Rapid Assessment of Routine Immunization Efforts of NYK

For

RCH/ NRHM, Rajasthan

By:

State Institute of Health and Family Welfare, Jaipur

(An ISO 9001: 2008 Certified Institution)

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Preamble

Preamble:

Health Status, reflected over a set of indicators refers to incidence in prevalence of disease, health risks and performance of the system. The morbidity and mortality particularly for communicable diseases provides a broad overview of child health in relation to the highly infectious and yet preventable diseases, making the children a little more susceptible, in turn, contributing significantly to child mortality

With dogged determination, a global initiative, baptized as EPI was initiated to address important issue of mortality, by reducing morbidity on account of six major preventable disease. India being a signatory to Alma-Ata declaration, subscribed to the approach and the concerted efforts reflected into slow decline of child mortality from VPDs. Subsequently, with the articulation of national health policy in 1983, India focused on the managerial approach of micro planning in view of the voluminous task ahead and adopted UIP as its forte to reach the vulnerable populace with six effective antigens.

The visible success lead to exultation and a comprehensive program was floored for safe motherhood and child survival. The journey continued and all the programs related to mother and child health were translated into one single program- RCH by 1996. Further convergence brought into the system resulted into a strategy popularly known as NRHM (2005)

Somehow, over period of time the vaccinations/immunization coverage levels started eluding the achievements; in the process ,virgin population kept building up, defying the basic concept of herd immunity on one hand where as facilitated the transmission on the other (the stubborn focal areas with wild polio virus under circulation in UP, and Diphtheria cases in Mewat region of Rajasthan in 2004).

Community & social mobilization have for long been the forte and fortitude of Health sector especially for demand generation. Understanding the métier of NGOs, UNICEF- a strong proponent of child health concerns, assigned the task of taking Vaccination activities to communities, to Nehru Yuva Kendra in six Districts of Rajasthan (Bikaner, Bharatpur, Bhilwara, Tonk, Jhalawar, and Rajsamand)

Under the assumptions that the inputs of UNICEF must have left a positive palpable dent on the immunization coverage: it was aptly considered to have an independent assessment of the immunization coverage so as to justify the extra inputs and efforts barged in.

Under the credibility that the SIHFW enjoys today with the systems and development partners, the institution was requested to make an independent assessment through a meticulous approach, for assessing the immunization coverage in the districts assigned

to NYKs, simultaneously making a vigilant observation in the control districts that could give us evidence whether the extra input could be justified and taken forward, hence forth.

Prologue

Prologue:

Addressing to the intricacies of Infant Mortality across the country, India did subscribe to EPI in 1978 to reach the children below 5 years of age with 6 effective antigens in the form of vaccines (Measles as he last addition, as late as 1986).Subsequently, prioritized, in view of the time frame, epidemiology of Vaccine Preventable Diseases, and learning from Immunology; the approach shifted to UIP (1985) focusing on primary immunization of children below one year of age.

Results were encouraging as the management was brought into vaccination approach through micro planning and, logistics along with cold chain were taken care of.

India presence was felt on World statistical map and the triumphant feeling gave way for the integration of child and mother health issues into CSSM program (19962) which was later baptized as RCH(1996) incorporating some more missing dimensions like adolescent reproductive health and RTIs.

The basic approach to address childhood mortality through vaccination against 6 VPDs, however, got messed up in the process. Priorities shifted and knee jerk reactions could not handle the resurgence.

Though the vaccination continued to be an important activity the coverage data defied the reported progress.

In view of this, it was aptly thought to put some fresh thrust to vaccination by using the potentials of NGOs. Six of the districts in the State of Rajasthan were assigned to Nehru Yuva Kendras for boosting vaccination coverage under the program “Strengthening of Routine Immunization”.

In order to assess the impact on coverage, the SIHFW took up the study, on behalf of UNICEF and Govt. of Rajasthan, in the NYK study districts besides assessing the coverage in the control villages in the same districts where NYKs did not reach

The Study

The Study:

Objectives:

The broad objectives for the study were-

- To conduct a desk review of existing information on Routine immunization.
- To assess the vaccination coverage in study and control villages
- To record attributes of successful implementation of Routine Immunization Strengthening project.
- To explore the reasons for non-immunization.

Area:

The study covered six Districts of the State of Rajasthan, namely-

1. Tonk,
2. Bhilwara,
3. Bharatpur,
4. Jhalawar,
5. Bikaner and
6. Rajsamand

Approach:

The study approach was focused on –

1. Agreement on Study universe (children between 12-23 months off age)
2. Enlisting of Blocks and Villages where NYKs took up vaccination
3. Random selection of control villages in the six Districts
4. Sampling using 30 cluster (a PPS sampling technique) sampling technique
5. Developing protocols using standard one already available.
6. Identifying and training Field investigators
7. Logistic and mobility arrangements
8. Field survey & Data collection using standard practices under 30 cluster sampling techniques for coverage evaluation (in use since 1985)
9. Compilation and analysis of Data collected

10. Report writing

Sampling:

Based on 2-stage sampling, of the six study districts, 30 clusters were identified after categorizing villages in to category-I (Pop. <1000) and Category-II (Pop. >1000) from Tonk, for operational problems only 28 cluster villages were finally taken into study.

From each village 7 children (12-23 months) were visited in the families, giving a sample size of 196 children.

From all other Districts 6 villages where NYKs were involved and 6 villages randomly selected where vaccination was through system's effort were picked up. From each of the village 7 children (12-23 months) were included in the study. Thus 42 Study village and 42 control village children were included in the study from each of the 5 Districts.

In all, 616 children (12-23months) were the part of study universe.

Study Instruments:

Interviews with responsible adult members in the households using Structured Protocols

Data processing:

The data collected from field was complied and analyzed using Microsoft office access-2007 software

Observations

Observations:

Table 1- Sex wise distribution of the children (12-23 months)

District	Male		Female		Total
	Number	%	Number	%	
Bikaner	49	58.3	35	41.7	84
Bharatpur	47	55.9	37	44.1	84
Bhilwara	41	48.8	43	51.2	84
Jhalawar	42	50	42	50	84
Rajsamand	43	51.2	41	48.8	84
Tonk	108	55.1	88	44.9	196
Total	**330**	**53.57**	**286**	**46.43**	**616**

In all 616 children in 12-23 months of age scattered in 88 cluster villages of 6 districts were studied. 286(46.3%) of the 616 children were females and 330(53.57%) children were males.

