

# A Study on Evaluation of Full Immunization Program in Kanchanpur, District of Nepal

Birendra Prasad Bhatt<sup>1</sup> Dr. Akanksha Singh<sup>2</sup> Dr. Neena Gupta<sup>3</sup> Jeevan Bhatta<sup>4</sup>

<sup>1</sup>MPH Student <sup>2</sup>Teaching Associate <sup>3</sup>Assistant Professor (Sr. Grade) <sup>4</sup>Youth Development Specialist

<sup>1,2,3</sup>Department of Public Health

<sup>1,2,3</sup>Shalom Institute of Health & Allied Sciences, SHUATS, Prayagraj, Uttar Pradesh, India

<sup>4</sup>VSO Myanmar, India

**Abstract**— Immunization is one of the most successful public health interventions and a cost-effective strategy to reduce both the morbidity and mortality associated with vaccine-preventable diseases. Full immunization refers to a state, when a child of under 15 months of age receives complete doses of vaccines as per national immunization schedule which includes BCG-1 dose, DPT-HepB-Hib-3 doses, OPV-3 doses, and MeaslesRubella-2 doses. The program in Nepal aims to assure immunization services for all children especially focusing hard to reach population through local ownership, participation, and local resource mobilization. Nepal has radically improved immunization coverage, but currently survey reports shown that there is decreasing trend of full immunization coverage. This study was conducted to find out the existing status of the full immunization program coverage at Nepal in Bhimdatta municipality of Kanchanpur district.

**Objectives:** To study the current status of full immunization program of Bhimdatta municipality, Kanchanpur district, Nepal.

**Methods:** A descriptive study design was used in the present study. Bhimdatta municipality was selected purposively and simple random sampling was done to obtain a sample of 207 households having children between 15 to 23 months. Information was collected by interviewing the mothers of 15 to 23 months children and observation was done by verifying the child health cards. Descriptive analysis was done to assess the existing status of the full immunization program in the study area.

**Results:** This study revealed that out of 207 children only 184 had their child health card during time of survey, on the basis of child health card observation 46.86% of the children were fully immunized as per national immunization schedule and for about 26.57% of children were completely immunized but not followed national schedule & 15.46% of children were found partially immunized, No any child were found unvaccinated and 11.11 % not evaluated due to lack of child health card.

**Conclusions:** About one-third of children still didn't follow national immunization schedule to complete routine immunization and child health card retention is not completed. The community people need to be well-informed about the importance of scheduled vaccination, retention and use of child health cards.

**Key words:** Full Immunization Program, Immunization Status, Child Health Card

## I. INTRODUCTION

Immunization is one of the most successful global public health interventions and a cost-effective strategy to reduce both the morbidity and mortality associated with vaccine-

preventable diseases.<sup>1</sup> Immunization is one of the affordable and safest methods of primary prevention and ensures well being of children below five years of age and therefore remains the keystone for reduction of child mortality. Nearly 19.9 million infants worldwide were not reached with routine immunization services such as 3 doses of DTP vaccine.<sup>2</sup> Evidence shows that partially immunized and unimmunized children are most vulnerable to childhood vaccine-preventable diseases and disability thus run a 3–6 times more risk of death as compared with fully immunized children. Achieving universal vaccination coverage for all is one of the sustainable development targets globally aimed at reducing childhood mortality from preventable deaths.<sup>3</sup>

National Immunization Program (NIP) of Nepal is a priority 1 (P1) program launched as the Expanded Program on Immunization (EPI) in 1979 and NIP has met several milestones, including Millennium Development Goal 4 (MDG 4) on reducing under-5 mortality. Currently, eleven antigens are provided through the national program to under two-year children and mothers through EPI sessions, including in geographically and economically hard-to-reach and marginalized communities of the country. Currently, Nepal government has been implementing the Full immunization program that assures immunization services for all children especially focusing hard to reach population through local ownership, participation and local resource mobilization. The Department of Health Services (DoHS) of the Ministry of Health and Population acts as the directive authority in all immunization-related activities and particular district and local levels (Municipalities) are responsible for the full immunization program of that particular district and local levels.<sup>4</sup> According to the World Health Organization (WHO) guideline a child is fully immunized with all basic vaccinations if the child has received Bacillus Calmette-Guerin (BCG) vaccine against tuberculosis at birth; three doses each of polio and pentavalent (diphtheria-pertussis-tetanus, hepatitis B (HepB), Haemophilus influenzae type B (Hib) vaccines at 6, 10 and 14 weeks of age; and a vaccination against measles at 9 months of age. Most of these vaccines should ordinarily be completed by 12 months but can be extended to a period of 23 months. This is because children under 2 years are considered to be at highest risk of serious disease.<sup>5</sup> In Nepal, the percentage of children age 12-23 months who received all basic vaccines at any time increased from 43% in 1996 to 87% in 2011. However, the percentage who received all basic vaccines fell by 9 percentage points between 2011 and 2016, from 87% to 78%. Conversely, the percentage of children age 12-23 months who did not receive any vaccinations decreased from 3% in 2006 and 2011 to 1% in 2016.<sup>6</sup> Full immunization program in Nepal was initiated as a Campaign in 2012 from Achham district with the intend

