



Short Communication

Immunization Coverage Evaluation by Secondary Data Analysis at Rural Health Unit and Training Centre, Singur in Hooghly district of West Bengal

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Summary

Immunization has been the safest, most cost-effective and powerful means of preventing death in under-five children. Immunization data of Reproductive and Child Health (RCH) Programme at Rural Health Unit and Training Centre (RHU&TC), Singur was analysed to evaluate vaccination coverage against vaccine-preventable diseases. Secondary data analysis was done for the period 2013-14 to 2015-16. Immunization coverage of RHU&TC Singur for year 2015-16 (BCG 100 percent, OPV3 99.9 percent, DPT3/Penta3 99.9 percent and Measles 99.9 percent) was 99.9 per cent. In service area of RHU&TC Singur, one Primary Health Centre and one Sub-centre serves a population of 53,034 and 8,840 respectively. Population covered by RHU&TC Singur was 12-15 percent more than that of the state average. Though there was deficit of manpower by 20-25 percent, total immunization coverage at RHU&TC Singur was nearly 100 percent while same as per DLHS 4 coverage survey (2012-13) and NFHS – 4 (2015-16) was 79 percent and 84.4 percent respectively.

Key words: VPDs, Immunization coverage, RHU&TC Singur, Hooghly District

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Introduction:

Immunization is the process whereby a person is made immune or resistant to an infectious disease, typically by the administration of a vaccine. Vaccines stimulate the body's own immune system to protect the person against subsequent infection or disease¹. Immunization is a proven tool for controlling and eliminating life-threatening infectious diseases and is estimated to avert between 2 and 3 million deaths each year¹.

During 2016, about 86percent of infant's worldwide (116.5 million infants) received 3 doses of diphtheria-tetanus-pertussis (DTP3) vaccine, protecting them against infectious diseases that can cause serious illness and disability or be fatal. By 2016, 130 countries had reached at least 90percent coverage of DTP3 vaccine².

In India, Smallpox has been eradicated in the year 1977 and Maternal and Neonatal Tetanus has been eliminated in the year 2015. India got the polio-free certification in 2014. Nine million routine immunization (RI) sessions are organized in India each year. This targets 26 million children and 30 million pregnant women. The national average of full immunization is 61 per cent, and for DPT-3 coverage, 72 percent. Rural children are least likely to have complete vaccination, and this inequity is most pronounced in states like Madhya Pradesh, Rajasthan, Chhattisgarh, Jharkhand and Uttar Pradesh³. As per National Family Health Survey - 4 (2015-16) in West Bengal, BCG coverage is 97.5percent, OPV-3 87.9percent, DPT-3/Penta-3 92.7percent, Measles 92.8percent, Hepatitis B/Penta-3 86.4percent and full immunization 84.4percent⁴.

Rural Health Unit and Training Centre (RHU and TC), Singur is field practice area of All India Institute of Hygiene and Public Health (AIHH and PH). It is one of the few centres in India, where govt. of India provides primary health care services to community. In this background, the secondary data for the last 3 years (2013-14 to 2015-16) was analysed with the aim to find the achievement and gaps in the Universal Immunization Programme in the service area of RHU&TC, Singur. Present secondary analysis was done to study the vaccine supply status at RHU&TC, Singur, to evaluate the vaccination coverage against vaccine-preventable diseases in RHU&TC, Singur and to compare the vaccination coverage with state and national level coverage.

Material and Methods:

Secondary data analysis of vaccination was done for the period 2013-14 to 2015-16. Study area was RHU and TC, Singur, situated in the Singur Community Development Block of Hooghly district, about 40 km from Kolkata. It has two Primary Health Centres (PHCs) viz. Nasibpur PHC (NPHC) and Anandanagar PHC (APHC). Under each PHC there are 6 sub-centres, 64 villages and it covers a population of around 1 lakh. A child was considered fully immunized if he/she has received 1 dose of BCG, 3 doses of OPV, 3 doses of Pentavalent, 2 doses of fractional IPV, Measles -1st dose, JE 1st dose before the age of one year^{5,6}. Data was collected from Immunization register, Management Information and Evaluation System (MIES) maintained by Data Entry Operator (DEO). Study was conducted after taking permissions from appropriate authorities and as it was secondary data analysis waiver from institutional ethics committee was requested. Data was entered in Microsoft Excel. Analysis was done in line with the objectives. Data was presented by using rates, ratios and proportions.

Results:

Vaccine supply: There was no shortage of vaccine supply during the period under study.

Training and Awareness programme: Several training sessions were conducted for the health personnel's. A district level Training of Trainers (TOT) for Public Health Nursing Supervisors (PHNS) and Public Health Nurse (PHNs) on Inactivated Polio Vaccine (IPV) introduction was conducted on 05.01.2015. A 2 days (10.3.2016 to 11.3.2016) district level training on Cold Chain Handling was conducted and it was attended by 4 PHNs. A one day Training on introduction of IPV was conducted at RHU&TC Singur and it was attended by Medical Officers (MOs), PHNs, Health Workers Females (HWFs), Health Assistants (Male and Female), Field Workers and DEOs. This was followed by 1 day training of ASHAs.