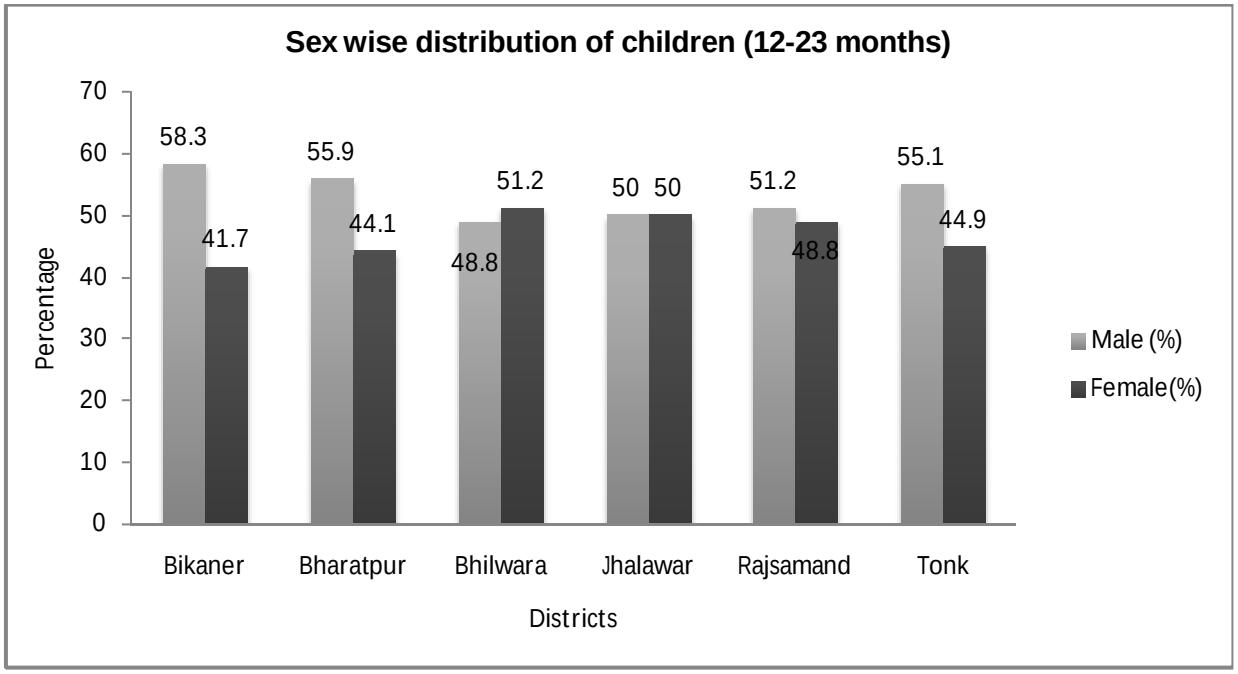


Fig.1- Sex wise distribution of children

Table 2- Availability of Immunization Card

District	Yes		No		Total
	Number	%	Number	%	
Bikaner	58	69.04	26	30.95	84
Bharatpur	42	50	42	50	84
Bhilwara	60	71.42	24	28.58	84
Jhalawar	77	91.66	7	8.33	84
Rajsamand	33	39.28	51	60.72	84
Tonk	174	88.77	22	11.23	196
Total	**444**	**72.07**	**172**	**27.92**	**616**

Overall immunization card was found with 72.07% of all children studied in six districts. Parents of 91.66% children's in Jhalawar District & 39.28% of Rajsamand district could produce cards of their children.

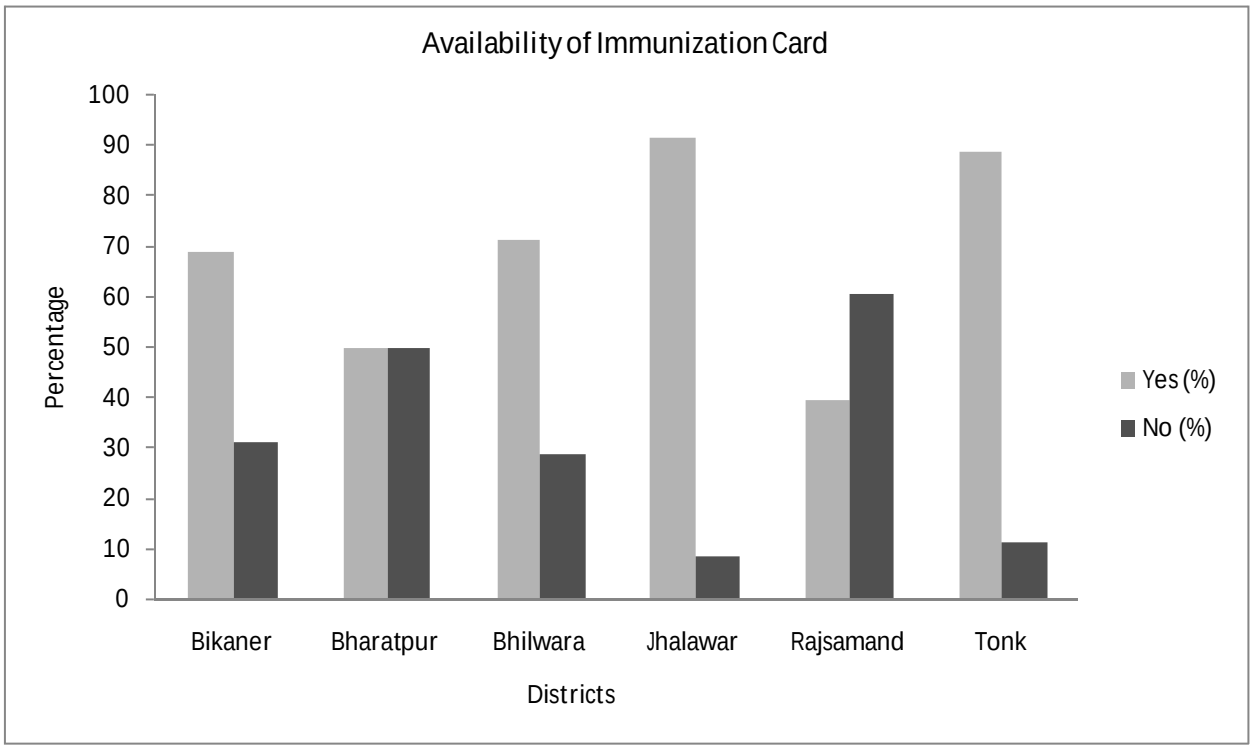


Fig 2- Availability of Immunization Card

Table 3-Availability of Immunization Card according to sex of the child

District	Male			Female			Total
	Children with Card	Total no. of Children	%	Children with Card	Total no. of children	%	
Bikaner	32	49	65.3	26	35	74.28	84
Bharatpur	22	47	46.8	20	37	54.04	84
Bhilwara	27	41	65.85	33	43	76.74	84
Jhalawar	40	42	95.24	37	42	88.09	84
Rajsamand	17	43	39.53	16	41	39.02	84
Tonk	95	108	87.96	79	88	89.77	196
Total	**233**	**330**	**70.6**	**211**	**286**	**73.77**	**616**

The availability of immunization card when explored according to sex, it was heartening to note that the card retention for girls was more than for boys.

Table 4 – Overall Immunization coverage in six districts

District	Fully Immunized		Partially Immunized		Not Immunized		Total
	No.	%	No.	%	No.	%	
Bikaner	43	51.2	39	46.43	2	2.38	84
Bharatpur	50	59.52	22	26.19	12	14.29	84
Bhilwara	20	23.80	50	59.52	14	16.67	84
Jhalawar	44	52.38	27	32.14	13	15.48	84
Rajsamand	8	9.52	38	45.24	38	45.24	84
Tonk	135	68.88	39	19.89	22	11.22	196
Total	**300**	**48.70**	**215**	**34.90**	**101**	**16.40**	**616**

The full immunization coverage was found to be 48.70%, ranging from 68.37% for Tonk to 9.52% for Rajsamand. The percentage of not immunized children was 15.09% ranging from 2.38%in Bikaner district to 45.24% in Rajsamand district. Overall partially

immunized children in six districts were 35.88% (59.52% in Bhilwara and 19.89%in Tonk). Tonk appears to have been the focus district of NYKs