initiative of Reaching Every Child, to search for and vaccinate never reached as well as dropout children and declaring local level, municipalities, district and state as a fully immunized.

## II. OBJECTIVE

To find out the current status of full immunization Program in Kanchanpur district, Nepal.

## III. MATERIALS & METHODS

### A. Study Type

The community-based, descriptive was conducted in the households of six wards of Bhimdatta municipality, kanchanpur district Nepal during a 3-month period from January to March 2019.

### B. Study Area

Sudur paschim State, Kanchanpur district of Nepal was selected purposively.

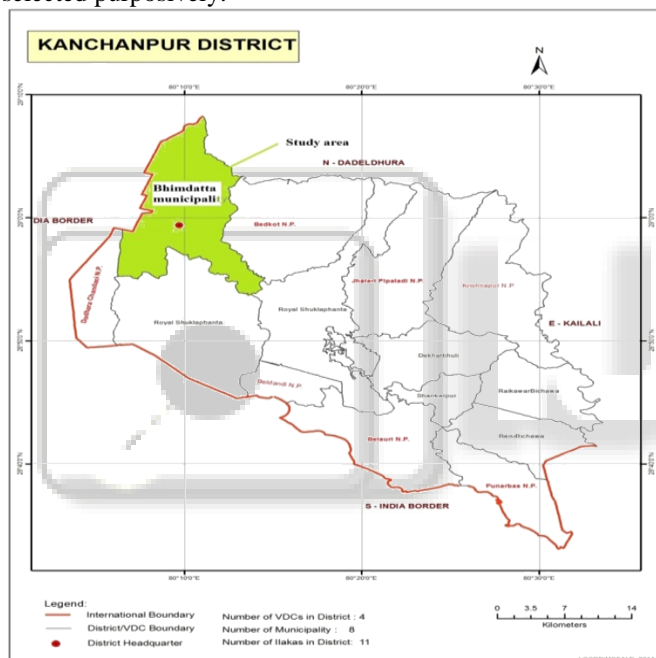


Fig. 1 Map of Kanchanpur district showing Bhimdatta municipality

### C. Study Population

The study population 15-23 months children were taken as a study group and Child's mother were selected for the interview.

### D. Sampling

Bhimdatta municipality, Kanchpur district of Nepal was selected purposively. The sample size was calculated using the formula  $Z^2P(1-P)/d^2$ , taking a Vaccination coverage among children age 12-23 months for all basic vaccines in Sudur paschim State as per Nepal demographic and health Survey Report which is 83.4 %, 95% level of confidence, 5% absolute precision total sample size finally became 207. Children were selected by using simple random sampling; lottery method from the list of selected six wards of municipality.

### E. Tools and techniques

A predesigned, pretested interview schedule was used; all the respondents were interviewed regarding full immunization program and their child's immunization status.

### F. Data Analysis

The collected data was compiled, coded and analyzed by SPSS (Version 16; SPSS).

### G. Ethical Considerations

The participants were explained about the purpose of the study and consent was taken before interviewing. The study children were selected by simple random sampling after list collected from immunization and nutrition register available in health facility of respective wards. The immunization coverage findings were validated by Child health card using survey data analysis.

## IV. RESULTS

The results obtained from present study as relevant discussion have been presented below

### A. Socio-demographic profile of respondents.

The socio-demographic characteristics of respondents include age, gender of child, religion, caste, family type, occupation type and annual family income is presented in tabular and descriptive form as below.

