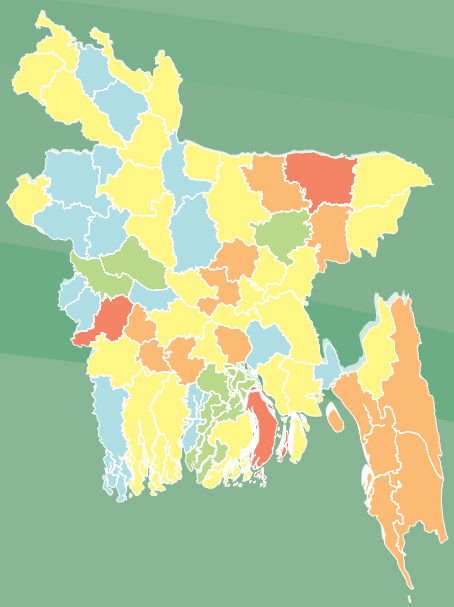
BANGLADESH

EPI

COVERAGE EVALUATION SURVEY

2015



EXPANDED PROGRAMME ON IMMUNIZATION (EPI)
Directorate General of Health Services (DGHS)
Mohakhali, Dhaka-1212, Bangladesh

স্বাস্থ্য ও পরিবার কল্যাণ মন্ত্রণালয়

EPI Coverage Evaluation Survey 2015

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Contributors to the Study	:	Professor Dr. Md. Shahadat Hossain, Team Leader, CSMR Md. Anwarul Hoque, CSMR
Technical Reviewers	:	Dr. Rezaul Islam, EPI, DGHS Kazi Shamim Hossain, EPI, DGHS Ms. Kohinoor Begum, EPI, DGHS Dr. Shantanu Gupta, UNICEF Dr. Riad Mahmud, UNICEF Dr. Jucy Merina Adhikari, UNICEF Dr. Jayantha Liyanage, WHO Dr. Stephen Chacko, WHO Md. Sharifuzzaman, WHO

June 2016

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Mohammed Nasim, MP
Minister
Ministry of Health and Family Welfare
Government of the People's Republic of Bangladesh

MESSAGE

It gives me immense pleasure to know that 'Expanded Programme on Immunization (EPI)' under Directorate General of Health Services has been completed 'EPI Coverage Evaluation Survey 2015' and is going to publish the report.

Today we can say EPI is one of the successful programs of Health sector in Bangladesh. It has enormously contributed in reduction vaccine preventable diseases of child by giving vaccines to the target population and eventually reducing child mortality and morbidity.

Government of Bangladesh is committed to provide basic health services to all with special emphasis on children and women. As vaccination is the gateway to primary health care as well as safe, effective and economical intervention, the country started EPI activities with the support of UNICEF, WHO in 1979 with the objective to reduce infant and maternal mortality from the six fearsome vaccine preventable diseases. At present, as reflection of government's continued endeavor to ensure health of children new vaccines are being added continuously. EPI vaccines are now covering protection against 10 dreadful vaccine preventable diseases.

Coverage Evaluation Survey (CES) is a very effective tool to monitor the progress and find out the weakness of the vaccination program. I honestly hope that managers will be benefited from the findings and recommendations of this survey and use it for making good plans and formulating effective strategies to reach every child under EPI targets.

During its long journey, EPI developed a fruitful partnership with a good number of development partners for which we are very much thankful. This year's survey shows that 82.5 % children were fully vaccinated, which was only 2% in 1985. My heartfelt gratitude goes to the dedicated field forces working tirelessly to achieve this commendable result.

I acknowledge with sincere gratitude the support rendered by UNICEF, WHO, GAVI and other cooperating partners for the implementing EPI programme in Bangladesh protecting our children and mother.

Joy Bangla, Joy Bangabandhu
Long live Bangladesh

Mohammed Nasim

Mr. Zahid Maleque, MP
State Minister
Ministry of Health and Family Welfare
Government of the People's Republic of Bangladesh

MESSAGE

It is my great pleasure to know that 'EPI Coverage Evaluation Survey (CES) Report 2015' under Directorate General of Health Services is going to be published.

The immunization programme of Bangladesh is widely acclaimed nationally as well as internationally due to its remarkable progresses made in last few decades. It has contributed immensely in achieving the MGD-4 by the country. Immunization contributes to improve health and life expectancy through its social and economic impact at national and community level.