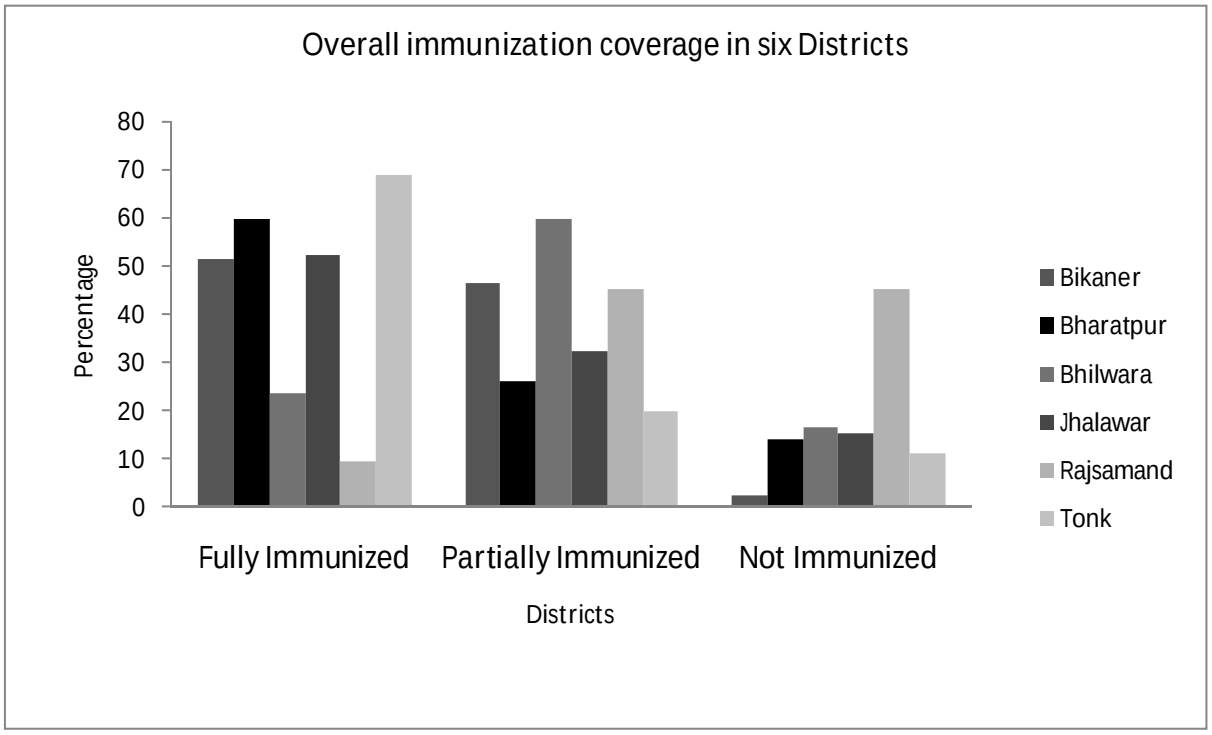


Fig. 3 – Overall Immunization Coverage

Table 4 A – Immunization status of children in NYK area

District	Fully Immunized		Partially Immunized		Not Immunized		Total
	No.	%	No.	%	No.	%	
Bikaner	25	59.53	16	38.09	1	2.38	42
Bharatpur	23	54.76	10	23.8	9	21.43	42
Bhilwara	10	23.80	29	69.05	3	7.15	42
Jhalawar	26	61.90	14	33.33	2	4.76	42
Rajsamand	7	16.67	19	45.24	16	38.09	42
Tonk	134	68.37	39	19.89	23	11.74	196
Total	**225**	**55.42**	**127**	**31.28**	**54**	**13.30**	**406**

Percentage of fully immunized children was 55.42% in NYK districts with maximum coverage in Tonk (68.37%) and minimum in Rajsamand. 13.30% children of NYK covered area did not receive a single antigen. The percentage of partially immunized children in NYK area was 31.28%.

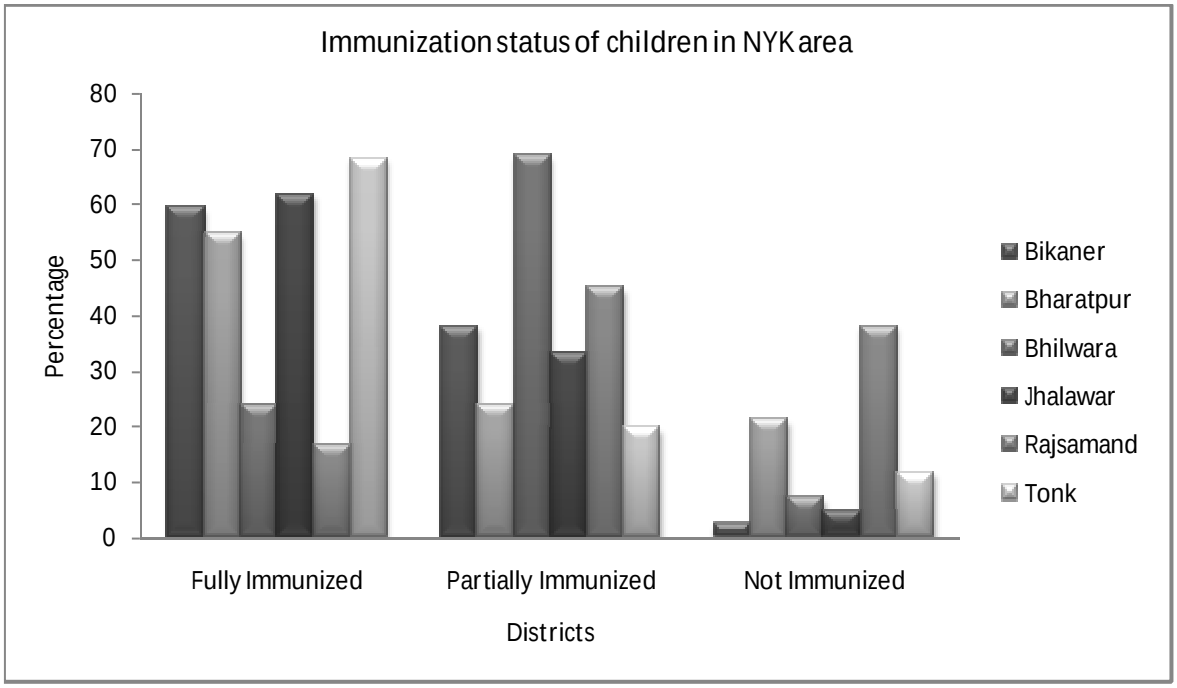


Fig 4- Immunization status of children in NYK area

Table 4 B – Immunization status of children in Non NYK area

District	Fully Immunized		Partially Immunized		Not Immunized		Total
	No.	%	No.	%	No.	%	
Bikaner	18	42.86	23	54.76	1	2.38	42
Bharatpur	28	66.67	11	26.19	3	7.14	42
Bhilwara	10	23.81	21	50	11	26.19	42
Jhalawar	20	47.62	20	47.62	2	4.76	42
Rajsamand	1	2.38	19	45.24	22	52.38	42
Total	**77**	**36.67**	**94**	**44.76**	**39**	**18.57**	**210**

As against 55.42% fully immunized children in the villages where NYKs were operational, an average of 36.67% children were fully immunized and 18.57% with no immunization in non NYK areas. Rajsamand had the worst coverage data (2.38%) as compared to Bharatpur District (66.67%). Further, 44.76% of children were left as partially immunized.

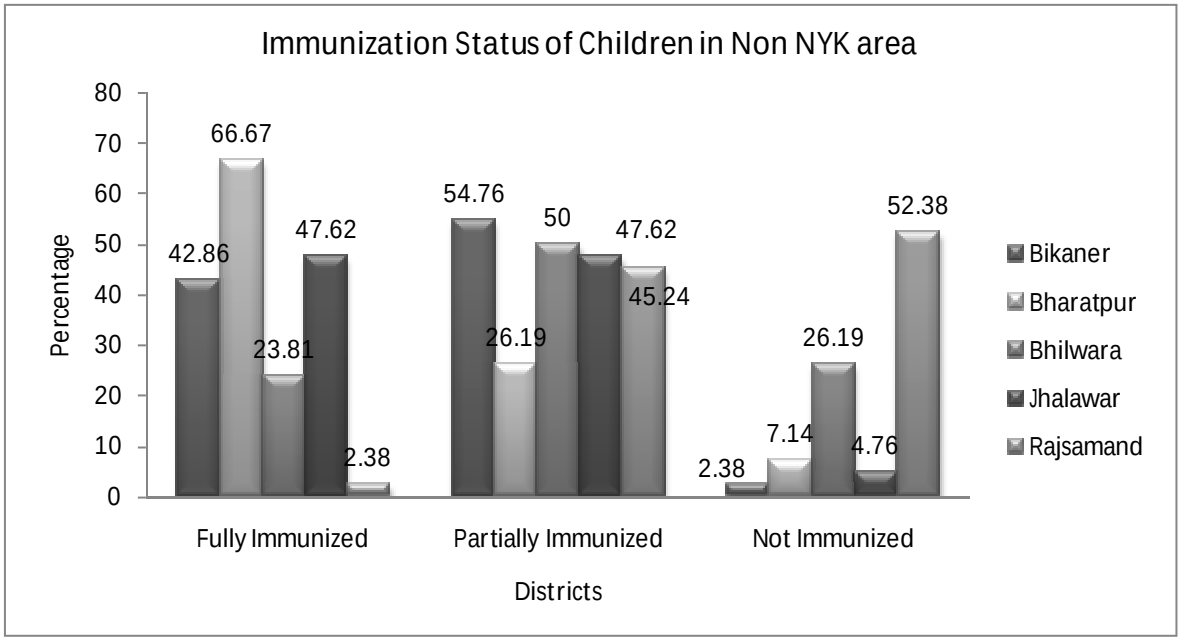


Fig 5- Immunization status of children in Non NYK area

Table 5 – Sex wise distribution of Non-immunized children

District	Male			Female			Total
	Non-immunized children Number	Total no. of children	%	Non-immunized children Number	Total no. of children	%	
Bikaner	1	49	2.04	1	35	2.85	84
Bharatpur	7	47	14.9	5	37	13.5	84
Bhilwara	10	41	24.4	4	43	9.3	84
Jhalawar	2	42	4.8	2	42	4.	84
Rajsamand	22	43	51.1	16	41	39.02	84
Tonk	13	108	12.03	10	88	11.36	196
Total	**55**	**330**	**16.67**	**38**	**286**	**13.29**	**616**

Percentage of non immunized male children was 16.67% and female's children were 13.29%.Rajasamand had the maximum non immunized female children (39.02%) while Bhilwara has 24.4% male children as non- immunized.

