

**AN EVALUATION OF PRIMARY IMMUNIZATION COVERAGE AMONG ICDS CHILDREN UNDER URBAN FIELD PRACTICE AREA OF OSMANIA MEDICAL COLLEGE, HYDERABAD**Mohd. Shanawaz<sup>1</sup>, J. Syam Sundar<sup>2</sup>**HOW TO CITE THIS ARTICLE:**

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**ABSTRACT:** Research question: What is the Primary Immunization Coverage of Anganwadi children (12-72 months) under Urban Field Practice area of Osmania Medical College? **BACKGROUND:** Vaccine-preventable diseases are responsible for about 25% of the 10 million deaths occurring annually among children under 5 years of age. Immunization is a proven tool for controlling and eliminating life-threatening infectious diseases and it is estimated that more than 2 million child deaths were averted through immunization in 2003. Immunization is one of the important services which is being provided under ICDS (Integrated Child Development Scheme) projects. **OBJECTIVES:** 1. To Estimate Primary Immunization Coverage of Anganwadi children (12-72 months age group) under Urban ICDS project. 2. To Estimate Gender inequality ratio (GIR) among Study group. **METHODOLOGY:** It's a Community based cross sectional Study conducted in Anganwadi Centre of Urban ICDS Project among 340 children (12-72 months age group). **RESULTS:** Children in the age group of 12-23 months are more fully immunized when compared to any other age group of children. Males are comparatively more immunized than females. Mother's education had significant impact on immunization of their children ( $P < 0.05$ ). Primary Immunization coverage is over 85% among study groups. **CONCLUSION:** The present study showed that there is a better immunization coverage in Urban ICDS project areas. The study also showed that there has been an improvement over few years about immunization taking place in Urban ICDS projects. There is Gender inequality still exist in our country. Maternal Education had positive relation with immunization of their children.

**KEYWORDS:** Immunization Coverage, ICDS Children.

**INTRODUCTION:** Since the launch of the Expanded Program on Immunization (EPI) by the WHO in 1974, the effectiveness of immunization has been thoroughly proven. Unlike most other health and development interventions, immunization does not just raise the chances that children will resist a disease, it virtually guarantees they will<sup>1, 2</sup>. Moreover, child immunization has been established worldwide as a highly cost-effective lifesaver<sup>3, 4</sup>. In 2005, WHO and United Nations Children's Fund (UNICEF) developed the Global Immunization Vision and Strategy (GIVS), with the aim of reducing vaccine-preventable disease related morbidity and mortality by improving national immunization programs<sup>5</sup>.

According to the Global Routine Vaccination Coverage (GAVI)-2010, about 19.3 million children were not fully vaccinated and remained at risk for diphtheria, tetanus, and pertussis and other vaccine-preventable causes of morbidity and mortality, and about 50% of these children are from India, Nigeria, and Congo<sup>6</sup>. Even though the immunization services in India are being offered free of cost in public health facilities, about 45% of Indian children are deprived of the recommended vaccinations<sup>7</sup>.

## ORIGINAL ARTICLE

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Immunization coverage is decided by various determinants including, demographic and socioeconomic characteristics like child's sex, mother's education, and place of residence, religion, caste, culture and tradition.<sup>8</sup>

ICDS (Integrated Child Development Scheme) offers Immunization as one of the important services to the community and the children are easily accessible for getting them immunized. The present study evaluates the primary immunization coverage of anganwadi children under urban field practice area of Osmania Medical College.

### METHODOLOGY:

**Survey proforma:** A pre designed, pre tested proforma was developed and pilot tested. The mothers of children and the anganwadi workers were interviewed separately.

**Study design:** The present study is a community-based, observational, cross sectional study.

**Study setting:** The study was conducted in Urban ICDS anganwadi Centre's which comes under ICDS IV project, one of the five ICDS projects of Hyderabad district.

**Selection of anganwadi centers:** Initially a list of anganwadi centers was obtained after permission from the ICDS project office. There are 145 anganwadi Centre's in the ICDS IV project of Hyderabad district. Twenty anganwadi Centre's from the ICDS IV project were selected by using Systematic sampling technique.

**Sample Size Calculation:** Between 2000 and 2008, studies carried out in AP indicated full immunization coverage rate in the range of 67–82%. Among all the surveys, the recent study (District Level Household Survey, DLHS-3) done almost during the same period of reference reported a full immunization coverage of 67.1%.<sup>9</sup> However the official statistics of the Government of AP shows a full immunization coverage of 96.9% for the period April to September 2010<sup>10</sup>.

