

row findings and tissue biopsy features (lymph node/liver/spleen/local site) must be correlated to subtype the class of histiocytosis for adequate management.

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Immunization Coverage in Bihar

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The National Family Health Survey (NFHS) in 1993 reported a low coverage level of immunization for children and mothers for the State of Bihar, using a properly designed random survey methodology[^]). This is in contrast to a high cover-

age level as reported by the State Government, which generated lot of controversy.

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The lower coverage levels for Bihar, were first reported by our institution using an appropriate survey methodology as against the commonly used WHO methodology(2,3). In this communication, we report the immunization coverage for the state of Bihar at District level to provide a basis for appropriate remedial measures to the planners and implementors.

Subjects and Methods

The study covered all the 39 districts of Bihar using methodology detailed earlier(3). The total sample in a district comprised of 375 children and 375 mothers. Information was collected through the structured questionnaires during 1991-92.

TABLE I - Immunization Coverage of Children and Pregnant Women (%)

Immunization	Per cent coverage	
	IRMS	NFHS
DPT 1	49	42.8
2	46	37.0
3	45	29.1
OPV 1	49	45.0
2	46	40.6
3	45	31.6
Measles	28	14.6
BCG	32	33.9
TT (PW)	42	37.0

PW-Pregnant Women

The results according to sex, village size, residence, caste, etc. were analyzed using appropriate tests of significance (t-test and analysis of variance).

Results and Discussion

Table I summarizes the immunization with NFHS evaluation coverage for Bihar on the basis of our survey (IRMS) and compares the results with NFSH evaluation conducted in 1992-93. It is evident that the immunization coverage is fairly low for all vaccines. Further, the NFHS estimates were lower for all vaccines.

In view of low coverage level for the state, the results were analyzed by sex, literacy level of parents and size of village and residence (Tables II-IV). The higher size villages had relatively better coverage levels (Table II).

Significant differences were observed in the coverage levels by sex in rural areas. However, in urban areas no such differences were observed (Table III). Significant differences were also observed in the coverage levels of SC/ST and the rest of the population. The difference was even as high as 20 percentage points for some vaccines.

Both parents' literacy status had a significant influence on the immunization level of the children. The influence was more obvious for mothers as compared to fathers (Table IV).

TABLE II-Immunization Coverage According to Size of Village (%)

Doses	Stratum				
	I	II	III	IV	V
DPT	38	36	40	46	64
OPV	39	36	42	46	64
BCG	21	21	23	28	44
Measles	21	21	22	23	36
TT (PW)	36	39	38	46	60

TABLE III—Immunization of Children and Pregnant Women by Sex and Caste (%)

Doses		Sex			Caste		
		Male	Female	p-value	SC/ST	Others	p-value
DPT	R	50	32	0.00	33	53	2.24E-62
	U	64	64	0.50	53	74	6.36E-22
OPV	R	50	32	0.00	34	45	1.31E-20
	U	64	64	0.50	52	60	3.65E-04
Measles	R	24	21	0.00	18	23	2.75E-07
	U	36	36	0.50	32	37	0.0152
BCG	R	24	23	0.10	18	24	1.49E-09
	U	44	44	0.50	37	42	0.0173
TT (PW)	R	—	—	—	31	44	3.01E-28
	U	—	—	—	58	62	0.0438

R=Rural, U=Urban

TABLE IV—Immunization of Children and Pregnant Women by Literacy (%)

Doses		Father				Mother			
		Ill.	Lit.	F.Ed.	p-value	Ill.	Lit.	F.Ed.	p-value
DPT	R	26	32	32	2.092E-07	32	45	65	6.483E-06
	U	38	47	67	1.526E-05	46	61	76	2.235E-05
OPV	R	26	33	53	3.412E-06	34	45	64	5.324E-06
	U	36	45	68	1.890E-05	46	60	75	2.072E-06
Measles	R	15	23	28	7.354E-07	19	27	35	1.587E-06
	U	27	27	43	6.082E-06	32	40	48	6.358E-07
BCG	R	15	23	29	8.437E-07	19	26	36	1.729E-06
	U	25	33	51	1.229E-05	34	48	57	1.401E-96
TT (PW)	R	Husband				Self			
	U	25	43	53	3.44E-06	29	46	59	5.791E-06
		43	60	73	1.549E-05	44	59	75	2.368E-06

Ill.: Illiterate, Lit.: Literate, F.Ed.: Formal Education

The results at district level are presented in *Table V*. Although the overall coverage levels for the state was low, relatively lower coverage levels (< 33%) were observed in seven districts, namely, Darbhanga, Mungar, Nalanda, Champaran (E), Shaharsa, Dumka and Vaishali.