Table 6 – Coverage for BCG in NYK Area

District	Vaccine Given (N=406)			Scar Formed		
	Total no. of children	Vaccine recipients	%	Vaccine recipients	Scar seen	%
Bikaner	42	30	71.43	30	15	50
Bharatpur	42	40	95.24	40	40	100
Bhilwara	42	30	71.43	30	24	80
Jhalawar	42	39	92.86	39	29	74.36
Rajsamand	42	30	71.43	30	22	73.33
Tonk	196	185	94.39	185	127	68.65
Total	**406**	**354**	**87.19**	**354**	**257**	**72.60**

The vaccination of BCG was assessed in NYK area amongst 406 children. It was observed that almost 87% of the children received BCG. The coverage of BCG was highest in Bharatpur (95.24%)

Amongst those who received BCG, scar was present on the arm of 72.60% of children. The presence of scar was 50% in Bikaner compared to 100% in Bharatpur.

Table 6 A – Coverage for BCG in Non- NYK Area

District	Vaccine Given			Scar Formed		
	Acceptor	Total no. of children	%	Scar seen	Acceptor	%
Bikaner	24	42	57.14	18	24	75
Bharatpur	39	42	92.86	30	39	76.92
Bhilwara	35	42	83.33	30	42	71.43
Jhalawar	40	42	95.24	27	40	67.
Rajsamand	26	42	61.9	24	26	92.31
Total	**164**	**210**	**78.09**	**129**	**171**	**75.44**

The vaccination of BCG was assessed in non NYK area amongst 210 children .It was observed that overall 78% of the children received BCG in Non NYK areas, against the 87.19% in NYK area. The coverage of BCG was highest in Jhalawar 95.24% where as it was lowest in Bikaner (57.14%). The scar presence was highest (92%) in Rajsamand and lowest in Jhalawar (67%) amongst children surveyed in Non- NYK area.

Table 6 B – over all Coverage for BCG

District	Vaccine Given			Scar Formed		
	Total no. of children	Vaccine recipients	%	Vaccine recipients	Scar seen	%
Bikaner	84	54	64.29	54	33	61.11
Bharatpur	84	79	94.05	79	70	88.61
Bhilwara	84	65	77.38	65	54	83.08
Jhalawar	84	79	94.05	79	56	70.89
Rajsamand	84	56	66.67	56	46	82.14
Tonk	196	185	94.39	185	127	68.65
Total	**616**	**518**	**84.09**	**518**	**386**	**74.52**

The overall coverage for BCG Vaccine in both NYK and Non NYK covered areas was 84.09 %, where as Scar presence was observed in 88.61 % .BCG, somehow, appears to be the highest accepted antigen in all the surveyed villages. However, Districts like Bikaner and Rajsamand have distorted the average

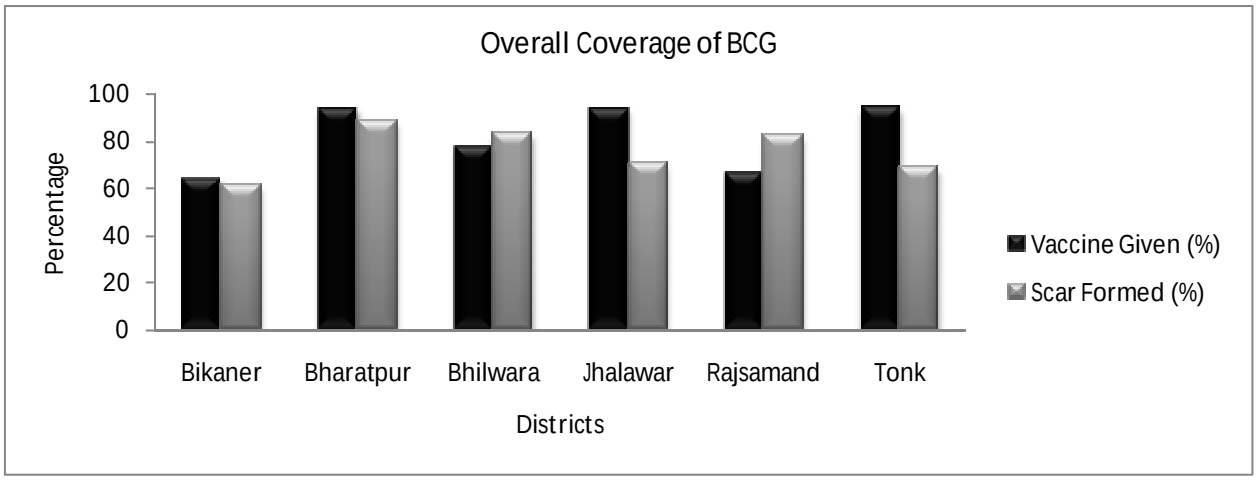


Fig 6 – over all Coverage for BCG

Table 7 – Coverage for DPT1 to DPT 3 in NYK Areas

District	Total No. of children	DPT1		DPT2		DPT 3		Drop out% DPT1 – DPT3 /DPT1*100
		No.	%	No.	%	No.	%	
Bikaner	42	29	69.05	28	66.67	26	61.90	10.34
Bharatpur	42	33	78.57	30	71.43	25	59.52	24.24
Bhilwara	42	28	66.67	24	57.14	10	23.81	64.29
Jhalawar	42	36	85.71	31	73.81	26	61.90	27.78
Rajsamand	42	20	47.62	25	59.52	12	28.57	40
Tonk	196	177	90.31	162	82.65	143	72.96	19.20
Total	**406**	**323**	**79.56**	**300**	**73.89**	**242**	**59.61**	**25.07**

The first Dose of DPT was received by 79.56 % of children in NYK covered area. The percentage was highest in Tonk (90.31%) followed by Jhalawar, Bharatpur, Bikaner, Bhilwara, and Rajsamand District.

73.89 % of children received the second dose of DPT. The percentage received second dose in NYK covered area was again higher in Tonk district followed by Jhalawar, Bharatpur, Bikaner, and Rajsamand Districts.

The third dose of DPT was received by 59.61 % children.

The drop out from DPT 1 to DPT 3 in all the six districts was 25.07%; highest being in Bhilwara (64.29%) and Lowest in Bikaner (10.34%).

Table 7A – Coverage for DPT1 to DPT 3 in Non-NYK Areas

District	Total No. of children	DPT1		DPT2		DPT 3		Drop out% DPT1 – DPT3 /DPT1*100
		No.	%	No.	%	No.	%	
Bikaner	42	25	59.52	23	54.76	21	50	16
Bharatpur	42	37	88.09	36	85.71	32	76.19	13.51
Bhilwara	42	25	59.52	21	50	11	26.19	56

Jhalawar	42	34	80.95	29	69.04	23	54.76	32.36
Rajsamand	42	19	45.24	18	42.86	3	7.14	84.21
Total	**210**	**140**	**66.67**	**127**	**60.48**	**90**	**42.86**	**35.71**

In Non- NYK area the DPT first Dose beneficiaries were 66.67 %, highest in Bharatpur which is 88.09% followed by Jhalawar(80.95), Bikaner and Bhilwara (59.52 %) where as Rajsamand had the lowest coverage (45.24%)

60.48 % received the second dose of DPT and the third dose beneficiaries dropped to 42.86 %.

