



IOCH
Immunization and Other Child Health Project

**Vaccination Coverage Survey of the
Kurigram Municipality**

May 2002

Survey Report No. 68

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Acronyms

BCC	Behavior Change Communication
BCG	Bacillus of Calmette and Guerin
CES	Coverage Evaluation Survey
COSAS	Coverage Survey Analysis System
DPT	Diphtheria, Pertussis and Tetanus
EPI	Expanded Program on Immunization
FWC	Family Welfare Center
IOCH	Immunization and Other Child Health
Mahallah	Smaller localities (smaller than a village)
MOHFW	Ministry of Health and Family Welfare
Mouza	Smallest administrative locality in an Upazila
MSH	Management Sciences for Health
NGO	Non Governmental Organization
NID	National Immunization Day
OPV	Oral Polio Vaccine
TT	Tetanus Toxoid
WHO	World Health Organization

Terminology

This provides the meaning of some of the more technical terms used in this report and a brief explanation of their use.

By card: An immunization given to a child is termed as by card if the date of the dose is entered on an immunization card. Only doses recorded by card are treated as valid data in this survey.

By history: Immunization history collected from a parent's recall is termed as by history. Often no date will be mentioned. This information is only included in crude data.

Crude coverage rate is calculated from the doses recorded by card and/or by history. It is not ascertained whether the doses were given at the correct age and/or following the correct interval (where applicable). Crude data however, helps us to understand how much additional coverage could be achieved if all vaccines were given at the optimum age for the child and following the optimum interval. It also provides useful information on access to the EPI program and on the operational aspects of the provision of health services.

Valid coverage rate is calculated from the vaccinations recorded by card plus history. In the calculation process, first the rate of validity is calculated based on cards only, then this rate is applied to history cases too. Valid data includes only the doses of vaccines that were given after the minimum date of eligibility and/or after the minimum interval necessary to be effective and to protect the child. There is no maximum interval for a dose and therefore a dose administered after 52 weeks is still regarded as valid. By comparing crude coverage with valid coverage data of any particular antigen, one can determine how much coverage was lost due to the inability to give vaccine at the appropriate time.

Invalid doses are those administered at the wrong age and/or at the wrong interval. Doses administered before the minimum age in the case of DPT/Polio 1st doses and Measles vaccine or with less than four weeks interval in the case of DPT or Polio vaccines are classified as "invalid" doses.

The **criteria for a valid dose** used in this survey is the criteria recognized by the Bangladesh EPI program: minimum age for DPT/Polio 1st dose - 6 weeks old; minimum DPT/Polio interval - 4 weeks; minimum age for Measles vaccine - 38 weeks old.

Dropout cases refer to the children/women who have initially received at least one dose of any antigen and then failed to receive the subsequent doses to get fully immunized. Dropout rate implies the inability of the EPI to follow-up and protect the cohort of children initially reached out.

Program access is measured by the percentage of children surveyed who received DPT 1st dose (crude data – by card and history) in the routine immunization session.

Fully immunized means the child has received all the doses it requires (BCG, OPV 1-3, DPT 1-3 and measles).

Missed opportunity refers to a visit of a child to a vaccination center for a dose that he received. However at that time he was also eligible for another dose of antigen that he did not receive. If the missed dose was provided at a later date, it is a *corrected missed opportunity*. If not, it is an *uncorrected missed opportunity*.

SUMMARY RESULTS

Background

The routine EPI program in the municipalities is carried out by a variety of private and public providers at fixed (hospitals, clinics, dispensaries, etc.) and at outreach sites. NGOs and private practitioners also provide immunization services in many places. The municipal authorities are primarily responsible for providing and/or coordinating primary health care including routine EPI services in municipal areas. However, in the absence of an effective management information system and reliable service statistics at municipal level, it is often difficult to assess the level of immunization coverage of the municipalities. In view of this situation, the IOCH decided to conduct a series of coverage evaluation surveys in the selected municipal areas to assess the level of immunization coverage in these municipal areas. As a part of this effort, the IOCH conducted a coverage evaluation survey in the Kurigram Municipality in May 2002.

Objectives

The overall objective of the survey was to assess the level of immunization coverage in the Kurigram Municipality. The specific objectives were to:

- a) assess the level of routine immunization coverage of the children (12-23 months) and find out the reasons for non-immunization and partial immunization;
- b) assess the level of TT immunization coverage among women of 15-49 years of age, irrespective of their marital status, and find out the reasons for non-immunization and partial immunization; and
- c) assess the coverage levels of OPV and Vitamin A administered during the 10th NID campaign.

Methodology

The survey employed the WHO recommended 30-cluster survey methodology that has been widely used in many developing countries to assess immunization coverage. In all, 30 clusters were randomly selected from the Kurigram Municipality following PPS sampling procedures. A list of the selected clusters is provided in Annex- A and their locations are shown on the maps in page 10. From each cluster, 7 children 12 – 23 months and 7 women of reproductive age (15 – 49 years) irrespective of their marital status were selected following 30 cluster survey methodology to ascertain their routine immunization coverage. Also, 7 children < 5 years (0 – 59 months) were selected to assess the immunization coverage of the 10th National Immunization Campaign.

