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Provider's and User's Perspective about Immunization Coverage among Migratory and Non-migratory Population in Slums and Construction Sites of Chandigarh

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ABSTRACT *Strengthening routine immunization is a corner stone for countries to achieve the United Nations Millennium Development Goal 4 (MDG 4) which aims to reduce under-five mortality by two-thirds and MDG 5 improving maternal health compared to 1990 estimates by 2015. The poor urban newborns are more vulnerable to many health and nutrition problems compared to the non-poor urban counterparts. Therefore there is a need to strengthen health system to cater the needs of urban poor. Standardized WHO30*7 cluster sampling for slums and convenience sampling for construction sites. In depth interviews were conducted for user's as well as provider's perspective about immunization coverage. Two hundred ten children and 210 mothers were enrolled in slums and 100 were sampled from construction sites. The slum workers are considered as non-migratory groups whereas construction site workers are considered as migratory population. Among children, 23 % were fully immunized, 73 % were partially immunized and 3 % were unimmunized in non-migratory population whereas 3 % were fully immunized, 91 % were partially immunized and 6 % were unimmunized in migratory population. Among mothers, 43 and 39 % were fully immunized, 13 and 15 % partially immunized and 43 and 46 % were unimmunized in non-migratory and migratory population, respectively. The various reasons attributed for low coverage are (a) dissatisfaction of the users with the service delivery and procedural delays (bureaucracy), (b) lack of faith in health workers, (c) insistence upon ID/vaccination card/aadhar card by the health worker before vaccinating child and (d) ignorance of the need of immunization by the people and migration of the population.*

KEYWORDS *Immunization, Aadhar card, Migration*

INTRODUCTION

Childhood immunization remains the most cost-effective health intervention to reduce child mortality due to vaccine-preventable diseases. More than 52,500 babies are born every week among the urban poor segment of India's population. This number is expected to increase nearly twofold by 2020. India's urban population is expected to increase further to 535 million (38 %) by 2026. Out of the total population increase during 2011–2026, the share of increase in urban population is expected to be 168 million, i.e. 87 % of total population increase. The urban poor estimated to be increasing at about 6–7 % per annum across the country

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(with certain cities having faster growth) constitute the fastest growing segment of India's population. There is a need to enhance the outreach of health-care systems to provide basic maternal and neonatal healthcare to the urban poor.[1]

There exists a wide gap of immunization coverage rates between poor section of the society and affluent groups. A widespread disparity in coverage rate also exists within poor people. A lot of studies on immunization coverage have been done in various parts of India. Very few studies focused on urban slums or on migratory population. Only a very small number of studies look at in depth reasons for low immunization coverage in these people. This study attempted to elucidate the individual- and community-level factors associated with child immunization coverage differentials between migrant and non-migrant groups of population of Chandigarh. The study was conducted with the following objectives: (1) to ascertain the determinants of the immunization coverage among children (12–23 months) and their mothers in migrant and non-migrant population in Chandigarh, (2) to ascertain the degree of satisfaction of the respondents with regard to immunization services and (3) to ascertain the status of various strategies undertaken in Chandigarh for increasing immunization coverage.