Coverage Evaluation Surveys (CES) done every year by EPI, with the support from UNICEF and WHO, are very essential and effective tool to continue and sustain the success of the programme. It enables managers to monitor the progress and find out the weakness of the vaccination program and help them in making of good plans and formulating effective strategies to reach every child under EPI targets.

Since the official launching of the programme in 1979, the vaccination coverage is steady upwards trend and reached 82.5% from only 2% in 1985. It was possible due to the combined effort by Health & Family Planning officials and field workers of all levels.

I would like to thank and express my gratitude to all experts who made their valuable contribution to the CES-2015. I hope findings of this survey will be useful to all concerned.

Joy Bangla, Joy Bangabandhu
Long live Bangladesh

Mr. Zahid Maleque

Secretary
Ministry of Health and Family Welfare
Government of the People's Republic of
Bangladesh

MESSAGE

Government of Bangladesh is committed to provide basic health services to all with special emphasis on children and women. The Expanded Programme on Immunization (EPI) in Bangladesh is one of the successful programmes which aims to reduce child morbidity and mortality from vaccine preventable diseases.

The EPI Coverage Evaluation Survey (CES) is an important tool for estimation the level of vaccination status at national and sub-national levels. It also indicate the progress and achievement of the programme including the areas of concern i.e. reasons for left out, drop out, vaccination card retention and other quantitative and qualitative aspects of the vaccination programme issues. CES findings help the programme personnel for making good planning, developing strategies to ensure quality service delivery that can help to reach the objectives.

I request all officials to go through the survey report and identify why it had not been possible to reach every child and help us to design the programme accordingly so as to achieve desired level of coverage.

Finally, I would like to express my gratitude to UNICEF and WHO for providing financial and technical support in conducting the survey.

Syed Monjurul Islam

PREFACE

Government of Bangladesh is committed to provide basic health services to all with special stress on children and women. As vaccination is one the key interventions to attain primary health care as well as safe, effective and economic, the country started EPI activities with the support of UNICEF and WHO in 1979 with the objective to reduce infant and maternal mortality from the six fearsome vaccine preventable diseases i.e. Tuberculosis, Diphtheria, Pertussis, Tetanus, Poliomyelitis and Measles. With periodic introduction of new vaccines over the years, at present EPI vaccines are now covering protection against 10 dreadful vaccine preventable diseases.

This year's survey shows that 82.5% children were fully vaccinated, which was only 2% in 1985. My heartfelt gratitude goes to the dedicated field forces working tirelessly to achieve this commendable result. However, we are still missing a few children and there are geographical differences as well as the equity issue.

Coverage Evaluation Survey (CES) is a very effective tool to monitor the progress and find out the weakness of the vaccination program. I honestly hope that managers will use the findings and recommendations of this survey for making good plans and formulating effective strategies to reach every child under EPI targets.

I would like to express my sincere thanks to EPI, UNICEF and WHO for their support in conducting the EPI Coverage Evaluation Survey 2015. My sincere thanks to 'Centre for Social and Market Research (CSMR)' for carrying out this survey maintaining high standard quality.

Prof. Dr. Deen Mohd. Noorul Huq
Director General
Directorate General of Health services
Mohakhali, Dhaka-1212

FOREWORD

It's my great pleasure to write forwarding note for EPI Coverage Evaluation Survey (CES) 2015. Since 1991, every year Bangladesh has been conducting nationwide CES and now it has established itself as the most dependable monitoring tool to assess performance, achievements and progress of the Bangladesh Expanded Programme on Immunization (EPI).

The EPI is one of the successful programs of Health sector in Bangladesh. It has enormously contributed in reduction vaccine preventable diseases of child by giving vaccines to the target population and eventually reducing child mortality and morbidity.

The purpose of conducting CES 2015 was to assess the routine Childhood vaccination coverage; Measles Second Dose (MSD) coverage; TT vaccination coverage among women with children 0-11 months; Maternal and Newborn health care; TT5 Coverage and Vitamin A coverage among the children aged 6-59 months etc. The survey was conducted between October 20, 2015 and January 14, 2016.

This year's survey shows that 82.5 % children were fully vaccinated, which was only 2% in 1985. I would like to thank my dedicated field forces working tirelessly to achieve this result.