The WHO standard questionnaires were used for documenting the routine immunization status of the children and women. Also, separate questionnaires were used to collect data on NIDs and reasons for non-immunization and dropouts. The data were collected by the experienced Field Investigators of the Survey Team of the IOCH. Data processing and analysis were done by the Monitoring & Evaluation Unit of the IOCH using COSAS 4.41¹ and EpiInfo.

¹ COSAS (Coverage Survey Analysis System) is a dedicated software for analyzing coverage evaluation survey data.

Coverage levels for the routine immunization of children

Access to child immunization: Based on crude data (card plus history), 98% children received at least one dose of antigen (DPT 1st dose in this case) from routine immunization sessions. Only 2% of the children did not receive a dose of any antigen.

Crude coverage between 12-23 months: 98% children received BCG, 86% children received three doses of OPV and DPT and 79% received measles vaccine. 79% children were fully immunized.

Valid coverage between 12-23 months: 98% children received BCG, 74% children received three doses of OPV, 75% received three doses of DPT and 77% received measles vaccine. 66% children were fully immunized.

Valid coverage by 12 months: 98% children received BCG, 70% children received three doses of OPV, 71% received three doses of DPT and 71% received measles vaccine. 61% children were fully immunized.

Routine immunization coverage by sex: There was no sex preference in accessing child immunization services. Boys' access to immunization, as measured by the coverage of DPT1, was equal to that of the girls (98% for boys vs. 98% for girls). But dropout rates for different antigens among the girls were higher than those of the boys. Also, measles coverage among the girls was lower, resulting in lower full immunization coverage for the girls than the boys (85% crude FIC for boys vs. 71% crude FIC for girls)

Dropout rates: Although access to child immunization was high (98% for DPT1), the dropout rates for different antigens were high too. There was 12% dropout from DPT1 to DPT2 and 19% from DPT1 to measles.

Invalid doses: There were a number of invalid doses due to early immunization and/or inadequate interval between the doses. 6% of the DPT1 doses were administered before 6 weeks, and 2% measles doses before 38 weeks of age of the children. In addition, 1% of the DPT2 doses and 6% of the DPT3 doses were invalid as they were given before the 4 weeks interval between the doses.

EPI card retention: 98% of the children interviewed were ever given EPI cards; however, EPI cards were available in 61% of the cases at the time of interview. EPI card retention rate was 62% only, which means that 38% of the EPI cards were lost.

Source of immunization services: Childhood immunization in this area was provided mostly by the NGO clinics (59%), followed by the GOB clinics (21%) and hospital (14%). GOB outreach and municipal outreach centers provided immunization to 3% cases each.

Reasons for non-immunization and partial immunization or dropout of children: The primary reasons for non-immunization of children cited by parents were lack of awareness of need and importance of immunization (75%) and fear of pain of vaccination (25%). The reasons for partial immunization or dropout, as reported by the parents, included: lack of awareness about the need of next doses (22%), sickness of the child (17%) and fear of pain of vaccination (15%).

Coverage levels for the routine TT immunization of women

TT immunization coverage: The survey of coverage levels for immunization against tetanus toxoid showed that 85% of women of reproductive age (15-49 years) received TT1; 82% received TT2; and 33% received TT5. 15% women never received any TT vaccine.

Dropout rate for TT immunization: The dropout rate for TT immunization among the women of reproductive age was quite high. The dropout rate for TT2 to TT3 was 26%, and TT1 to TT5 was 61%. It implies that 61% of the women who received TT1 dose did not get fully immunized for life-long protection against tetanus.

Protection against tetanus at birth: Of the women who had live births in the previous year, 94% of newborn babies were found protected against tetanus, indicating that 6% of the newborn babies were still not protected against tetanus at birth.

TT card retention: 82% of the women were ever given TT cards; however, TT cards were available in 22% of the cases at the time of interview. TT card retention rate was 27% only, which means that 73% of the TT cards were lost.

Sources of TT immunization: Majority of the women received TT vaccine from GOB hospitals (39%), followed by the NGO clinics (34%) and private clinics (13%). GOB outreach and municipal outreach centers provided TT immunization to 10% and 4% cases respectively.

Reasons for non-immunization and partial immunization of women: The primary reason for non-immunization of TT cited by majority of the women were lack of awareness of need and importance of TT immunization (38%); while half of the non-immunized women reported that the TT immunization was not introduced when they had their pregnancies. The primary reasons for partial immunization or dropout were that the women were not aware of the need for subsequent doses to get fully immunized against tetanus (34%) or the health workers did not specify the date of next/subsequent doses (15%); while 27% of the women were told by the health workers that 2 or 3 doses were enough for them for their pregnancies, and they were not advised (by health worker) for full immunization.