MATERIAL AND METHODS

This population-based cross-sectional study was conducted in all slums and construction sites of Chandigarh. Standard 30 by 7 (210) cluster sampling devised by WHO[2] was adopted to assess the levels of immunization of children and pregnant mothers in slums. The 30 by 7 cluster survey is a two-stage cluster sample. In the first stage, the population was divided into a complete set of non-overlapping subpopulations, called clusters. Then 30 of these clusters are sampled with probability proportionate to the size (PPS) of the population in the cluster. In the second stage of sampling, seven subjects are selected within each cluster. Since construction site population is migratory in nature, convenience sampling was adopted to assess their immunization coverage. Information on 310 children and their (310) mothers was collected. A total of 10 slums from which 30 clusters were sampled (non-migratory population) and 13 construction sites (migratory population) were included in sample. Data collection continued on this site till 210 children from slums and 100 eligible children from construction sites were found. Migrant respondents were selected from construction sites. Non-migratory subjects were selected from slums where all eligible respondents are residing in Chandigarh for more than 1 year. The child was considered as immunized or not based on immunization card;[3] if immunization card is not available, the mother recalls or any close relative who was present at the immunization were used to get information. A child who had received three doses of DPT and OPV each and one dose of BCG and measles each was considered as fully immunized. A child who had missed any one or more doses was labelled as partially immunized. A child who had not received even a single dose was categorized as unimmunized.[4] For mothers, immunization card and recall memory were used to get information. Mothers who had received both doses of tetanus toxoid (T.T.), i.e. T.T.1 and T.T.2, were considered as fully immunized; mothers who had received only a one dose of T.T. were labelled as partially immunized; and mothers who did not receive even a single dose of T.T. were categorised as unimmunized.[5]

For assessment of client satisfaction, respondents who had availed the immunization services on at least one occasion were interviewed.[6–8] The satisfaction

regarding the various parameters was compared in the migratory and non-migratory population.[9] A pretested structured schedule was used to elicit the response of the respondents regarding their satisfaction with the various aspects of immunization. The primary respondent was the mother of the child. For various strategies for increasing immunization coverage, in depth interview of medical officers/health workers/*anganwadi* worker was done. Only those children who were aged between 12 and 23 months on the day of survey, .i.e. the day when they were contacted, were considered eligible for this study. Statistical analysis was done within SPSS version 20. Descriptive analysis was used. Frequencies, percentages and mean were used to draw inferences; chi-squared test was applied for categorical variables in the study. Consent was duly taken.

RESULTS

The overall coverage of various vaccines among non-migratory and migratory population is shown in Table 1. Completely immunized children were 23 % in non-migrant and 3 % in migrants as shown in Table 2. Less than half (43 %) of the pregnant mothers were fully immunized in non-migrants while 39 % were completely immunized in migrants, while 13 and 15 % were partially immunized and 43 and 46 % were unimmunized in non-migrants and migrants, respectively. Various reasons for partial and incomplete immunization are shown in the Table 3. Among both groups, majority (48–64 %) of the mothers had not received even one antenatal care (ANC) visit. Most (60–94 %) of women were without ANC cards. Majority (70–78 %) of the women had their first pregnancy below the age of 20. Place of delivery was home in 64–88 %, government hospital in 11–34 % and private hospital in 1–3 % cases. Only 21–25 % of the home deliveries were attended by the trained *dais*. Some (34–52 %) of the women were provided with iron and folic acid tablets at the time of ANC check-ups. Majority (55 %) of population had to travel 2–5 km in non-migrants while most (57 %) in migrants had never went to vaccinate their child. In both the groups, health worker (HW) occasionally told about the side effects of vaccination. Of the population, 16–30 % only satisfied with

TABLE 1 Comparison of immunization coverage among not migratory and migratory population

	Not migratory (210), %	Migratory (100), %
BCG	55.2	38.0
Measles	27.6	4.0
DPT1	59.5	26.0
DPT2	46.6	17.0
DPT3	34.2	6.0
Dropout rate for DPT	42.4	77.0
Polio1	93.8	94.0
Polio2	83.8	84.0
Polio3	61.9	58.0
Dropout rate for polio	34.0	38.0
Hepatitis-B1	33.8	9.0
Hepatitis-B2	30.9	6.0
Hepatitis-B3	27.1	4.0
Dropout rate for hepatitis	19.7	56.0

TABLE 2 Immunization coverage in children

	Not migratory (210)	Migratory (100)
Completely immunized	49 (23.3 %)	3 (3.0 %)
Partially immunized	154 (73.3 %)	91 (91.0 %)
Non-immunized	7 (3.3 %)	6 (6.0 %)

the information given by the HW. Of the population, 42–64 % reported fever as a side effect of the vaccination while 22–43 % complained of swollen legs. Twelve to 25 % of people rated the behaviour of HW as poor while 34 % of the population were not satisfied with the immunization services.

