

Original article:

Immunisation coverage status and reasons for underimmunisation in urban slums of Hyderabad city, Telangana state

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Abstract:

Introduction: Among children aged 12-23 months in urban India, only 60% are fully immunized. Immunization services do not reach over one third of urban poor children; only 43% are fully immunized. Outbreaks of Vaccine Preventable Diseases are more common in urban slums owing to high population density, and continuous influx of a new pool of infective agents with the immigrating population. The current study seeks to determine whether the situation has improved since, and to identify risk groups and reasons for under-immunization.

Methods : A coverage evaluation survey was done from January 2014 to April 2014 among children aged 12-23 months in the urban slums of Hyderabad district, using the WHO 30-cluster survey methodology. To find 510 eligible children, we surveyed a total of 3,840 households. A pre-tested structured questionnaire was used. The vaccination card and the recall method were used. Statistical analysis was done by using the software SPSS 10.0.1 for Windows.

Results : It was observed that 47.2% of the total number of children had vaccination cards. Though the immunization program reached to about 76% of the target children, only about 44.1% of the children received all the vaccines. The proportion of children with no immunization at all was about 24%. The most common reason for the partial immunization of the child was the unavailability of both the parents. Sickness of siblings and lack of knowledge regarding the subsequent vaccination were the other reasons found.

Conclusions : The goal of achieving universal immunization in vulnerable urban slum population with poor health infrastructure needs, a coordinated effort to deal with both lack of access and dropout.

Keywords : Immunisation Coverage Status, Reasons, Failure, Immunisation, Urban Slums, Hyderabad

Introduction

Among children aged 12-23 months in urban India, 60% are fully immunized (immunization cards and mother's recall) which presents an average of the better and poorly performing states (1). Empowered Action Group (EAG) states which constitute more than 40% of the total urban population of India (2) are behind. Immunization coverage in urban areas of Bihar, Rajasthan and Orissa is 19%, 27% and 49% respectively as

compared to 84% and 73% in Tamil Nadu and Kerala(3).

Immunization services do not reach over one third of urban poor children; only 43% are fully immunized (3). The percentage of children completely immunized in the low as compared to high SLI (Standard of Living Index is representative of socio-economic status) in urban areas is 7 versus 53 in Rajasthan and 24 versus 76 in Orissa. This difference is less marked in better

performing states like Punjab and Kerala. Slum based studies confirm this finding (4, 5). Such interstate differentials indicate the importance of extra focus on lower performing states.

Outbreaks of Vaccine Preventable Diseases are more common in urban slums owing to high population density, and continuous influx of a new pool of infective agents with the immigrating population (6, 7). Measles produces a higher percentage of younger cases with associated higher mortality, owing to prolonged exposure to infected siblings in the small living space of slums. Severity of infection is higher in these secondary cases (8). Immunization programs in urban areas can exert significant effects on vaccine preventable disease associated mortality, by limiting the number of cases, decreasing clustering of cases within households, and increasing time lapse between outbreaks (9).

Aims and Objectives

The current study seeks to determine the immunisation coverage status of urban slums of Hyderabad, and whether the situation of immunisation has improved when compared to the previous records. The study also aims to identify risk groups and determine reasons for under-immunization.

Material and Methods

A coverage evaluation survey was done from January 2014 to April 2014 among children aged 12-23 months in the urban slums of Hyderabad district, using the WHO 30-cluster survey methodology (10). It is a two-stage sampling technique where 30 slums from the district were randomly selected in the first stage according to 'Probability Proportion to Size (PPS),' which ascertains that the probability of a particular sampling unit being selected in the sample is proportional to the population size of the sampling

unit (11). In the second stage, the selection of the required number of children was done from each of the selected clusters.

The first child in each cluster was selected randomly, and the rest of them were selected from the contiguous households till the required number of the children was attained .

The total number of children studied was 510, with 17 children in each cluster. To find 510 eligible children, we surveyed a total of 3,840 households. In the houses having twins, only one of them was selected randomly. Only those respondents who were residing in the area for the last 6 months or more were included in the study.

A pre-tested structured questionnaire was used to elicit the information from the study participants. Information was collected on the various socio-demographic factors, about the immunization status and reasons for partial immunization and non-immunization of the children. The method used for the determination of the vaccination status was 'the vaccination card and the recall' method.

The primary respondent was the mother of the child and in case of her absence; the father acted as the next respondent. In case of absence of both of them, an adult in the household who remained with the child for most of the time or had taken the child for immunization on at least one occasion was interviewed.

The child was considered as 'fully immunized' if he/ she had received one dose each of BCG (Bacillus Calmette Guérin), Measles, and three doses each of DPT (Diphtheria, Pertussis, and Tetanus) and Polio (excluding Polio 0 dose) by his/ her first birthday. Those who had missed any one vaccine out of the six primary vaccines were described as 'partially immunized,' and those children who had not received any vaccine up to 12

months of age were defined as 'unimmunized' (12). The 'overall dropout rate' was the percentage point difference between the vaccines of the maximum and the minimum antigen received, expressed as a percentage of the maximum dose. Statistical analysis was done by using the software SPSS 10.0.1 for Windows. A p-value of <0.05 was considered significant.