Considering a minimum prevalence of 67%, Sample size is determined using the following formula<sup>11</sup>

$$n = \frac{t^2 \times p \times q}{d^2}$$

Where: n = minimum sample size required,

t= confidence (for 95% of confidence interval, using 1.96)

d= precision (5%), p= prevalence of Immunization, which is 67%

q=100 - p, i.e. 100 - 67% = 33%

Substituting the values,

$$\text{Sample size } n = \frac{1.96 \times 1.96 \times 0.67 \times 0.33}{0.05 \times 0.05}$$

$$n = \frac{0.8493}{0.0025} = 339.7$$

Thus, the minimum sample size needed for the study is 340

**Selection of Subjects:** Seventeen Anganwadi children of 12-72 months age group who are registered and belong to the same area were selected by Systematic sampling technique after enlisting them from the anganwadi records. If the child is not available then the next in order had been selected. Age

## ORIGINAL ARTICLE

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of child was recorded from the birth certificate and anganwadi workers records, and when the date is not available then as per mother recall nearest month of birth was recorded.

**Immunization assessment:** The child was considered as immunized or not, based primarily on the immunization card and by observing the presence/absence of BCG scar, enquiring mothers and elders of children at the time of interview. If the mother could not remember regarding the vaccination or in the presence of any other confounding factors, the child was considered as not immunized with the vaccine under consideration. Child was considered as fully immunized if it received one dose of BCG, three doses each of DPT, and OPV (excluding birth 0 doses) and one dose of measles before the first birthday; as Unimmunized if received none of these vaccines and partially immunized if some dose given but immunization not complete.

**Variable Outcome:** Association of immunization status with age, gender, mother's and father's education, religion was determined and Gender inequality ratio.

$$\text{Gender inequality ratio (GIR)} = \frac{\% \text{ of Males Fully Immunized} \times 100}{\% \text{ of Females Fully Immunized}}$$

A value of 100 in an inequality ratio would imply that there was no gender differential in full immunization coverage, while a value above 100 would indicate inequality in the coverage of full immunization. Inequality in health is a multidimensional concept<sup>12</sup>. In a wider perspective, "inequality in health" is defined as inequalities in health that are unnecessary, avoidable, and unfair and unjust<sup>13</sup>. The difference between genders (male-female) is presented in terms of relative inequality<sup>14</sup>.

**Inclusion criteria:** ICDS Children (12-72 months) who are registered and belong to same area of the anganwadi centres are included for the study.

**Exclusion criteria:** Those ICDS Children who are not registered with the anganwadi centres and those who came from other areas are excluded.

**Statistical Analysis:** The collected data was processed using MS office including MS Word and MS Excel. Epi info 2005 statistical software was used to derive statistical inferences (chi square test) whenever necessary. Simple proportions, percentages and chi square test were used to summarise the data.

**Ethical Clearance:** Informed consent was taken from all the study subjects, while the purpose and general objectives of the study were explained to them keeping in mind their level of understanding and confidentiality was maintained throughout the study.

**Limitation of study:**

1. ICDS children (12-72 months age group) who are registered only with the anganwadi centre are selected as the study groups.
2. Mother's recall was used to estimate the immunization status to some extent.

**RESULTS AND DISCUSSION:** Table 1 shows there are 89.1% fully immunized, 10% partially immunized and 0.9% un-immunized children among study group. Children in 12-23 months of age group are comparatively more fully immunized (93.3%) when compared with any other age group of

## ORIGINAL ARTICLE

children. There is a gradual decrease in the full immunization coverage as the age is increased. However this is not significant.

Age	Total	Fully Immunized (%)	Partially Immunized (%)	Un-Immunized (%)
12-23	75	70 (93.3)	4 (5.3)	1 (1.4)
24-35	87	79 (90.8)	8 (9.2)	0 (0)
36-47	57	50 (87.7)	6 (10.5)	1 (1.7)
48-59	62	54 (87.1)	8 (12.9)	0 (0)
60-71	59	50 (84.7)	8 (13.5)	1 (1.6)
Total	340	303 (89.1)	34 (10)	3 (0.9)

**Table 1. Age wise distribution of Immunization status among study group**

Yadav S et al<sup>15</sup> found that fully immunized children are 73.3%, partially immunized children are 23.8% and un-immunized are 2.8%. But Sharma S<sup>16</sup> in his study on immunization coverage in India has found that only 61 % of the children in the age group 12-23 have received all the vaccines in the urban areas compared to 65 % of the children in the age group of 24-35 months.

Table 2 shows that males are more fully immunized (91.5%) in comparison to females (86.8%). This is not statistically significant. Imteyaz A et al<sup>17</sup>, and Yadav S et al<sup>15</sup> also found that there are males who are more fully immunized when compared to females. But Bhatia V et al<sup>18</sup> in his study on Immunization status in children found that there was no sex difference in immunization status.

Sex	Total	Fully Immunized (%)	Partially Immunized (%)	Un-Immunized (%)
Males	165	151 (91.5)	14 (8.5)	0 (0)
Females	175	152 (86.8)	20 (11.4)	3 (1.8)
Total	340	303 (89.1)	34 (10)	3 (0.9)

**Table 2: Sex-wise distribution of Immunization status among study group**

$$\begin{aligned} \text{Gender Inequity Ratio (GIR)} &= \frac{\% \text{ of Males Fully Immunized} \times 100}{\% \text{ of Females Fully Immunized}} \\ &= \frac{91.5\% \times 100}{86.8\%} = 105.4 \end{aligned}$$

This ratio shows that there gender inequality still exists among the study group.