Table 7B – Over all Coverage for DPT1 to DPT 3

District	Total No. of children	DPT1		DPT2		DPT 3		Dropout% (DPT1 – DPT3 ---------- x100) DPT 1
		No.	%	No.	%	No.	%	
Bikaner	84	54	64.29	51	60.71	47	55.95	12.96
Bharatpur	84	70	83.33	66	78.57	57	67.86	18.57
Bhilwara	84	53	63.09	45	53.57	21	25	60.38
Jhalawar	84	70	83.33	60	71.49	49	58.33	30
Rajsamand	84	39	46.43	43	51.19	15	17.86	61.54
Tonk	196	177	90.31	162	82.65	144	72.96	19.20
Total	**616**	**463**	**75.16**	**427**	**69.32**	**332**	**53.89**	**28.29**

On the whole, the first Dose of DPT was given to 75.16 % Children. Tonk again had the best performance observed (90.31%), Jhalawar and Bharatpur (83.33 %), Bikaner (64.29%), Bhilwara (63.09 %) and Rajsamand (46.43%) followed.

The second dose beneficiaries were 69.32 % of children and third dose recipients were further reduced to 53.89 %. Drop out from DPT 1 to DPT 3 in these six districts was28.29 %, it was highest in Rajsamand 61.54 % and lowest in Bikaner that is 12.96%.

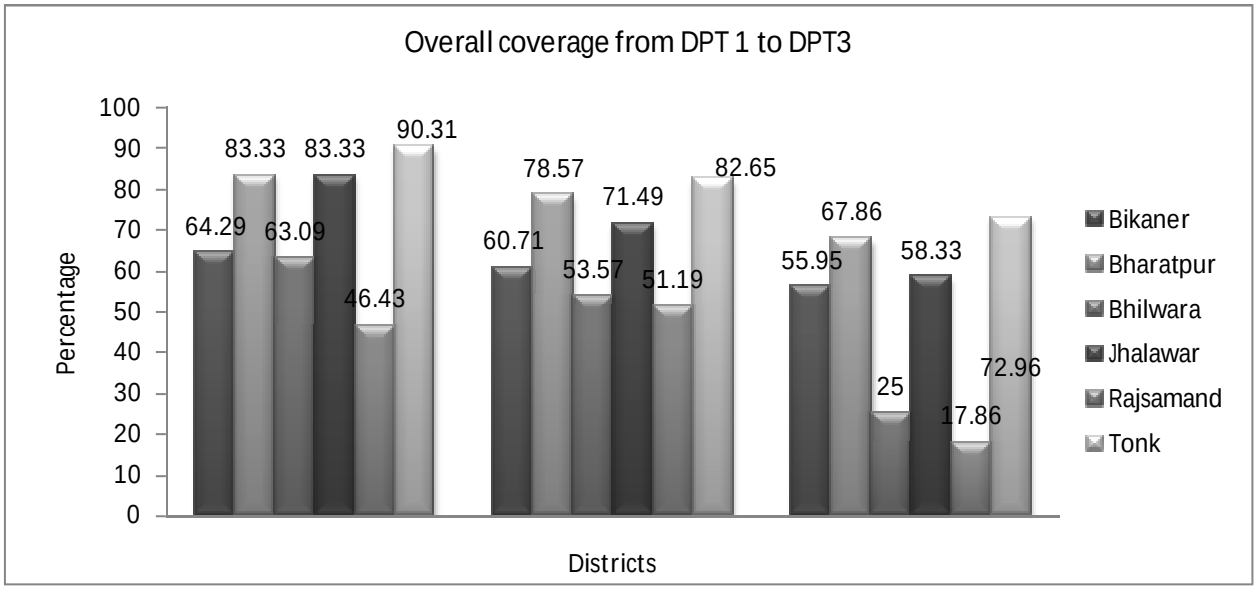


Fig 7- Over all Coverage for DPT1 to DPT 3

Table 8 – Coverage for OPV1 to OPV 3 in NYK Areas

District	Total	OPV1		OPV2		OPV3		Dropout Rate% OPV1 – OPV33/ OPV1*100
		No.	%	No.	%	No.	%	
Bikaner	42	29	69.04	28	66.67	26	61.90	10.34
Bharatpur	42	31	73.81	28	66.67	25	59.52	19.35
Bhilwara	42	27	64.29	24	57.14	10	23.81	62.96
Jhalawar	42	35	83.33	31	73.81	26	61.90	25.71
Rajsamand	42	25	59.52	20	59.52	10	23.81	60
Tonk	196	175	89.29	161	82.14	144	73.47	17.71
Total	**406**	**322**	**79.31**	**292**	**71.92**	**241**	**59.36**	**25.15**

The first dose of OPV was received by 79.31 % children's in NYK area, highest in Tonk 89.29 % followed by Jhalawar, Bharatpur, Bikaner, Bhilwara, and Rajsamand District.

The second dose of OPV beneficiaries were 71.92 %, again Tonk maintains its sovereignty with Jhalawar 73.81 %, Bharatpur & Bikaner (66.67%) where as coverage in Rajsamand and Bhilwara was 59.52 % and 57.14% respectively.

The third dose of OPV was received by 59.36 % children which is almost equal to DPT third dose. District wise distribution is Tonk again higher, Bikaner and Jhalawar covered equal percentage of children which is 61.90 %, Bharatpur covered 59.52 % of children in OPV third dose and Bhilwara and Rajsamand covered 23.81 % children in OPV third dose.

Drop out from OPV 1 to OPV 3 in these six districts was 25.15%. It was highest in Bhilwara which is 62.96 % and Lowest in Bikaner that is 10.34%.

Table 8 A– Coverage for OPV1 to OPV 3 in Non- NYK Areas

District	Total	OPV1		OPV2		OPV3		Dropout Rate % OPV1 - OPV3 /OPV1 *100
		No.	%	No	%	No.	%	
Bikaner	42	25	59.52	23	54.76	21	50	16
Bharatpur	42	37	88.09	36	85.71	33	78.57	16
Bhilwara	42	26	61.90	20	47.62	11	26.19	57.69
Jhalawar	42	34	80.95	29	69.04	23	54.76	32.35
Rajsamand	42	20	47.62	13	30.95	3	7.14	85
Total	**210**	**143**	**68.09**	**121**	**57.61**	**91**	**43.33**	**36.36**

In the areas where NYKs did not reach the beneficiaries and vaccination was through the system, First, Second and Third dose of OPV was given to 68.09%, 57.61%and 43.33% children respectively. Here Bharatpur scored over all (88.09%) followed by Jhalawar (80.95%), Bhilwara (61.90%), Bikaner (59.52%), where as Rajsamand has covered lowest percentage 47.62%.

The drop out from OPV 1 to OPV 3 in these five districts was 36.36 %, highest in Rajsamand (85.0) % and lowest in Bharatpur &Bikaner Districts (16 %).

Table 8 B–Over all Coverage for OPV1 to OPV 3

District	Total	OPV1	OPV2	OPV3	Dropout Rate %*

		No.	%	No.	%	No.	%	DPT1 - DPT3 /DPT1*100
Bikaner	84	54	64.29	51	60.71	47	55.95	12.96
Bharatpur	84	68	80.95	64	76.19	58	69.05	14.71
Bhilwara	84	53	63.09	44	52.38	21	25	60.38
Jhalawar	84	69	82.14	60	71.43	49	58.33	28.99
Rajsamand	84	45	53.57	33	39.29	13	15.48	71.11
Tonk	196	175	89.29	161	82.14	144	73.47	17.71
Total	**616**	**464**	**75.32**	**413**	**67.05**	**332**	**53.90**	**28.45**

Source: Department of health & family welfare (immunization Handbook for medical officers**)**

The first Dose of OPV was swallowed by 75.32 % of children, Tonk again ranks at number one (89.29 %) followed by Jhalawar (82.14 %), Bharatpur (80.95 %), Bikaner (64.29 %), Bhilwara (63.09 %) while Rajsamand settled for the bottom (53.57 %). For the second and third dose also the coverage percentage was 67.05 and 53.90 respectively, districts maintaining the same ranks as for the first dose. The overall **dropout rate from OPV 1 to OPV 3 works out to be 28.45%, highest in Rajsamand and lowest in Bikaner.**