None of the dispensaries had adopted any specific strategy to cover the migrants. In 40 % of dispensaries, outreach sessions registered were missing while in 30 % they were not maintained. Majority (70 %) of auxiliary nurse midwives (ANMs) did not receive any training with respect to immunization in the last 1 year. Most (80 %) of dispensaries do not converge polio micro plans with routine immunization. Half

TABLE 3 Reasons for partial/non-immunization of the child

	Not migratory (203)	Migratory (94)
Obstacles		
Vaccination not available	2 (0.9 %)	0 (0.0 %)
Vaccinator absent	0 (0.0 %)	1 (1.0 %)
Long waiting time	9 (4.4 %)	0 (0.0 %)
Time of immunization inconvenient	1 (0.4 %)	4 (4.2 %)
Place of immunization too far	6 (2.9 %)	4 (4.2 %)
Mother was too busy	39 (19.2 %)	41 (43.6 %)
Both the parents were busy	32 (15.7 %)	64 (68.0 %)
Child was ill	5 (2.4 %)	3 (3.1 %)
Child was ill, brought but not given immunization	9 (4.4 %)	0 (0.0 %)
Family problems including illness of mother	9 (4.4 %)	2 (2.1 %)
No one came at home	63 (31.0 %)	32 (34.0 %)
Went to village/native place/migrated to other place	46 (22.6 %)	57 (60.6 %)
Lack of information		
Unaware of need for immunization	109 (53.6 %)	61 (64.8 %)
Unaware of need to return for 2nd/3rd dose	60 (29.5 %)	9 (9.5 %)
Not aware that services are free of cost	17 (8.3 %)	3 (3.1 %)
Place/time of immunization unknown	57 (28.0 %)	60 (63.8 %)
Wrong ideas about contradictions	15 (7.3 %)	6 (6.3 %)
Polio was considered only immunization to be given	56 (27.5 %)	29 (30.8 %)
Lack of motivation		
Child/sibling became ill as a result of previous immunization	47 (23.1 %)	5 (5.3 %)
Rumours	20 (9.8 %)	8 (8.5 %)
No faith	56 (27.5 %)	14 (14.8 %)
Cultural/religious reason	6 (2.9 %)	4 (4.2 %)
Postponed until another time	10 (4.9 %)	1 (1.0 %)
Told to come on another day	2 (0.9 %)	6 (6.3 %)
Card lost, did not vaccinate the child	26 (12.8 %)	6 (6.3 %)
Did not vaccinate, demand residential proof	28 (13.7 %)	9 (9.5 %)

of dispensaries reported improvement in their efficiency with maternal and child health tracking system (MCTS) while none of them got benefitted by SMS alerts. Most (90 %) of dispensaries did not use tracking bags for immunization. Some of ANMs (20–40 %) did not have adequate knowledge regarding age limit of DPT and measles vaccine. Most (80 %) of medical officers and all *anganwadi* workers did not know about the age limit of various vaccinations. Majority (60 %) of dispensaries required residential proof for vaccination.

Half of dispensaries sent the child to their previous source for the rest of immunization. Most (80 %) of dispensaries found it difficult to duplicate the card and did not vaccinate the child and mother on days other than well baby and antenatal clinic days.

DISCUSSION

The urban poor reside in slums, squatters, pavements, constructions sites and urban fringes. They have to face many problems such as poverty, lack of awareness, poor living conditions and poor family support system. Health and nutrition services are poor since many of such settlements have evolved as encroachments and are not notified in official records.[1]

Our study found a significant difference in the immunization coverage of two groups. Completely immunized children were 23 % in non-migrant as compared to 3 % in migrants. This reflects that the homogeneity in immunization coverage was lacking in this population. Though complete immunization was low in slums of Chandigarh, partial immunization rate was very high (73 %). This reflects the inability of health system to provide follow-up services for immunization of the child. Like our study, Sharma et al. also reported that only 25 % of children in slums of Surat were completely immunized.[10] In contrast, Kadri et al. found that 70.3 % were completely immunized children from urban slums of Ahmadabad City.[11] Different studies have reported a wide range of variation in coverage rate (20–85 %).