Table 3 shows the Immunization coverage of study group with BCG (96.1%), 3 doses OPV (93.5%), 3 doses of DPT (91.7%) and MEASLES (89.1%).

## ORIGINAL ARTICLE

Vaccine	Total Immunized	Percentage
BCG	327	96.10%
OPV 3 DOSES	318	93.52%
DPT 3 DOSES	312	91.76%
MEASLES	303	89.10%

**Table 3: Immunization coverage of study group in urban area**

This shows that the study group had reached a target of 85% coverage set by Universal Immunization Programme in 1985.

Table 4. Shows Christians are comparatively more fully immunized (90%) when compared to Hindus (89.2%) and Muslims (87.5%). The overall coverage is more than 85% in all religion. Sharma S<sup>16</sup>, Nath B et al<sup>19</sup>, Yadav R et al<sup>20</sup>, Imteyaz A et al<sup>17</sup> found that Hindu children are more fully immunized when compared to Muslim children. But Tandon BN et al<sup>21</sup> in their study for immunization coverage in India for areas served by the ICDS found that Muslims had similar vaccination status when compared to other religions. In another study by Singh P et al<sup>22</sup> on immunization status of children in India found that there are 12% of Muslims who were un-immunized when compared to Hindus (9.2%) and Christians (10.2%).

Religion	Total	Fully Immunized (%)	Partially Immunized (%)	Unimmunized (%)
Hindus	298	266 (89.2)	29 (9.7)	3 (1.2)
Muslims	32	28 (87.5)	4 (12.5)	0 (0)
Christians	10	9 (90)	1 (10)	0 (0)
Total	340	303 (89.1)	34 (10)	3 (0.9)

**Table 4. Religion-wise distribution of Immunization status among study group**

Table 5. Shows that as literacy status of mother increases there is gradual increase in the immunization status of their children. This is statistically significant. The present study findings is similar with the studies of Imteyaz A et al<sup>17</sup>, Nath B et al<sup>19</sup>, where they found that literacy status of mother is a significant independent predictor of immunization status of the child.

Literacy Status	Total	Fully Immunized	Partially Immunized	Un-Immunized
		Number (%)	Number (%)	Number (%)
Illiterate	107	90 (84.1)	15 (14.3)	2 (18.6)
Primary and Middle	93	83 (89.2)	9 (9.6)	1 (1.2)
Secondary and Higher secondary	96	88 (91.6)	8 (8.3)	0 (0)
Graduate and Post graduate	44	42 (95.4)	2 (4.5)	0 (0)
Total	340	303 (89.1)	34 (10)	3 (0.9)

**Table 5: Immunization Status of children according to Literacy status of Mother**

Chi square ( $\chi^2$ )=4.03 df=1 p<0.05 illiterates vs. literates

## ORIGINAL ARTICLE

		Fully Immunized	Partially Immunized	Un-Immunized
Literacy Status	Total	Number (%)	Number (%)	Number (%)
Illiterate	103	87 (84.5)	14 (13.5)	2 (1.9)
Primary and Middle	83	67 (80.7)	15 (18.1)	1 (1.3)
Secondary and Higher secondary	95	91 (95.7)	4 (4.7)	0 (0)
Graduate and Post graduate	59	58 (98.3)	1 (1.7)	0 (0)
Total	340	303 (89.1)	34 (10)	3 (0.9)

**Table 6: Immunization Status of children according to Literacy status of Father**

Table 6. shows that there is more immunization coverage of children in graduate and post graduate fathers (98.3%) when compared any other group. However this is not statistically significant. Chhabra P et al<sup>23</sup>, Singh P et al<sup>22</sup>, and Yadav RJ et al<sup>20</sup> found that immunization coverage was low among children of illiterate fathers when compared to literate fathers.

**CONCLUSION:** The present study shows that Primary Immunization coverage among the study group had achieved the target of 85% coverage of UIP. The High Level Expert Group (HLEG) on Universal Health Coverage in 2011 has emphasized equitable access to health services for all, alongside addressing wider determinants of health<sup>24</sup>. The HLEG has suggested the 'National Health Package' for essential health at the primary, secondary as well as tertiary levels for all citizens of India by 2022.

The current study also emphasized the importance of Parental education in immunization of their children. The vaccination rates are lower among children with mothers having no or low literacy. There is also a relationship between religion and childhood vaccination; however data are limited to determine whether these are independent influences or reflections of other inequities. In addition, there is need to integrate gender issues in India's ongoing programmatic initiatives, particularly the immunization program, to which little attention has been paid.

There is also a need to evaluate the immunization of children at rural level to get the clear picture of Health inequality at regional level.

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