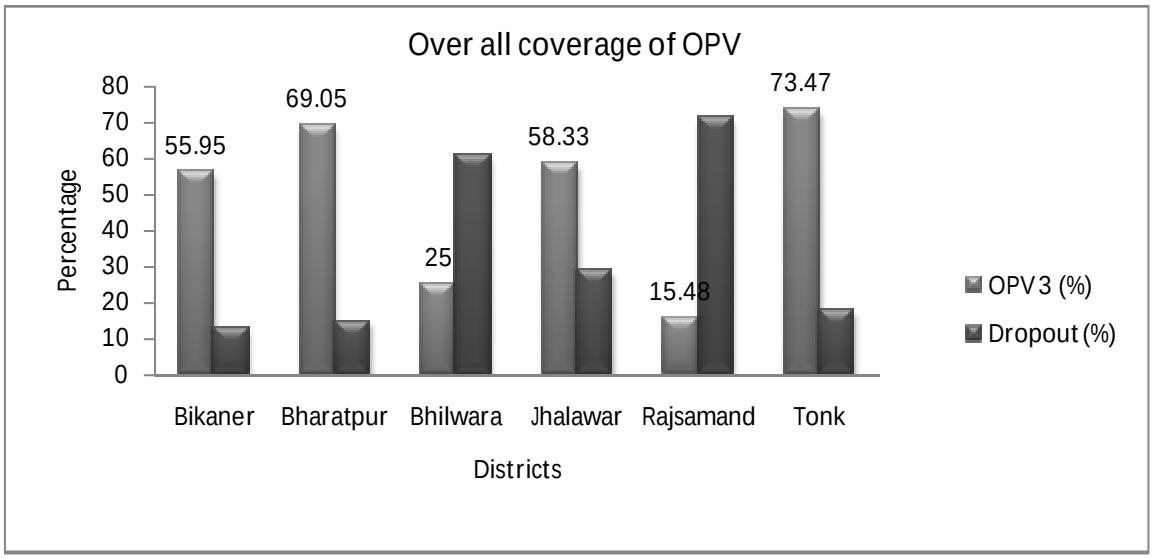


Fig 8-Over all Coverage for OPV1 to OPV 3

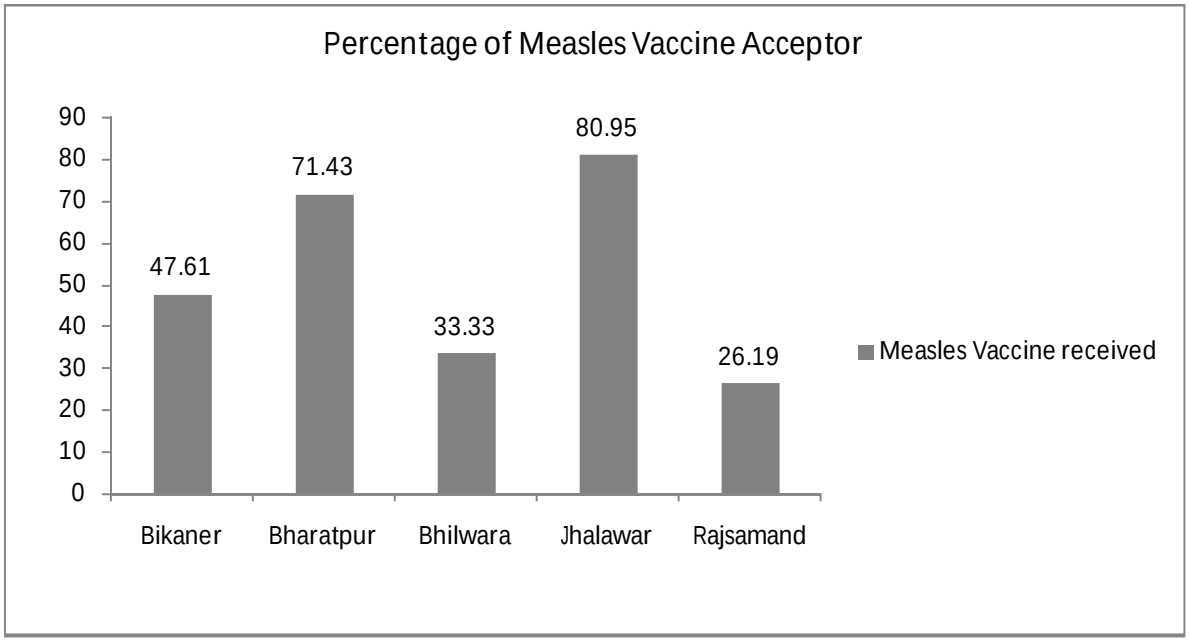
Table 9 – Coverage for Measles in NYK Area

District	Measles Vaccine received		
	No. of children	No. of Vaccine recipients	%
Bikaner	42	26	61.90
Bharatpur	42	30	71.43
Bhilwara	42	14	33.33
Jhalawar	42	32	76.19
Rajsamand	42	19	45.24
Tonk	196	153	78.06
Total	406	274	67.49

In the six study districts where NYK facilitated immunization, out of 406 children, 274 (67.49%) received Measles vaccine. However, the measles coverage dipped to 51.90 % in areas where NYK support was not there.

Table 9A – Coverage for Measles in Non-NYK Area

District	Measles Vaccine received		
	No. of Vaccine recipients	No. of children	%
Bikaner	20	42	47.61
Bharatpur	30	42	71.43
Bhilwara	14	42	33.33
Jhalawar	34	42	80.95
Rajsamand	11	42	26.19
Total	**109**	**210**	**51.90**



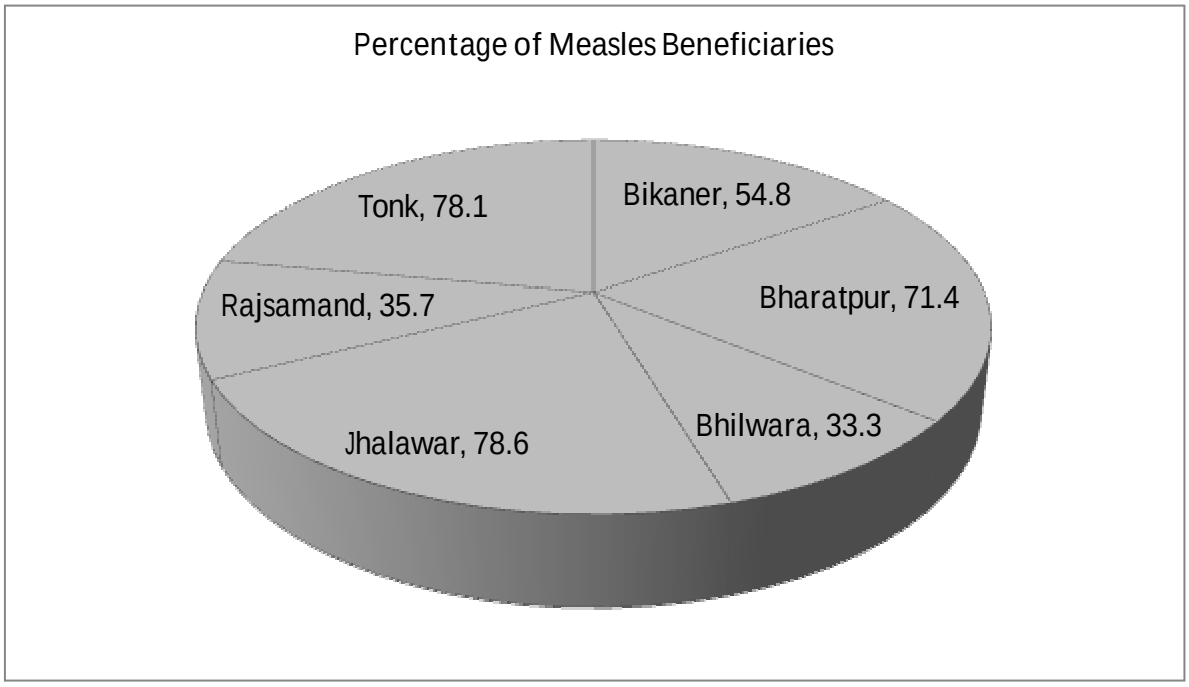


Fig 9-Percentage of Measles Beneficiaries

Table 10-Polio Vaccination under Pulse Polio Campaigns in NYK area

District	Yes		No		Total
	Number	%	Number	%	
Bikaner	41	97.62	1	2.38	42
Bharatpur	40	95.28	2	4.76	42
Bhilwara	41	97.62	1	2.38	42
Jhalawar	42	100.00	0	0.00	42
Rajsamand	42	100.00	0	0.00	42
Tonk	195	99.49	1	0.51	196
Total	**401**	**98.77**	**5**	**1.23**	**406**

401 children were covered under Pulse Polio Camp out of 406 children surveyed in NYK covered Districts. 100% of children under study in Rajsamand and Jhalawar were benefitted during Pulse Polio Campaigns.