Variable	Frequency	Percentage
Age group		
< 20years	22	10.63
20-35 years	177	85.51
> 35 years	8	3.86
Gender of Child		
Female	112	54.11
Male	95	45.89
Religion of respondents		
Hindu	199	96.14
Buddhist	1	0.48
Christian	6	2.90
Islam	1	0.48
Caste of respondents		
General	156	75.36
OBC	14	6.76
Schedule Caste	37	17.87
Family type		
Nuclear	134	64.73
Joint	73	35.27
Occupation type		
Housewife	154	74.40
Agriculture	3	1.45
Business	24	11.59
Job Holder	26	12.56
Annual Family income in NPR		
< 10000	1	0.48
10001-30000	9	4.35
30001-50000	21	10.14
50001-70000	13	6.28
70001-90000	40	19.32
>90000	123	59.42

Table 1: Demographic characteristics of the respondents (N=207)

This study revealed 85.51 % of the respondents were of the age group 20-35 years. 74.40 % were housewife and 74.41% respondents had completed their high schools education. Maximum 96.14 % followed Hinduism, 75.3% respondents were from general caste, 17.87% from Schedule caste (Dalit), and only 6.67 % belongs to OBC (Janajati). Most of the study participants 59.42% family income per annual found to be greater than 90,000 NPR.

### B. Immunization status of children.

According to the full immunization guideline of Nepal Full immunization: refers to a state when a child of under 15 months of age receives complete doses of vaccines as per national immunization schedule which include Bacillus-Calmette-Guerin (BCG)-1dose vaccine against tuberculosis at birth, diphtheria-pertussis-tetanus, Hepatitis-B, Haemophilus influenza type B (DPT-HepB-Hib)-3doses, Oral Polio vaccine (OPV)-3 doses vaccines at 6, 10 and 14 weeks of age; and Measles Rubella-2doses vaccination against measles and rubella at 9 and 15 months of age. Complete immunization: A child is completely immunized with all basic vaccinations if the child has BCG one dose, three doses each of polio and DPT-HepB-Hib vaccines, and two dose of measles rubella at unscheduled date from the period of birth to till 23 months. Partial immunization: A child is partially immunized, if the children has received vaccines partially and not follow the national immunization schedule. Or a child who has missed at least one dose of any of the prescribed antigens Not immunization/Unimmunized: A child is not immunized, if the child has not received any type of all basic vaccines as per national immunization schedule.

Variable	frequency	Percentage
Availability of child health card (N=207)		
Yes	184	88.89
No	23	11.11
Total	207	100
EPI Schedule follow (N=207)		
Yes	97	46.86
No	87	42.02
Not evaluated	23	11.11
Total	207	100

Table 2: Status of Child health card availability and EPI Schedule follow

Out of 207 respondents, only 184 had presented their child's immunization record card. Above table shows that among the 207 children 97 (46.86%) children were found fully vaccinated as per national EPI schedule while 87 (42.02%) children were not fully vaccinated as per national EPI schedule, while 23(11.11%) not evaluated due lack of card during survey, which was based on the child health card record observation and data analysis during the study.

Vaccination status	Frequency	Percentage
Fully immunized	97	46.86
Completely immunized	55	26.57
Partially Immunized	32	15.46
Not immunized	0	0.00
Not evaluated	23	11.11
Total	207	100.00

Table 3 Vaccination Status of children (N=207)

The above table shows that among the 207 children those who had child health card 46.86 per cent of the children were found fully immunized along with 26.57 per cent found completely immunized whereas 15.46 per cent were partially immunized, no any child found unimmunized and 11.11 per cent not evaluated due to lack of child health card.

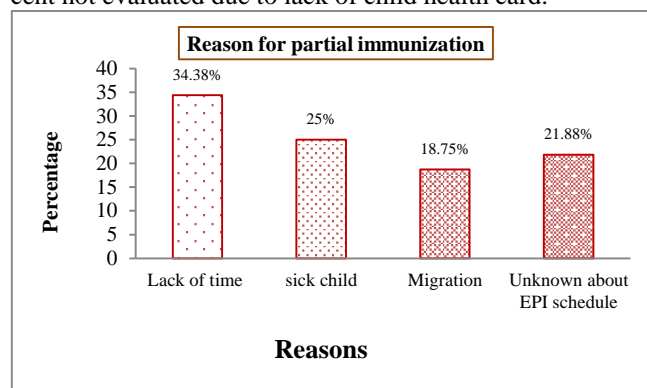


Fig. 2: Reasons for partial immunization (N=32)

Above figure shows that total numbers of partially immunized children were 32 among 207 and major reason found for partial immunization were 34.38 per cent respondents said lack of time, 25 per cent said sick child whereas other 13 per cent reason for partial immunization included migration 19 per cent and unknown about EPI schedule 22 per cent.