Observations and Results

In the 30 clusters, a total of 3,840 households were surveyed to find the 510 eligible subjects. It was

observed that 47.2% of the total number of children complete and partially immunized, had vaccination cards. Though the immunization program reached to about 76% of the target children, only about 44.1% of the children received all the vaccines. The proportion of children with no immunization at all was about 24% (Table 1). The 'overall dropout rate' was quite high, with one in three children being not able to complete the course of vaccination

Table 1: Distribution Of Children According To Their Immunisation Status In Hyderabad City, India, 2014

Immunisation Status	Number(N=510)	Percentage (95% CI)
Fully Immunised	225	44.1 (37.9-50.5)
Partially Immunised	163	32.0 (26.4-38.1)
Unimmunised	122	23.9 (18.9-29.7)

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Table 2: Reasons For Partial Immunization And Non-immunization Of The Children According To The Respondents In Hyderabad City, India, 2014

(* signifies multiple response)

Reason	Partially Immunized*		Unimmunized*	
	(N2=163)		(N3=122)	
	No.	%	No.	%
Both the parents were busy	28	17.2	4	3.3
Went to village/native place/migrated to other place	24	14.7	0	0
Child/sibling became ill as a result of previous vaccination	19	11.7	18	14.8
Carelessness	19	11.7	4	3.3
No knowledge of vaccine and/or place	17	10.4	29	23.8
No reason	17	10.4	7	5.8
Child was ill and not brought	14	8.6	0	0
Mother was ill	13	8.0	0	0
Mother was too busy	12	7.4	0	0
Child was brought but because of illness, not given immunization	10	6.1	0	0
Opposition from family members	7	4.3	2	1.6
No one came at home	6	3.7	15	12.3
Financial constraints	3	1.8	2	1.6
Fear of side reactions	3	1.8	6	4.9
No faith	3	1.8	20	16.4
Father too busy	2	1.2	1	0.8
Husband not willing	2	1.2	2	1.6
Polio was considered as the only vaccination to be given	1	0.6	44	36.1
Others	8	4.9	5	4.1

The most common reason for the partial immunization of the child according to the

respondents was the unavailability of both the parents (17.2%). Another major reason for partial

immunization was that parents had gone to village/ native place during the scheduled date of vaccine, had been residing in the area for more than 6 months but had not yet acquired the necessary information regarding the details of vaccine administration (14.7%), and thus missed the dose of the vaccine. This was followed by carelessness (11.7%), sickness of elder sibling as a result of the vaccination (11.7%), and lack of knowledge regarding the subsequent vaccination (10.4%). On the other hand, about 36.1% of the respondents of the unimmunized children considered that Polio vaccine (during the Pulse Polio Initiative) was the only vaccination to be given. Another 23.8% had lack of knowledge about the vaccination, while 16.4 and 14.8% had lack of faith on its effectiveness and were apprehensive due to the sickness of elder sibling respectively (Table 2).

Discussion

We have tried to bring out the specific factors responsible for partial immunization and non-immunization as compared to similar previous studies, so that solutions can be tailored specifically to the individual groups on the basis of evidence, rather than using a common-sense approach. Our study revealed that a significant improvement in the percentage of complete immunization has occurred, from 16.2% in 2009 to 44.1% in 2014 in the urban slums of Hyderabad city. This was the result of sustained efforts by the government; but the achievements lag far behind the national goal.

The problem of dropout has different program-related implications as compared to the unimmunized group. It reflects lacunae in the health system and the opportunities missed. According to the respondents, the most common reason for the partial immunization of the child was the unavailability of both the parents (17.2%) to fulfil the child's health needs, as they were

preoccupied in the livelihood-generation activities. This reflects the un-met needs of the community, which require organization of outreach services on fixed date and timing with prior information to the locality. Other reasons for partial immunization were, missing of the dose due to the visit to the native place/ village 14.7% compared to 23.1% in the study done by Malini Kar et al (13). The other reasons found were, carelessness (11.7%), apprehension due to sickness of the child or an elder sibling as a result of vaccination (11.7%). Lack of knowledge was found in 10.4% compared to 23.1% found in the study done by Malini Kar et al (13). Solving these would require proper education and constant motivation through an encouraging and persuasive interpersonal approach. Regular reminders and removal of misconceptions prevailing among people and improving the quality of the services at the health facility are also needed. There is a need of proper training of the health providers to seize the missed opportunity (14), (15).

Conclusion

The goal of achieving universal immunization especially, in the disadvantaged vulnerable urban slum population with poor health infrastructure needs a coordinated effort and a multi-pronged strategy to deal with both lack of access and dropout. The measures to be taken would include reaching out effectively to people to generate demand for the services through interpersonal communication, which can be translated into a change in behaviour, and then maintaining the demand consistently. Involvement of private agencies and other stakeholders may lead to the much-needed political, social, media pressure, and periodic uproar on the issue.

Conflict of interest

There was no conflict of interest

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