Table 10 (A)-Polio Vaccination under Pulse Polio Camp in Non NYK area

District	Yes		No		Total
	Number	%	Number	%	
Bikaner	40	95.28	2	4.76	42
Bharatpur	40	95.28	2	7.76	42
Bhilwara	39	92.86	3	7.14	42
Jhalawar	41	97.62	1	2.38	42
Rajsamand	32	76.19	10	23.81	42
Total	**192**	**91.43**	**18**	**8.57**	**210**

The percentage of beneficiaries in villages where NYK's social mobilization efforts were not there, Pulse Polio Vaccination suffered a little set back and Rajsamand (76.19%) was the most indifferent district in this regard.

Table 11– Dropout from BCG to Measles

District	BCG (a)	Measles (b)	Dropout (%) (a-b/ a x 100)
Bikaner	54	46	14.81
Bharatpur	79	60	24.05
Bhilwara	65	28	56.92
Jhalawar	79	66	16.46
Rajsamand	56	30	46.43
Tonk	185	153	17.30
Total	**458**	**353**	**22.93**

The dropout from BCG to Measles in Six districts was found to be 22.93 %, with a range of 14.81 % (Bikaner) to 56.92 % (Bhilwara).

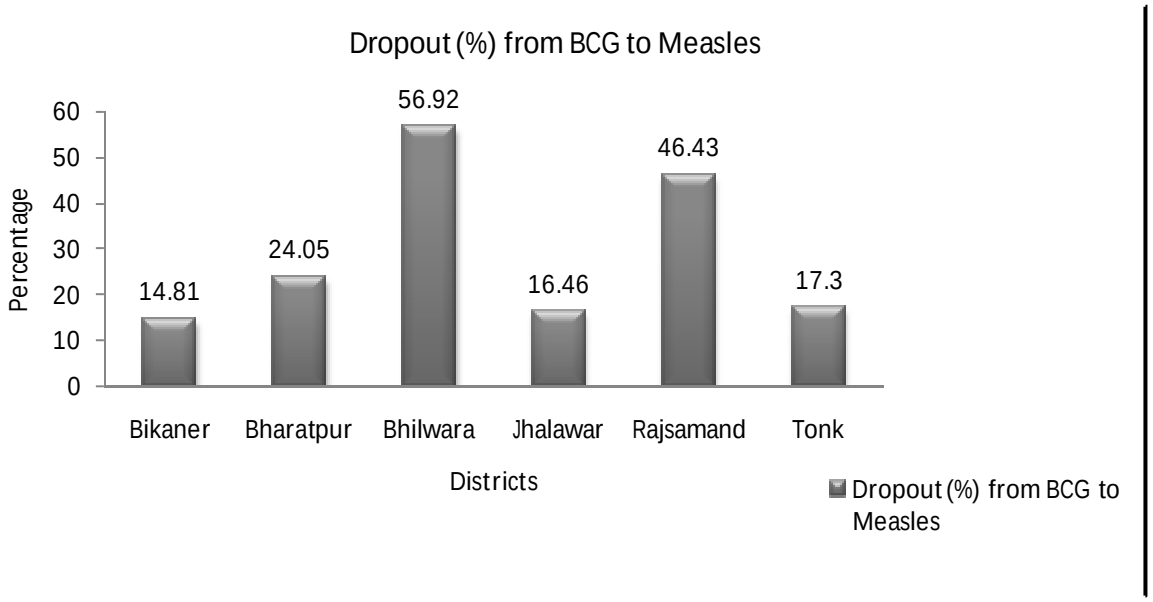


Fig 10- Dropout from BCG to Measles

Table 12-Coverage for DPT and OPV Booster in NYK Area

District	Total No. of Children	DPT Booster		OPV Booster		Total
		Number	%	Number	%	
Bikaner	42	16	38.09	16	38.09	32
Bharatpur	42	18	42.86	18	42.86	36
Bhilwara	42	1	2.38	1	2.38	2
Jhalawar	42	12	28.57	12	28.57	24
Rajsamand	42	19	45.24	19	45.24	38
Tonk	196	64	32.65	64	32.65	128
Total	**406**	**130**	**32.02**	**130**	**32.02**	**260**

As the boosters had not been the priority with UIP both the NYK initiative and the system's effort had been callous enough with sufficient evidence generated during the study. On the whole, the DPT 3 coverage had been 59.61% and 42.86% in NYK and non NYK areas respectively. The booster for DPT as well as OPV dropped to just 32% in NYK and 20.48% respectively in non NYK areas and the children in Bhilwara (2.38%) were the most unfortunate on this account.

Table 13 A-Coverage for DPT and OPV Booster in Non-NYK Area

District	Total No. of Children	DPT Booster		OPV Booster		Total
		Number	%	Number	%	
Bikaner	42	15	35.71	15	35.71	30
Bharatpur	42	6	14.29	6	14.29	12
Bhilwara	42	3	7.14	3	7.14	6
Jhalawar	42	14	33.33	14	33.33	28
Rajsamand	42	5	11.90	5	11.90	10
Total	**210**	**43**	**20.48**	**43**	**20.48**	**86**

Over All Vaccine Coverage

District	BCG		DPT		OPV		Measles	
	No.	%	No.	%	No.	%	No.	%
Bikaner	54	64.29	47	55.95	47	55.95	46	54.76
Bharatpur	79	94.05	57	67.86	58	69.05	60	71.43
Bhilwara	65	77.38	21	25	21	25	28	33.33
Jhalawar	79	94.05	49	58.33	49	58.33	66	78.57
Rajsamand	56	66.67	15	17.86	13	15.48	30	35.71
Tonk	185	94.39	143	72.96	144	73.47	153	78.06
Total	518	84.09	332	53.86	332	53.90	383	62.18

Vaccine Coverage in NYK area

District	BCG		DPT		OPV		Measles	
	No.	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
Bikaner	30	71.43	26	61.90	26	61.90	26	61.90
Bharatpur	40	95.24	25	59.52	25	59.52	30	71.43
Bhilwara	30	71.43	10	23.81	10	23.81	14	33.33
Jhalawar	39	92.86	26	61.90	26	61.90	32	76.19
Rajsamand	30	71.43	12	28.57	10	23.81	19	45.24
Tonk	185	94.39	143	72.96	144	73.47	153	78.06
Total	**354**	**87.19**	**242**	**59.61**	**241**	**59.36**	**274**	**67.49**

Vaccine Coverage in Non- NYK area

District	BCG		DPT		OPV		Measles	
	No.	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
Bikaner	24	57.14	21	50	21	50	20	47.61
Bharatpur	39	92.86	32	76.19	33	78.57	30	71.43
Bhilwara	35	83.33	11	26.19	11	26.19	14	33.33
Jhalawar	40	95.24	23	54.76	23	54.76	34	80.95

Rajsamand	26	61.9	3	7.14	3	7.14	11	26.19
Total	**164**	**78.09**	**90**	**42.86**	**91**	**43.33**	**109**	**51.90**

Table 14– Place of Immunization

District	Govt. Facilities		Out Reach		Private		Other		Left out	Total
	No.	%	No.	%	No.	%	No.	%		
Bikaner	54	64.29	5	5.95	-	-	19	22.62	6	84
Bharatpur	12	14.29	6	7.14	-	-	62	73.81	4	84
Bhilwara	16	19.05	50	59.52	-	-	9	10.71	9	84
Jhalawar	35	41.67	-	-	-	-	49	58.33	-	84
Rajsamand	65	77.38	4	4.76	-	-	8	9.52	7	84
Tonk	98	50	2	1.02	39	46.43	50	25.51	7	196
Total	**280**	**45.46**	**67**	**10.88**	**39**	**6.33**	**197**	**31.98**	**33**	**616**

The government facilities either through their static centers or throughout-reach activities (camps/MCHN days) reached almost 56% of the children with different vaccines. The private sector could contribute to only 6.33%.