Coverage levels for the 10th NID Campaign

OPV and Vitamin A coverage: During the 10th NIDs, 99% of the children <5 years received OPV in both the rounds. The coverage for OPV in each of the rounds was also 99%; only one percent of children were left out. Vitamin A capsules were given to 95% of the eligible children (12 months – 59 months of age) during the 10th NID Campaign. Most of the children received OPV from the NID sites (99% in the 1st round and 97% in the 2nd round). The coverage of the child-to-child search improved in the 2nd round from 1% in the 1st round to 3% in the 2nd round.

Sources of information of the 10th NIDs: Majority of the parents learned about the 10th NID campaign from miking (85%), followed by relatives and neighbors (38%). Television as a source of information were cited by 27% of the parents; while 13% came to know about the NIDs from the IPC during home visits by the GOB/municipal field workers.

Reasons for not receiving OPV from the NID sites: The primary reasons for not receiving OPV from the NID sites included lack of information of NID campaign, parents were busy with other work, children were away from home, and religious and social barriers.

Problems detected

Access to child immunization was good (98% for crude DPT1); but this high access dropped to 79% for fully immunized children because of high dropout rates of different antigens. (Dropout rate for DPT1 to DPT3 was 12% and DPT1 to measles was 19%). Such high dropout rates imply inability of the EPI program to follow-up and protect the cohort of children initially reached out. Similarly, access to TT immunization for the women 15 – 49 years was high. 85% of the women interviewed received the first dose of TT; but TT dropout rate was very high (61% for TT1 to TT5), resulting in very low coverage of TT5 (33%), which provides lifelong protection against tetanus.

There were also too many invalid doses in child immunization (6% for DPT1, 6% for DPT3 and 2% for measles), which further reduced the crude full immunization coverage of 79% to 66% when validity of doses was taken into account. Total missed opportunities for different antigens were also high (11% for DPT1, 6% for DPT3 and 5% for measles). These high rates of invalid doses and missed opportunities reflect service providers' inability to screen the clients properly.

EPI card (child immunization card) and TT card play an important role in ensuring good quality of immunization services. It helps the mothers to adhere to immunization schedule, as well as assists the service providers to screen the children for specific doses of specific antigens. Unfortunately, the retention rates of both the EPI cards and TT cards were very low, 62% and 27% respectively.

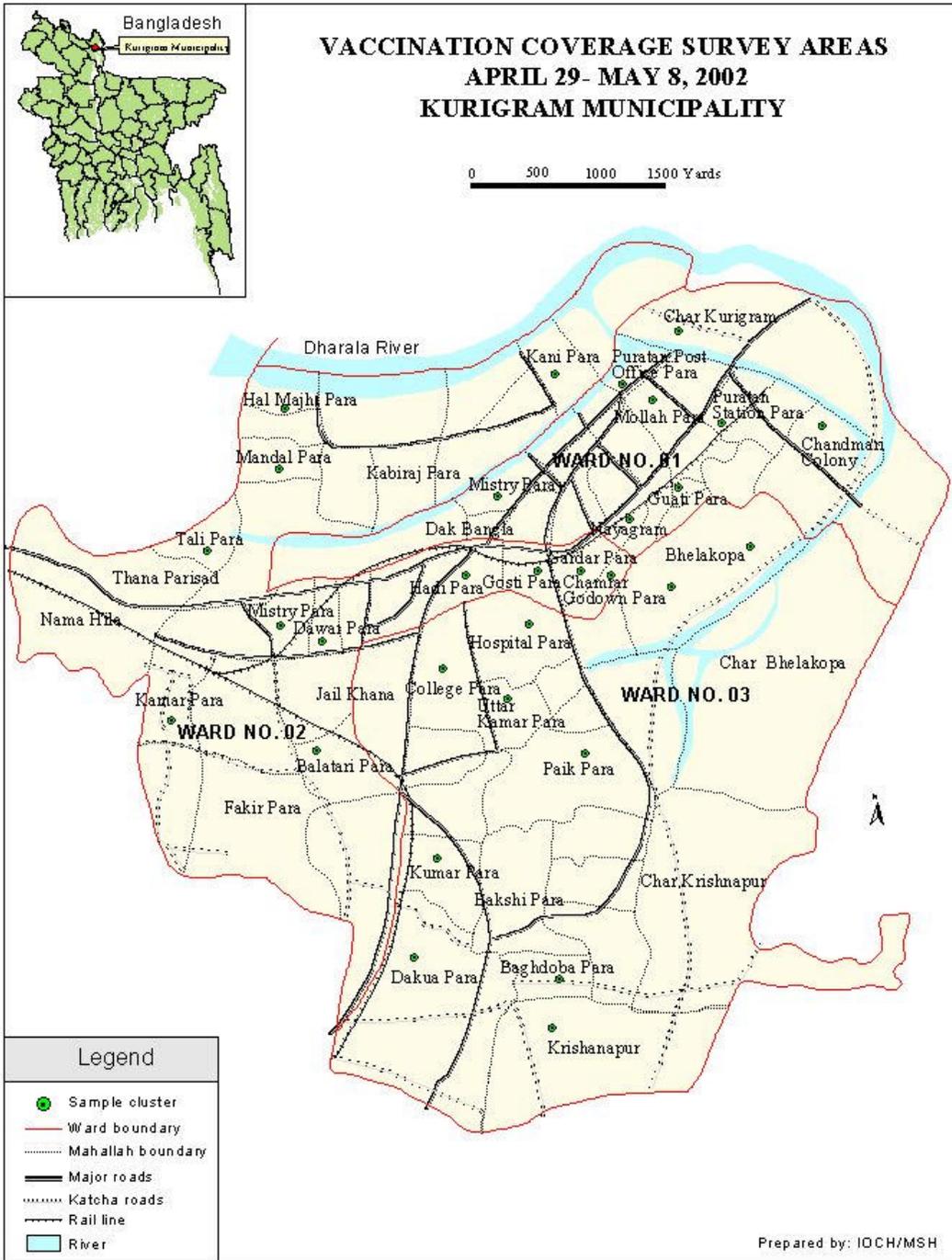
Women/mothers have a poor understanding of full immunization. 64% of the mothers could not mention how many times their children were required to be taken to EPI center to get fully immunized. Similarly, 82% of the women interviewed did not know how many TT doses were required for a woman for lifelong protection against tetanus.

