

# Measles Immunization Coverage In An Urban Slum Of Chandigarh (India)

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## Abstract

Sir,

Measles is a highly communicable viral disease, commonly affecting children and being responsible for a significant morbidity & mortality among them even today. Measles is also associated with Vitamin-A deficient conditions. This high morbidity & mortality rates phenomenon exist even after having a sufficiently efficient vaccine which is easily administrable requiring only single dose and becoming available for use since the year 1963. Many of the epidemiological features favours the possibility of its eradication for which most important requirement is a better (> or =90 percent) coverage of younger children & infants with minimum single dose of potent vaccine under suitable conditions. In fact by this intervention alone the number of deaths have been reduced from 8 million in 1960 to 0.61 million in 2004<sub>1</sub>. In May 2003, the world health assembly at its 56<sup>th</sup> session adopted a resolution to reduce measles deaths by 50% by 2005 compared to 1999 levels. Is this most required condition of immunization coverage available to and utilised by the children of a particular area is the need of hour if measles is considered a candidate disease for elimination / eradication. Ideally all children should have two opportunities for immunization<sub>2</sub>. The aim of the study was to know the measles immunization coverage pattern in an urban slum of Chandigarh, so that appropriate measures can be exercised to prevent & reduce the measles burden in this community.

The study was carried out in the year 2006 in colony number 4 near industrial areas phase I of UT Chandigarh. Medical students of 2004 batch were trained in the department using the pre-tested proforma prepared for the purpose by the epidemiologist of Govt. Medical College Hospital (GMCH). Two medical officers (MOs), three demonstrators & three medical social workers (MSWs) were also trained, which in

turn acted as the key persons of the team carrying out investigations. The name of head of family & child with sex, age in completed months, history of immunization, place / source of immunization, availability of the immunization card etc. were recorded by visiting the every 10<sup>th</sup> house of the colony. The medical students along with one MO / demonstrator / MSW were directed to enter each of 8 streets opening on the main road to avoid overlapping. The data were thus collected using interview technique of survey. Mostly mothers were interviewed baring few when father or elder sister or brother became the source of information. The data was analysed manually and with the help of computer. The results were as follows. Statistical tests like chi-square, Kolomogrov - Sonirnov two sample tests were applied for analyzing data.

## Figure 1

Table : Measles Immunization Coverage Pattern

Age in months	Sex	No.	Measles Immunization	Place of Immunization				Card	
				Home	Centres	Hospital	Don't		
6 - 11	M	30	06 (20.0)	01 (16.6)	04 (67.7)	0 (0.0)	01 (16.7)	19 (63.3)	$\chi^2 =$ 0.007 ( $P > 0.05$ )
	F	19	04 (21.0)	01 (25.0)	01 (25.0)	01 (25.0)	01 (73.7)		
12 - 35	M	182	121 (66.5)	44 (36.4)	56 (46.3)	15 (12.4)	06 (4.9)	134 (73.6)	$\chi^2 = 3.24$ ( $P > 0.05$ )
	F	113	63 (55.8)	20 (31.8)	30 (47.5)	10 (15.9)	03 (4.8)	63 (55.8)	
36 - 60	M	213	142 (66.7)	56 (39.4)	51 (35.9)	24 (17.0)	11 (7.7)	170 (79.8)	$\chi^2 = 1.16$ ( $P > 0.05$ )
	F	144	88 (61.1)	29 (33.0)	40 (45.4)	09 (10.2)	10 (11.4)	91 (63.2)	
Total	M	423	269 (63.6)	101 (37.5)	111 (26.2)	39 (16.5)	18 (6.7)	321 (75.9)	$\chi^2 = 3.70$ ( $P > 0.05$ )
	F	276	155 (56.1)	47 (30.3)	74 (47.7)	20 (12.9)	14 (9.0)	168 (60.8)	
Grand Total		699	424 (60.6)	148 (34.9)	185 (43.6)	59 (13.9)	32 (7.5)	489 (69.9)	

Centres = Health Centres  
Don't = Do not know

Information was collected from a total of 699 children aged

6 months to 5 years. Of these 423 were males & 276 females. Immunization cards pertaining to around one third (30.1%) of total children could not be traced. Among those in relation to whom Immunization Cards were available, 75.9% were males and 60.8% females. Overall immunization coverage with measles vaccine was found to be 60.6% (63.5% among males and 56.1% among females). In each age group, comparatively more males than females were immunized. The gender differences, however, were not statistically significant ( $P>0.05$ ). For 7.5% of children, place of immunization was not known. Among all 392, for whom of place of vaccination was known, 148 (37.8%) were immunized at home whereas 244 (62.2%) were immunized at institutions (59;15.1% in hospitals & 185;47.2% in health centres). Outreach immunization (at home) was significantly less than institutional immunization. Better immunization coverage (about 60%) among children of elder ages (12-23 months, 36-60 months) as compared to lesser coverage (about 20%) amongst children of younger age (0-11 months) signifies that age of child was a significant determinant ( $P<0.01$ ) for measles immunization as revealed by Kolomogrov Sonirnov Test. This implies that measles immunization is usually done at late stage than desired.

Measles immunization coverage of 60.6% observed in our study is low as compared to international average range of 74% to 82%. Males were immunized more than females (63.5.0% Vs 56.1%) but sex differences were not statistically significant. This insignificant difference is a positive finding for the country like ours where female children are not cared as well as males are. The relatively better utilization of immunization services for females as compared to other services like proper nutrition, proper hygiene & cleanliness, proper treatment during illness, timely admission to hospitals etc. may be because immunization is available free of cost and also many times at door-steps or else at a walking distance from home as compared to other services requiring money and / or time.

The very low coverage of 20.0% in males & 21.0% in females in the age group of 6-11 months is disturbing especially when it comes to the children of country like ours where as many as 47% underfives are undernourished & where epidemics of measles continue to occur. In both of above mentioned later conditions, measles immunization at the age of 6 months is recommended. Low coverage may partially be explained by the fact that many children who were 11 months (and few even with the age of 10-10½ months) would have been counted among those who have

completed 1 year & hence in the next higher age group of 12 months to 35 months. This is more true for the children studied in this work because most of them are sons / daughters of illiterate mothers who prefer to tell age of child in completed years. Thus in National Family Health Survey 2005-2006 (NHFS-III) <sup>3</sup> where children up to the age of 12 months were studied, measles immunisation coverage was higher amounting to 48.4%. To differentiate between a child of age 10-11 months & 12 months, is next to impossible task. Keeping patience and giving sufficient time to mother may partially help us in this regard. Positive aspect of this finding may very well be mentioned here. It has been recommended that as the number of measles cases are decreased & immunization coverage increased the average age for measles vaccination should be increased beyond 9 months to avoid the effect of placentally transferred antibodies <sup>4</sup>. This is what has been observed in this study as much more children got immunized at or after 12 months of age than at and before 11 months of age. The sero-conversion in these immunized children might be better & this might be the reason of not having frequent epidemics though the number of susceptible (un-immunized children) is 43.6% which is more than required 40% to get epidemics <sup>5</sup>. The measles immunization coverage of 56.4% in our study is comparable to 55.1% coverage observed by others <sup>6</sup> in another slum of same city. In the states of Bihar & UP the measles coverage is 42% & 55.1% respectively <sup>7</sup>, giving an average of 48.5% coverage. Since most of population in the study area is the one migrated from UP & Bihar, 56.4% coverage is better (than 48.5% average coverage) which can very well reflect the advantage for migrated people obtained by health services of Chandigarh Administration. The study suggests the need of taking appropriate measures to improve measles coverage at an appropriate age discouraging outreach activities.

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