Table 15– Source of Knowledge about Immunization

District	ANM/LHV/HW		AWW		ASHA		Other		Left out	Total
	No.	%	No.	%	No.	%	No.	%		
Bikaner	48	57.14	13	15.48	1	1.19	17	20.24	5	84
Bharatpur	3	3.57	53	63.10	13	15.48	11	13.10	4	84
Bhilwara	16	19.05	26	30.95	22	26.19	10	11.90	10	84
Jhalawar	73	86.90	11	13.10	-	-	-	-	-	84
Rajsamand	58	69.05	7	8.33	-	-	12	14.29	7	84
Tonk	116	59.18	30	15.31	38	19.39	6	3.06	6	196
Total	**314**	**50.97**	**140**	**22.72**	**74**	**12.01**	**56**	**9.09**	**32**	**616**

Source of Immunization is critically essential and the information has to come from a creditable source so that trust develops and knowledge translated to practice. In the present study, maximum number of families got information related to immunization

through ANMS, LHVs and Health workers which is around 50.97%, whereas 22.72% people get informed by Anganwadi Workers, 12.01 people know about immunization through ASHAs and rest of 9.09% people get awareness about immunization through other sources which includes news papers, television, friends etc.

With a drop out of 25 to 40 % between DPT 1/OPV 1 to DPT 3/OPV 3 it was structured into the questionnaire to explore the reasons for partial/non immunization.

The efforts on part of Health workers stand wasted for the kind of reasons forwarded by families ranging from lack of awareness (33.54%),Need for immunization not perceived (16.14%), Non availability of services (11.71%), fear of side effects(9.18%) and ilk.

Fortunately all these are within the control of system and a bit of conscientious effort could have brought these partially/ non-immunized children into immunized category

Table16- Reasons for Non Immunization

	District						Total
	Bikaner	Bharatpur	Bhilwara	Jhalawar	Rajsamand	Tonk	
No Need felt	21 (51.22%)	4 (11.76%)	4 (6.25%)	-	10 (13.15%)	12 (19.67%)	16.14%
Lack of awareness	10 (24.39%)	16 (47.06%)	35 (54.69%)	3 (7.5%)	22 (28.95%)	20 (32.79%)	33.54%
Fear of side effect	9 (21.95%)	3 (8.82%)	8 (12.5%)	-	3 (3.95%)	6 (9.84%)	9.18%
Non availability of Services	1 (2.44%)	-	7 (10.94%)	2 (5 %)	19 (25%)	8 (13.11 %)	11.71%
Financial Problems	-	-	-	-	-	2 (3.28%)	0.63%
Distance	-	1 (2.94%)	2 (3.12%)	3 (7.5%)	1 (1.31%)	-	2.22%
No time	-	-	2 (3.12%)	24 (60%)	5 (6.58%)	8 (13.11%)	12.34%
Myths	-	3 (8.82%)	1 (1.56%)	5 (12.5%)	11 (14.47%)	1 (1.64%)	6.65%

Other	-	7 (20.59%)	5 (7.81%)	3 (7.5%)	5 (6.58%)	4 (6.56%)	7.59%
Partially/not immunized	41	34	64	40	76	61	316

Table16A- Reasons for Non Immunization in NYK area

	District						Total
	Bikaner	Bharatpur	Bhilwara	Jhalawar	Rajsamand	Tonk	
No Need felt	14 (73.68%)	2 (10%)	1 (3%)	-	4 (11.43%)	12 (19.67%)	18.13%
Lack of awareness	3 (15.79%)	9 (45%)	20 (66.7%)	1 (5.89%)	11 (31.42%)	20 (32.79%)	35.16%
Fear of side effect	2 (22%)	-	4 (13%)	-	2 (5.71%)	6 (9.84%)	7.69%
Non availability of Services	-	-	2 (6.67%)	2 (11.76%)	8 (22.86%)	8 (13.1%)	10.99%
Financial Problems	-	-	-	-	-	2 (3.28%)	1.09%
Distance	-	1 (5%)	-	2 (11.67%)	-	-	1.65%
No time	-	-	1 (3%)	9 (52.94%)	2 (5.7%)	8 (13.1%)	10.99%
Myths	-	1 (5%)		2 (11.67%)	8 (22.86%)	1 (1.64%)	6.59%
Other	-	7 (35%)	2 (6.67%)	1 (5.89%)	-	4 (6.56%)	7.69%
Partially/not immunized	19	20	30	17	35	61	182

Table16A- Reasons for Non Immunization in Non- NYK area

	Bikaner	Bharatpur	Bhilwara	Jhalawar	Rajsamand	Total
No Need felt	7 (31.8%)	2 (14.29%)	3 (8.82%)	-	6 (14.63%)	13.43%
Lack of awareness	7 (31.8%)	7 (50%)	15 (44.12%)	2 (8.69%)	11 (26.83%)	31.34%
Fear of side effect	7 (31.8%)	3 (21.43%)	4 (11.76%)	-	1 (2.44%)	11.19%
Non availability of Services	1 (4.54%)	-	5 (14.71%)	-	11 (26.83%)	12.69%
Financial Problems	-	-	-	-	-	-
Distance	-	-	2 (5.9%)	1 (4.35%)	1 (2.44%)	2.99%
No time	-	-	1 (33%)	15 (65.22%)	3 (7.32%)	14.18%
Myths	-	2 (14.29%)	1 (33%)	3 (13.04%)	3 (7.32%)	6.71%
Other	-	-	3 (8.82%)	2 (8.69%)	5 (12.19%)	7.46%
Partially/not immunized	22	14	34	23	41	134

Conclusion and Recommendations

Conclusion and Recommendations:

In view of the observations that have been compiled and translated into information based on the field data, the study has come out with some interesting inference.

Contrary to the popular belief that the NGOs fail to deliver, it was observed that the NYKs have made a significant contribution in strengthening of routine immunization by reaching more number of children compared to the Health System. The grey areas off course persist even in NYK areas.

Overall, 72% of Immunization cards were retained by the families for the immunized child and the card retention was higher for girl children which mean that sex bias is getting attended.

The number of fully immunized, restricted to some 48% only (55 % in NYK areas as compared to 37% in areas where NYK did not initiate), provides little elbow room for complacency and the NGOs along with the system need to think of some strategic approach about how to reach the partially immunized and non immunized apart from addressing to drop outs. This is essential to maintain reasonable herd immunity in order to block the transmission.

Districts like Rajsamand and Bhilwara need special attention for the kind of coverage observed during the study.

The percentage for non immunized male children being much higher is in contradiction to the common perception that in the process of health seeking girl child is a neglected lot.

BCG acceptance by the families and by the body (scar rate) stood above all other antigens.

All other vaccines during first dose had a respectable number of beneficiaries but the sustainability of same performance till 3rd dose, beside, 28% dropouts between first and third primary dose, emerged out to be an issue and calls for attention from all stakeholders.OPV also met with the same fate.

The coverage of Measles, restricted to some 68% is also a point of concern on account of highly infectious and communicable nature of disease in virgin population and the associated mortality and complications that go with it.

Pulse polio campaigns had a remarkable reach with more than 90% of children getting benefit. Though such campaigns increase the dependability, still on account of its reach has benefitted children and has helped in wiping out the wild virus from circulation. Could be that a fair trial to all other vaccines through such campaigns to start with may increase the coverage which can then be sustained through routine efforts.

The reasons extended by families where children were either partially immunized or not immunized at all, terse are in the control of system and can be easily attended through regular contact, effective BCC and logistics management.

As such we recommend:

1. Effective BCC campaigns to eliminate fear related to side effects and increase awareness for vaccines, doses, time to return, simple measures to target fever that might follow temporarily.
2. Media to resume its role in increasing awareness
3. More of the creditable NGOs assigned this kind of tasks
4. Camp approach can be replaced by demand generation approach so that the health facilities are better utilized besides ensuring cold chain.
5. Coverage evaluation should be a regular feature of the system through impendent agencies.
6. Regular reporting and monitoring based on the secondary data