In this survey, almost all the vaccinees had received immunization from the government sources. Those utilizing the private services were mainly literates. Lack of awareness and motivations were cited as the main reasons for non-immunization.

The lower coverage levels in Bihar are

TABLE V—District Wise Immunization Coverage of Children (%)

District	DPT	OPV	Measles	BCG	Upper value 95% CI for DPT	Reported coverage
Aurangabad	69	70	54	54	77	86
Begusarai	43	43	24	27	56	109
Bhagalpur	37	38	22	26	46	79
Bhojpur	51	50	35	34	58	129
Darbhanga	16	22	13	13	21	73
Deoghar	44	45	46	45	55	119
Dhanbad	54	54	23	27	64	100
Gaya	46	47	22	26	54	78
Giridih	45	45	13	15	56	87
Godda	62	62	38	49	73	67
Gopalganj	45	46	37	32	55	63
Gumla	45	45	35	46	56	91
Hazari Bagh	47	48	34	34	53	117
Jahanabad	55	55	35	34	65	108
Katihar	54	55	27	53	64	62
Khagaria	53	53	25	24	62	82
Lohardagga	48	48	24	28	54	111
Madhepura	60	60	60	62	69	102
Madhubani	43	39	14	16	55	135
Munger	28	29	13	17	33	93
Muzaffarpur	45	45	25	29	59	91
Nalanda	31	32	9	11	38	111
Nawada	46	46	11	26	55	101
Palamu	51	51	50	53	60	75
Champanan (W)	42	42	25	38	48	91
Patna	46	48	35	38	58	108
Sitamarhi	37	37	23	24	44	90
Champanan (E)	33	36	30	30	45	77
Siwan	42	43	22	19	52	45
Purnia	49	49	46	44	55	45
Ranchi	43	43	22	23	49	89
Rohtas	64	64	31	60	74	102
Saharsa	22	22	15	15	32	64
Dumka	29	29	19	23	38	49
Sahebganj	50	49	44	46	60	52
Samastipur	79	70	50	51	87	94
Saran	35	38	21	25	46	95
Singbhum	37	38	27	30	47	84
Vaishali	29	32	17	15	38	111

corroborated by the findings of NFHS survey(1). In fact the coverage levels as per NFHS evaluation were still lower for all immunization (*Table I*). The results from NFHS survey also revealed a high dropout rate. Special efforts are required to identify the areas and target groups for better focus in the programme. Small size villages, which are at times remote and inaccessible, tend to be neglected. The programme needs focus on those residing in small, inaccessible and remote villages. The coverage levels in the state can also be increased by reducing the dropout rate.

Further, the disaggregated results by sex, caste, and literacy are in consonance with NFHS survey(1). The information, Education and Communication activities in rural areas should focus for better care of female children for immunization and health care. The reasons for lower coverage levels for SC/ST apart from lack of the awareness and neglect by the society, is the fact that they tend to be ignored in the process of completing the targets. Special efforts therefore should be made to improve the coverage level for SC/ST. There is also a need for increasing the awareness and acceptance for this section of population about the benefits of immunization. Education of mother is the key to the success of

the Universal Immunization Programme and all out efforts need to be made to increase the female literacy in the country. The districts with coverage levels less than 33 percent need special focus in the programme.

The reported coverage levels by the Government for the corresponding period were much higher than even the upper value of the 95% confidence interval of estimated coverage level in almost all the districts of Bihar. In view of discordance between two large surveys(1-3), the reported figures by the state government, can not be used reliably. Only findings of such large scale studies should be relied for proper planning.

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