Mother's immunization coverage was higher (39–43 %) as compared to immunization in children (3–23 %). The probable reason might be linked to the number of visits involved in T.T. immunization which is less (2) as compared to multiple visits (5) for different vaccination of children. Majority of deliveries in study area were home based (64 %). Half of them were attended by untrained dais and the rest by no one/self. The figure is just double of what has been reported in the midline report of RCH (28.7).[12] This also explains the low immunization coverage in study area. Such status explains lack of capacity or motivation of the health system to provide even basic MCH services, e.g. institutional deliveries in urban slums. In our study, only 20 % of women in non-migratory and 12 % of women in migratory had received a minimum of 3 ANC visits during pregnancy. This finding is supported by DLHS 3 (2007–08) survey which reported that 29 % of women had full ANC check-ups.

Client dissatisfaction with the health system emerged as one of the leading cause of the partial immunization. In this study, only 16–30 % population was satisfied by the information given by the health worker. This is quite low as compared to the study done by Nath et al. (86 %).[13] Rating of the behaviour of health staff was "good" by 24–36 % respondents only. Such a high level of dissatisfaction among users might have affected the follow-up visits for immunization. Adverse events and

bad experience following immunization seriously affect the coverage as is evident from following responses.

> "*ji bade vale ko saare teeke lagvaye vo hamesha bimar hi rehta hai aur chote vale ko ek bi nai lagvaya vo kabi bimar hi nai hota ab aap batao teeke kaise lagvaye*" (Our elder child received all vaccination, but he always tend to fall ill, whereas no vaccination is given to the younger one, he always remains healthy. Tell us, why we should go for immunization).
> "*Teeka lagvaya ji ise, 7 din tak taang se khadi nai hui ye.*" (We vaccinated our children, but after that she could not stand for 7 days)

Financial problems, loss of work and wages if they visit a health facility for vaccination is also one of the reasons for low coverage. This is reflected in the following statements of respondents:

> "*Ek to dihadi kharab karke teeka lagvane jao, upar se bolti ki kal ana, pagal samaj rakha hai hume to*" (We went to clinic at the cost of our work, and they say come on another day. They consider us as mad people.)
> "*Kaun lagvane lekar jaaye ji ise, maa baap dono kaam karte iske*" (*Who* will go to vaccinate the child, as both father and mother go for work)

The problem of low immunization coverage has to be analysed from various angles. Most of the studies have blamed the beneficiaries for partial or non-immunization. Our study yielded many insights into this issue. Our study found that record maintenance was poor in the dispensaries. This reflects the casual behaviour of health staff with respect to immunization services. Outreach sessions have not been regularly organized to cater to the needs of immunization of construction sites and slums. It becomes evident from the following responses of health workers:

> "*Outreach sessions ke liye time nai mil pata*" (We don't have time for outreach sessions)
> "*Hamare yaha drop out nai hai isliye outreach session's nai lagate*" (We don't have drop outs here, so no need of outreach camps)

In India, health is sought to be delivered as comprehensive health care involving both preventive and curative aspects. Originally, role of medical officers of PHC was conceived as that of a leader for supervising the whole set of comprehensive health-care services. However, our result indicates that there is change in this kind of thinking. Definitely, there is some paradigm shift in the perception of medical officers regarding their role in public health-related responsibility, viz immunization. Our study reveals that medical officers are being involved only in curative aspect of the health care. None of the medical officers had adequate knowledge about age limit of the various vaccinations. There is lack of accountability of medical officers about immunization.