Immunization data was analysed at RHU&TC Singur by Public Health Specialists and feedback was given in the monthly meetings. As per national guidelines, one Cold chain point was maintained at Anandanagar PHC^{6,7}.

Population coverage: RHU&TC, Singur provides services to a population of 53034 per PHC while in rest of the area of Singur block and West Bengal population covered by per PHC is 51068 and 32944 respectively^{7,8}. Each sub-centre of RHU&TC, Singur provides services to

a population of 8840 while each sub-centre in the rest of the Singur block and West Bengal provides services to a population of 4750 and 5426 respectively⁷. One Health Worker of RHU&TC, Singur on an average covers a population of 4610 while in the rest of the Singur Block under Government of West Bengal; a health worker covers a population of 2585 respectively^{7,8}.

Vaccination Coverage: In the year 2013-14 and 2014-15, RHU&TC Singur achieved 100 per cent immunization coverage of children less than one year of age. In the year 2015-16, only one child was not immunized due to refusal by the family (**Table 1**). The Immunization coverage for RHU&TC Singur was 99.9 percent while immunization coverage reported by District Level Household Surveys (DLHS 4; 2012-13) and National Family Health Survey (NFHS 4; 2015-16) for rural area of Hooghly district of West Bengal was 80.8 percent and 84.4 percent respectively^{8,9,10} (**Table 2**).

Discussion: India has the largest number of births in the world – more than 26 million a year – and also accounts for more than 20 per cent of child mortality worldwide⁵. Immunization is today one of the safest, most cost-effective and powerful means of preventing death and improving life. Two monumental public health milestones have been achieved recently with India completing five years of being Polio free and the WHO certification of India having eliminated Maternal and Neonatal Tetanus⁶.

RHU&TC Singur have shown better performance in immunization coverage. The total coverage was nearly 100 percent and it was far above the DLHS 4 (2012-13) and NFHS – 4 (2015-16)^{8,9,10}.

The population covered by RHU&TC Singur was almost 12-15 percent more than the West Bengal average. Though there was a deficit of manpower by 20-25 percent (against sanctioned post), the performance was better. Performance status was far better than the state and national statistics.

The better performance at RHU&TC Singur may be due to highly skilled, competent and motivated health workers. They had received several hands-on trainings. A constant monitoring and surveillance system was in operation^{6,7}. Regarding community, the general awareness was very high as AIIH&PH was giving services since more than 50 years. Moreover this being the field practice area of postgraduate public health students, health education was

given by the students as well. Almost every session of vaccination was coupled with community awareness programme. Public health specialists and public health nurses regularly conduct awareness programmes on relevant and upcoming issues⁷. On an average every month 2-3 community awareness programmes were conducted. In case of any default, Health workers and ASHAs take prompt action e.g. family visit, involvement of panchayat members etc.

Limitations:

In present study, analysis of secondary (existing) data was done so the reasons for child not getting vaccinated could not be ascertained.

Conclusion and Recommendations:

In spite of manpower constraints, the immunization coverage in field practice area of RHU&TC, Singur was nearly 100 percent. For long-term sustainable achievement, vacant posts need to be filled up.

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Conflict of interest: Nil

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Table 1: Immunization status of infants in the service area of RHU&TC Singur

PHC Name	No. of Births	Infants Died	Migrated		Children <1 year	Full	B C G	Immunization received		Measles	At least 1 dose of Vit A
			Out	In				3 doses of DPT / Penta	OPV		
2013-14											
APHC	561	7	15	6	545	545	545	545	545	545	545
NPHC	696	9	24	1	664	664	664	664	664	664	664

Total	1257	16	39	7	1209	1209	1209	1209	1209	1209	1209
2014-15											
APHC	530	7	10	7	520	520	520	520	520	520	520
NPHC	690	15	35	0	640	640	640	640	640	640	640
Total	1220	22	45	7	1160	1160	1160	1160	1160	1160	1160
2015-16											
APHC	521	4	9	7	515	515	515	515	515	515	515
NPHC	634	6	26	2	604	603	604*	603	603	603	603
Total	1155	10	35	9	1119	1118	1119	1118	1118	1118	1118

APHC = Anandanagar PHC, NPHC = Nasibpur PHC

* One infant in NPHC area (DOB-11.12.15) having hydrocephalus received only BCG from outside.

Table 2: Comparison of Immunization Coverage in RHU & TC with DLHS 4 and NFHS 4

Vaccine	Immunization Coverage (Percentage)		
	RHU&TC Singur (2015-16)	DLHS 4 (2012-13) Rural	NFHS 4 (2015-16) Rural
Fully Immunized	99.9	80.8	84.4
BCG	100	96.3	97.5
OPV3	99.9	87.8	87.9
DPT3/ Penta-3	99.9	92.6	92.7
Measles	99.9	89.5	92.8

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