1% of the children <5 years in the 1st round and 3% in the 2nd round did not receive OPV from the NID sites of the 10th NID campaign. Also, 5% of the children of 12 – 59 months did not receive Vitamin A. In spite of intensive communication activities during NIDs, lack of information of NID campaign as a reason for not receiving OPV from NID site was still reported by 33% in the 1st round and 13% in the 2nd round.

Suggested solutions

1. Programmatic strategies must be undertaken to reduce the existing high dropout rates in both child immunization and TT immunization. The program should focus on quality of counseling of mothers/women (on immunization) by the service providers. The service providers at the first contact must counsel the mothers/women properly to motivate her to return and to get herself and/or her child fully immunized.
2. Program managers and field supervisors should ensure that EPI sessions are held as per plan, and at a regular and adequate interval (more than 28 days).
3. The service providers should be given refresher training to improve their technical skills on counseling of mother/women on immunization.

4. In order to reduce existing high rate of invalid doses and missed opportunities, emphasis should be given on screening of clients for both child and TT immunization. The service providers should be given refresher training to improve their technical skills on screening of clients for immunization
5. The pregnant mothers should be motivated (by the service providers and/or by the BCC activities through mass media) to receive the required number of TT doses necessary to protect their newborn babies.
6. Mothers should be explained (by the service providers) the benefits and importance of EPI cards/ TT cards for immunization of themselves and their children.
7. Mothers should be asked to preserve the EPI card safely until their children are 5 years old, and to bring the cards with them whenever they comes to the clinic/ EPI center for immunization of their children. They should also be asked to carefully preserve their TT cards, and to bring the cards with them whenever they come to clinic/ EPI center for TT immunization.
8. In the case of loss of EPI card/TT card, it should be provided over and over, and the history of the earlier vaccinations accurately recorded again and again, if necessary.
9. During IPC between the mothers and the service providers and/or at the first contact, the mothers should be clearly explained the importance of full immunization of children and women, and of the immunization schedule for full immunization for both children and women.
10. The program should strengthen BCC activities to inform the community of importance of immunization in general, and to motivate the mothers to get themselves and their children fully immunized. Very selective and focused mass media campaign may also be conducted to achieve this end.
11. Area specific innovative strategies suitable to local situation have to be undertaken during the next NIDs to reach to the left out children.
12. More attention should be given to high risk areas and traveling population during next NIDs.
13. Communication activities need to be strengthened through mass media, such as television, as well as through IPC by the health workers, to inform the communities of the next NID campaign.
14. Parents should be encouraged to attend the fixed NID sites/centers and discouraged to wait for home visits by the service providers during child-to-child search.
15. For distribution of Vitamin A capsules during NID, special attention should be given to the exact age group to limit shortage (through better screening for age) and no Vitamin A capsule should be given to the parents to administer them to their children either at NID site or in their homes.