Annoying of the migrant population is also affecting the immunization coverage. For example, health workers demand the *aadhar* card when people come to a health centre. They send them back to their previous area of immunization for follow-up doses. Health workers do not issue card for fear of increasing dropouts. This is also affecting the overall coverage. The health department and HW seem to be worried more about completing the documentary formalities. Their main concern remains on coverage rates. They were happy to exclude problem cases (migrants) from their list

of beneficiaries and from their records rather than worrying about providing them services when they came to a health centre. They scold them for not bringing immunization card/ID card. This initiates a vicious circle. An angry HW puts off people——————> they get afraid of getting scolded——————————> so they do not come to health centre——————————————> This leads to low coverage and the cycle goes on. The following comments tell about such problems faced by the migrants.

> "Bache *ko teeke lagvane lekar jaaye to bolti hai pechaan pattar lekar aao*, *unko bataya bi hume yaha rehte 20 saal ho gaye hai*, *to kha se le ke aye pechaan pattar.* (I had gone to dispensary vaccinate the child, but they demand residential proof although we told we are residing here for last 20 years, from where we bring the residential proof).

Procedural delays (bureaucracy) are also one of probable reasons affecting immunization coverage. Our result reflects that while the health system is efficient in making initial contact with the child; it was not able to sustain its efforts. Follow up services are deficient. In addition, health worker is under pressure from officers for increasing coverage and decreasing drop outs. This trend forces them to insist on *Aadhar* card. Staff shortage, increase workload, illiteracy of poor people further adds to the problems. This has resulted in decreased efficiency of health worker and increase dissatisfaction among the population. Following statement reflects on this issue that health worker focus on data rather than on people

> "*Agar hum card bana denge*, *to drop out badh jayenge aur fir officer's puchenge to why it is dropout*, *so we need their residential proof*". (If we will make their card, Dropout rate increases and officers will ask us, so we need residential proof)

As per some verbatim responses of HWs, the government strategy for strengthening immunization coverage by introducing MCTS is not very useful rather it has more disadvantages as compare to advantages. SMS alerts and tracking bags are also nearly a failure. It is neither user friendly to public nor useful to the providers. Actually, govt. schemes keep on changing without trying out the efficacy of earlier ones. This confuses the HW. Thus, overall it results in an increased workload of HW. In the end, it seems like merely wastage of resources. It is a well-known fact that the migrants do not have any residential proof and it takes time to acquire the same. Demand of residential proof from migrants as a precondition to provide for immunization is fruitless. Immunization services should be user friendly for all. HW should not use 'victim blaming' approach for the lapse/lacunae of health-care delivery system. Immunization should not be linked with any precondition of ID/*aadhar* card. It should be emphasized that immunization is not for improving rates and ratios. It is agreed that all programmes need to be evaluated. This requires calculation of coverage rate, etc., but it needs to be realized that immunization is not just an administration issue. Rather the programme should focus on the people. Benefit of the children should be the first priority. Conscious efforts should be made to vaccinate the child once he/she enters the clinic with/without ID proof.

CONCLUSION AND RECOMMENDATIONS

Overall immunization coverage was poor in both construction sites and slums of Chandigarh. A special vaccination strategy should be evolved both for slums and

construction sites. Immunization services should be made available for all. It should not be linked with any precondition of production of any ID/*aadhar* card/vaccination card. Once the child is brought to a clinic, he/she should be vaccinated without any terms and conditions. The health provider should adopt a user-friendly approach. They should be patient enough to cater to the needs of the population. Procedural delays (bureaucracy) for immunization need to be sorted out. Lack of confidence between providers and users should be reduced. Proper training of providers to be carried out; in particular attitudinal training is needed. More intensive efforts are required for follow-up visits. The focal group discussion, awareness camps and workshops should be organized to make aware the public about vaccination.

LIMITATIONS

Convenience sampling instead of cluster sampling was used for the children in construction sites. Sample size was small (100) in construction sites. Only construction site workers were considered in the 'migrant' group.

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