Service outlets	Frequency	Percentage
Health Post	25	12.08
EPI clinic	98	47.34
Hospital	84	40.58
Total	207	100.00

Table: 4 Place of immunization service received

Above table shows that 47.34 per cent of respondents had received immunization service from EPI clinics followed by 40.58 per cent from hospital's MCH clinic and minimum 12.08 per cent received from Health post.

Variable	frequency	Percentage
Time taken to reach immunization service center		
Less than 30 minutes	193	93.24
More than 30 minutes	14	6.76
Availability of all type of vaccine in health facility		
Yes	194	93.72
No	13	6.28

Table: 5 Time taken to reach immunization service center (N= 207)

Present study indicates that 93.24 per cent respondents that it took less than 30 minutes to reach immunization service center whereas 6.76 per cent informed it took more than 30 minutes to reach immunization service center.

## V. DISCUSSION

Present study revealed that number of female child was higher than male child which was similar to finding of Nepal census report 2011. Most of the children 82.60 per cent had received complete vaccination. Similar result 83.4 per cent was reported in the study area province no 7 Nepal by<sup>7</sup> report. Vaccination cards are crucial to ensuring that children have received all of their recommended vaccinations. At present

study among the 207 respondents (children) only 184 (88.89%) were verified for their immunization record because of presented child health card at study time and rest of 23 (11.11%) respondent mention main three reason for not presenting child health card that seventeen respondent were missing the card, four respondents responded that the card was worn out while two informed they lost their child card. A study by [6] reported that almost all (94%) children age 12-23 months were reported to have a vaccination card, however, only about half (52%) of mothers were able to present their child's vaccination card at the time of the interview. Fully immunized children as per EPI schedule among general were higher against schedule caste children. There was no relation with caste and full immunization status of children.

This study also found that the main cause of partial immunization and not following recommended national immunization schedule was because of the study area had been declared as fully immunized, as per national guideline of full immunization program after the declaration every single child of the declared area must be fully immunized as per national EPI schedule. Respondents mention mainly three reasons for not completing their children as recommended schedule those were unaware about recommended schedule, second was migration and third on was being busy with their work.

This study tried to explore availability and accessibility of immunization service in the municipality area. The finding clearly showed that 93.24 per cent respondent's get easy access to immunization service receive, two third of respondents had received information and explanation regarding full immunization during their visit to immunization clinics and most of the respondents get reach the immunization clinics with in half hour from their residence. This study also showed the status of vaccine and vaccine related materials availability in health facilities, most of respondents 93.72 per cent said there was no lacking of vaccine in government owned health facilities. A cluster survey by <sup>8</sup> found comparable results that immunization coverage of Nepalese children aged 12 months or younger has improved significantly between 2001 and 2014; an increase that has been accompanied by improved equity. The improved coverage can be attributed to the concentrated efforts of the Nepalese government in collaboration with non-governmental organizations, which have focused on hard-to-reach and disadvantaged populations with low immunization coverage.

## VI. CONCLUSIONS

The study concludes that despite the municipality being declared fully immunized still there are problems that nearly about one-third of children still didn't follow national immunization schedule to complete their routine immunization. Child health card retention is not complete, still 11% mothers were not having their child's health card. 15% children were found partially immunized and no one was unvaccinated. The major cause responsible for incomplete utilization of immunization service and unscheduled vaccination during survey time was migration, sick child, lack of time and unawareness about the new national immunization schedule. In conclusion, the socio-cultural

background of children, mother's education, place of residence and access to immunization services does not matter in terms of full immunization coverage in the study area. The present study finding sturdily suggests focusing on the timeliness of routine immunization that every child should have completed their immunization at allotted date of national immunization schedule. There is a need to increase awareness and knowledge about the benefits and importance of full immunization, as well as the harmful consequences of incomplete immunization.

## VII. RECOMMENDATIONS

- Female Community Health Volunteer's and community leader may be more actively participate to encourage community people for timely completion of routine immunization in at allotted date of the national immunization schedule.
- Local government may, create awareness about child health card to the community people about its importance; scrutinize vaccination coverage and impending uses.
- Migrant and unaware community could be promoted for full immunization coverage at the earliest.
- Concerned authorities may strengthen the relevant program to sustain full immunization coverage.

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Nil

## IX. CONFLICTS OF INTEREST

The authors declare no conflict of interest

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