TABLES AND CHARTS

Table 1: Routine immunization coverage levels of the child

Name of the Vaccine	Coverage (%) Immunization of 12-23 months age group		Coverage (%) Immunized by 12 months of age
	Crude data (Access)	Valid data	Valid data
BCG	98	98	98
OPV1	98	93	93
OPV2	94	87	85
OPV3	86	74	70
DPT1	98	93	93
DPT2	94	87	86
DPT3	86	75	71
Measles	79	77	71
Fully immunized	79	66	61
Zero Dose	2	-	-

Table 2: Routine immunization coverage levels by gender

Name of the vaccine	Coverage % Immunization of 12-23 months age group				Coverage % Immunized by 12 months	
	Crude data		Valid data		Valid data	
	Male (%)	Female (%)	Male (%)	Female (%)	Male (%)	Female (%)
BCG	98	98	98	98	98	98
OPV1	98	98	92	93	92	93
OPV2	96	91	87	86	87	82
OPV3	93	79	78	70	72	68
DPT1	98	98	92	93	92	93
DPT2	96	91	89	86	89	82
DPT3	93	79	79	70	73	68
Measles	85	72	82	72	77	65
Fully immunized	85	71	69	64	64	58
Zero dose	2	2	-	-	-	-

Chart-1: Drop-out rate for child immunization

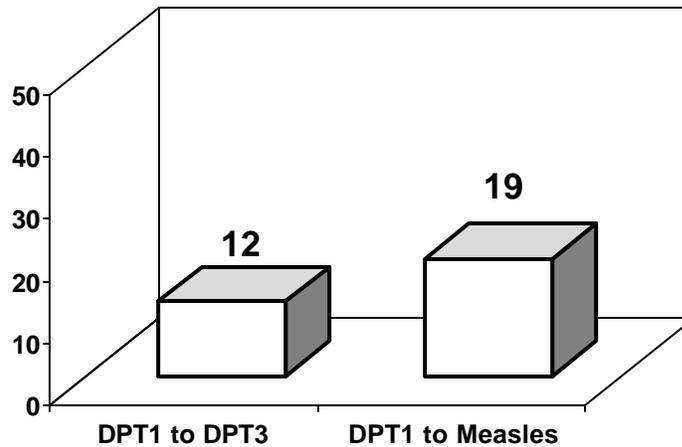


Table 3: Invalid doses of immunization provided to the children

Antigens	Percentage
DPT1	6
DPT2	1
DPT3	6
Measles	2

Table 4: Missed opportunities by antigens

Name of the vaccine	Uncorrected		Corrected		Total	
	Number	Percent	Number	Percent	Number	Percent
BCG	2	1	4	2	6	3
DPT1	2	1	21	10	23	11
DTP2	1	0.5	9	4	10	5
DPT3	1	0.5	10	5	11	6
OPV1	2	1	21	10	23	11
OPV2	1	0.5	9	4	10	5
OPV3	1	0.5	10	5	11	6
Measles	7	3	4	2	11	5
Index *	105					

* The idea is to propose one composite index reflecting the quality of screening during vaccination sessions.

Table 5: EPI cards availability and retention

Card Status	Number	Percentage
EPI card available	128	61
EPI card ever given	206	98
EPI card retention	128	62

Chart-2: Sources of child immunization services

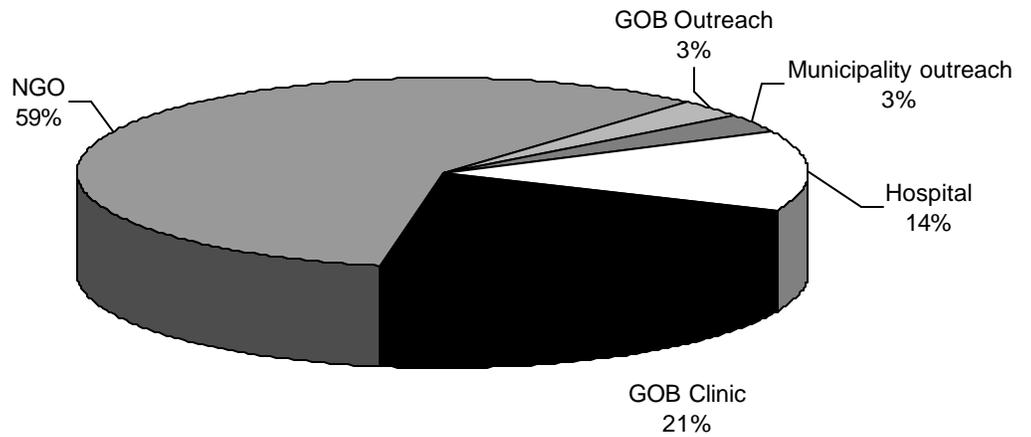


Chart 3: Knowledge about required visits to immunization centers for full immunization

