% families didn't feel the need, 26.3% were not aware of vaccine, 10.8% were unaware of where to go for immunization, 8.9% didn't find time convenient and 8.1% were afraid of side effects. Awareness of parents about importance of immunization was found to be inadequate. Parent's lack of awareness about need of timely immunization, place to go for vaccination and fear of side effects were found. These are consistent with results from a study conducted in Aurangabad where lack of motivation and information about immunization were reported [15]. Counselling services provided at the health centre at the time of vaccination should focus on such issues so as to allay the anxiety of parents about side effects of vaccines and importance, place and date of next visit for immunization. Health staff should be trained in counselling to improve the effectiveness. Health workers

should approach the families as soon as the child don not turn up for vaccination at due date to ask he reasons for not bringing the child. Most common source of information about immunization services was Anganwadi workers followed by doctors. They should be involved actively in ensuring complete immunization of the children in their area by keeping the record of immunization and bringing them to the health centre for immunization. WHO world immunization week was held in April 2016 with the aim to promote the use of vaccines to protect people of all ages against diseases.

## Conclusion

The reasons for incomplete immunization were mainly lack of awareness of parents and health care system flaws. All efforts should be taken to raise the awareness of community about importance of immunization along with providing complete information about the immunization services being available to them. Intersectoral coordination should be strengthened by participation of Anganwadi workers in providing immunization services. Workers need to be trained about need for maintaining appropriate records and use the MCTS system. Proper data recording and management would reduce these errors and help policy makers designing programmes based on true data.

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