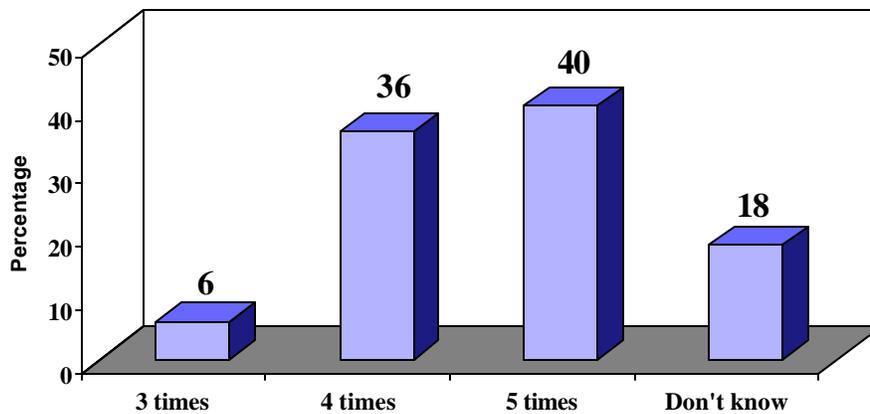


Table 6: Reasons for non-immunization and partial immunization of the children

Reasons for non-immunization or partial immunization	Non-immunized (%) (N=4)	Partially immunized (%) (N=41)
Did not know about need of immunization	75	-
Did not know about need of second dose	-	22
Did not know when to return for 2 nd /3 rd dose.	-	2
Did not know about importance of measles vaccine	-	10
Family problem/mother was sick	-	10
Child sick, was not taken to site	-	17
Fear of adverse reaction	-	5
Mother was busy with other works	-	2
Vaccinator was not available at the site	-	2
Vaccine was not available at the site	-	3
Vaccinator not friendly	-	3
Child was not at home	-	7
Painful for the children	25	15
Others	-	2

Chart 4: Routine immunization coverage levels for TT among women 15-49 years

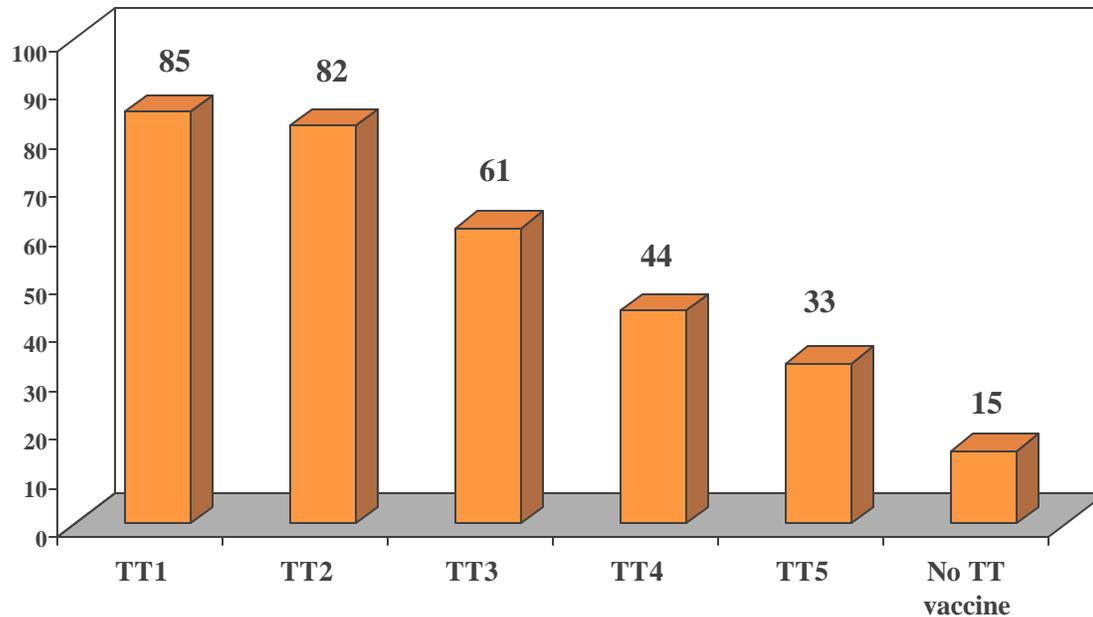


Chart 5: TT Immunization drop-out rate among women 15-49 years

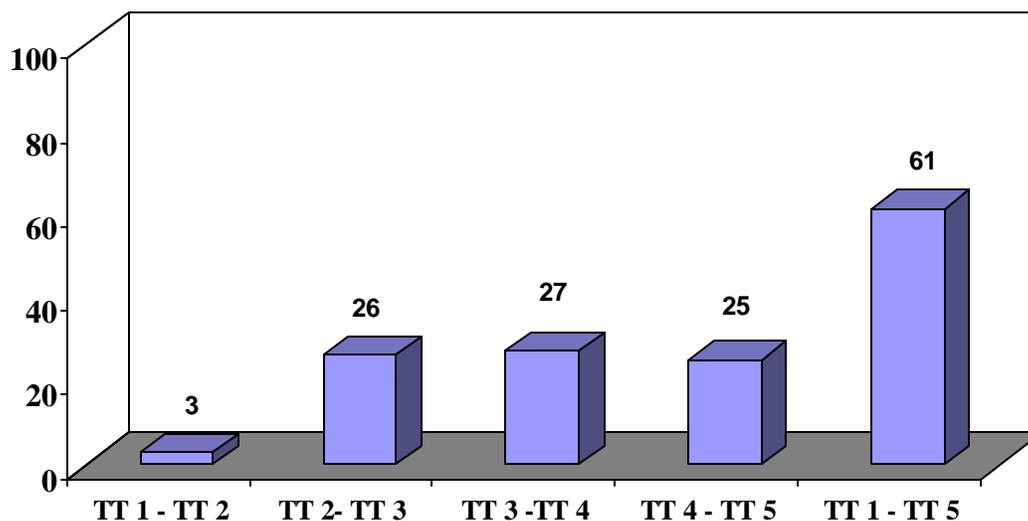


Table 7: Children born protected against tetanus

Status of children born protected	Number	Percentage
Protected	197	94
Not Protected	13	6

Table 8: Knowledge about number of TT doses required for life time protection against tetanus

Answers	Number	Percentage
5 doses	37	18
Don't know/ no idea	173	82

Table 9: Age distribution of women who never received TT vaccine

Age group	Received		No received		Total	
	#	%	#	%	#	%
15-19	24	71	10	29	34	100
20-25	72	100	0	0	72	100
26-30	43	96	2	4	45	100
31-35	28	93	2	7	30	100
36-45	11	38	18	62	29	100
Total	178	85	32	15	210	100

Table 10: TT cards availability and retention

Card Status	Number	Percentage
TT card available	47	22
TT card ever given	173	82
TT card retention	47	27

Chart 6: Providers of TT immunization

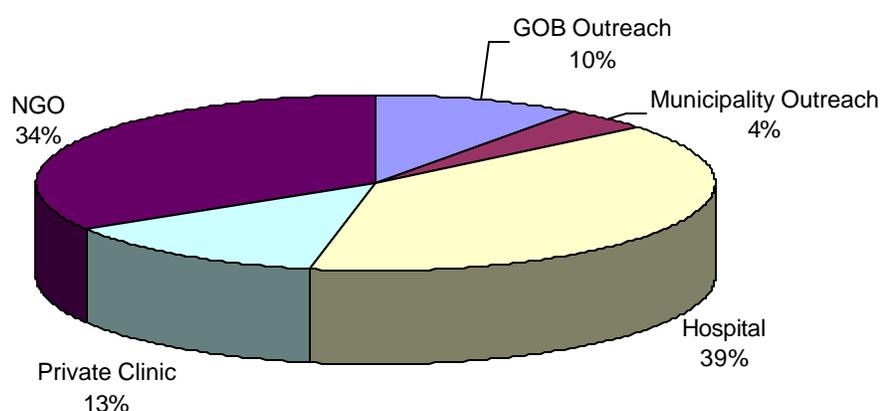


Table 11: Reasons for non-immunization and partial immunization for TT of the women

Reasons for non-immunization or partial immunization	Non-immunized (%) (N=32)	Partially immunized (%) (N=106)
Next dose is not yet due	-	16
Don't feel need for immunization	38	-
Health worker did not specify the next dose	-	15
As per HW advice, 2/3 TT is enough during the pregnancy	-	27
Unaware of need of next dose	-	34
In our times TT immunization was not in practice	50	1
Postponed until another time	3	-
Fear of injection	6	4
Vaccinator was absent	-	1
Fear of adverse reactions	-	-
Busy with household works	-	2
Others	3	-

Table 12: Coverage of the 10th NID Campaign

Round	OPV (%)	Vit. A (%)
1 st round	99	95
2 nd round	99	-
Both rounds	99	-
Any round	100	-

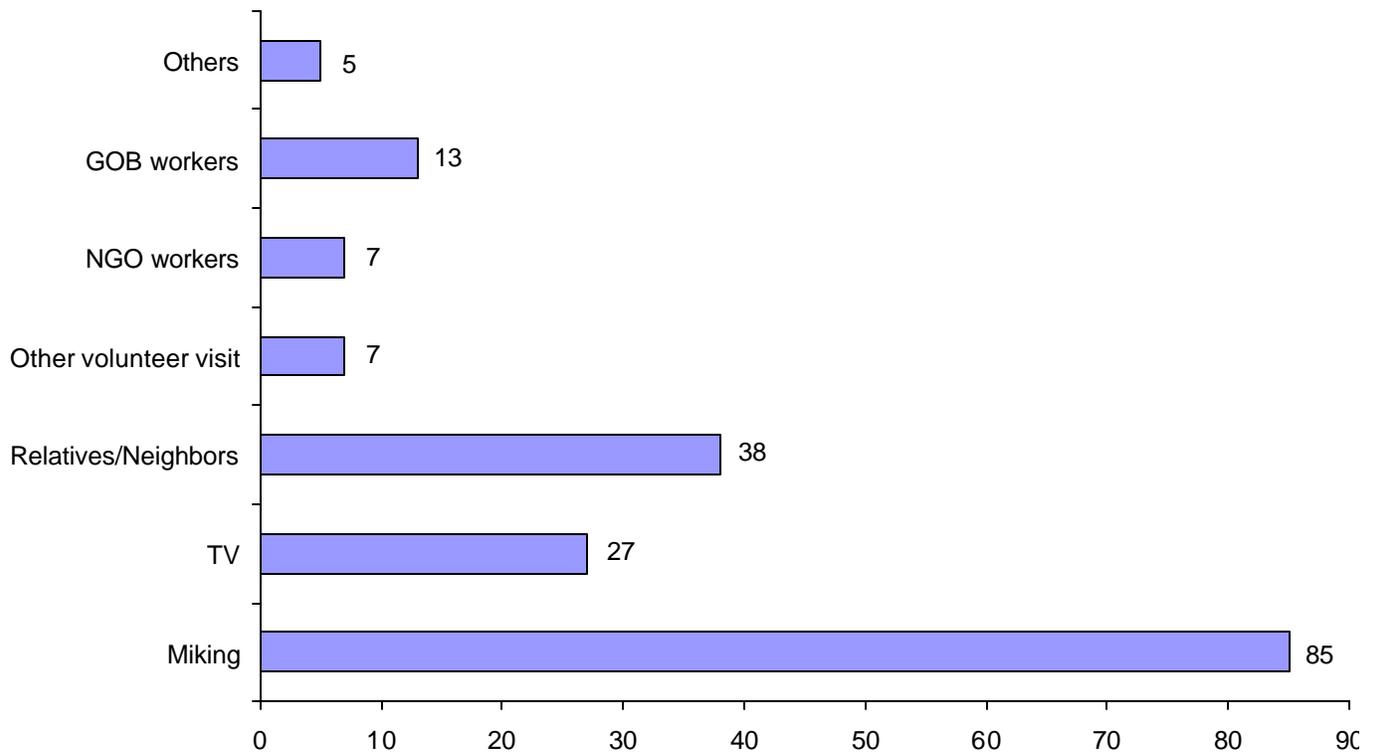
Table 13: Sources of OPV during the 10th NIDs

Sources of OPV	1st Round		2nd Round	
	#	%	#	%
NID site	207	99	202	97
Child to child search	1	1	7	3
Total	208	100	209	100

Table 14: Reasons for non-immunization of OPV from NID sites during 10th NID campaign

Reasons	1st Round (%) (N=3)	2nd Round (%) (N=8)
Did not know about NID	33	13
Forgot the date	-	25
Too busy	-	38
Religious/social barrier	34	-
Child was away from home	-	12
Others	33	12

Chart 7: Sources of information about the 10th NID campaign



Annex-A**List of Selected Clusters for the Survey**

Ward no.	Mohalla Name	Total Population	Cluster No.
1	Chandmari Colony	864	1
	Char Kurigram	1323	2
	Guati para	1128	3
	Mollah Para	845	4
	Mistry Para	701	5
	Noyagram	561	6
	Puraton Post Office para	1076	7
	Puraton Station Para	395	8
2	Balatari Para	575	9
	Chamrar Godown Para	620	10
	Kani Para	629	11
	Dawai Para	338	12
	Gosti Para	899	13
	Hadi Para	2318	14
	Hal Majhi Para	378	15
	Kamar Para	722	16
	Mondol Para	416	17
	Mistry Para	432	18
	Sarder Para	542	19
	Tali para	1248	20
3	Baghdoba Para	522	21
	Bhelakopa	2550	22, 23
	College Para	1632	24
	Dakua Para	1494	25
	Hospital para	1409	26
	Krishnapur	2236	27
	Kumar Para	474	28
	Paik Para	861	29
	Uttar Kamar Para	739	30

Annex-B**List of Never Vaccinated Children Identified by Clusters**

Ward no.	Mohalla Name	Total Population	Cluster No.	Never vaccinated children
1	Puraton Post Office para	1076	7	1
2	Dawai Para	338	12	1
3	Bhelakopa	2550	22*, 23*	1*, 1*

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Survey coordination:

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Ms. Sultana Parvin Maya, Field Investigator

List of IOCH Survey/Research/Technical Reports

Survey Reports

1. Vaccination Coverage Survey of the Slums of Rajshahi City Corporation - January 2000. Survey Report No. 1, May 2000
2. Vaccination Coverage Survey of the Selected Unions along the North-western Border of Bangladesh - February 2000. Survey Report No. 2, June 2000
3. Vaccination Coverage Survey of the Selected Unions along the South-west Border of Bangladesh - February 2000. Survey Report No. 3, July 2000
4. Vaccination Coverage Survey of the Slums of Khulna City Corporation - January 2000. Survey Report No. 4, July 2000
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