I would like to express my sincere thanks to EPI, UNICEF and WHO personnel whose sincere contributions help in revealing the 'EPI Coverage Evaluation Survey 2015' report. My sincere thanks to 'Centre for Social and Market Research (CSMR)' who successfully conducted this survey throughout the country and prepared authentic report.

We look forward to all concerns persons in the country for using the CES 2015 report.

Dr. Habib Abdullah Sohel
Director PHC &
Line Director-MNC&AH
Directorate General of Health services
Mohakhali, Dhaka

ACKNOWLEDGEMENT

Bangladesh has been conducting nationwide coverage evaluation surveys (CES) since 1991 as part of 'Expanded Programme on Immunization (EPI)'. The survey provides us National, Divisional, District and City Corporation level EPI performances. In 2015, The survey was conducted in all 64 districts,11 city corporations and 2 slums (in Dhaka and Chittagong City Corporations) using 30 cluster sampling methodology. This survey provides us a detail picture of the district and city corporation level immunization performances, which helps to analyse and identify low performing entities in order to take appropriate measures to improve the situation.

It is evident that immunization coverage under EPI is increasing over the years. The previous survey results reveals that the national valid vaccination coverage (FVC) was 80.7% in 2013 and 81.6% in 2014; while it has further increased one percentage point to 82.5% in 2015. These achievements has enormously contributed in reduction vaccine preventable diseases and eventually reducing child mortality and morbidity. Also helped in attaining the Millennium Development Goal-4 and to improve health and life expectancy.

I must congratulate all EPI Head Quarter personnel for supporting in planning, coordinating, and other aspects of this survey. I thankfully acknowledge UNICEF-Bangladesh for financial supports to undertake this survey. I also express my gratitude and thanks to UNICEF and WHO for their technical support and contributions in this survey. My sincere thanks to 'Centre for Social and Market Research (CSMR)' for supporting EPI through conducting the survey and preparing this report.

Finally hope this report would be useful to all concern.

Dr. Tajul Islam A. Bari
Program Manager, EPI & Surveillance
Directorate General of Health services
Mohakhali, Dhaka-1212

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ACRONYMS

ANC	Antenatal Care
BBS	Bangladesh Bureau of Statistics
BCG	Bacillus Calmette Guerin
BCC	Barisal City Corporation
CC	City Corporation
CCC	Chittagong City Corporation
CES	Coverage Evaluation Survey
Com CC	Comilla City Corporation
CSBA	Community Skilled Birth Attendant
DCC	Dhaka City Corporation
DNCC	Dhaka North City Corporation
DSCC	Dhaka South City Corporation
DPT	Diphtheria, Pertussis and Tetanus
EA	Enumeration Area
EPI	Expanded Programme on Immunization
FWA	Family Welfare Assistant
FWV	Family Welfare Visitor
GCC	Gazipur City Corporation
HA	Health Assistant
IPHN	Institute of Public Health Nutrition
IU	International Unit
KCC	Khulna City Corporation
MA	Medical Assistant
MDG	Millennium Development Goal
MNT	Maternal & Neonatal Tetanus
MR	Measles and Rubella
MSD	Measles Second Dose
NCC	Narayanganj City Corporation
NGO	Non-Government Organization
NID	National Immunization Days
NT	Neonatal Tetanus
OPV	Oral Polio Vaccine
PAB	Protected at Birth
PNC	Post-natal Care
PPS	Probability Proportional to Size
RCC	Rajshahi City Corporation
Rang CC	Rangpur City Corporation
SCC	Sylhet City Corporation
SACMO	Sub-Assistant Community Medical Officer
SPSS	Statistical Package for Social Science
TT	Tetanus Toxoid
UNICEF	United Nations Children's Fund
VAC	Vitamin A Capsule
WHO	World Health Organization

GLOSSARY

Cluster	The cluster is defined as an enumeration area which constitutes of on average with 120 households
Crude coverage	Crude vaccination coverage was defined as the vaccine given to the children where the exact age for starting vaccinations and/or interval between did not meet the EPI recommended schedule
Fixed Sites	EPI outreach centers and hospitals from which vaccine are received (consider only for NID)
Fully Vaccinated child	A child is considered as fully vaccinated if the child has received one dose of BCG, 3 doses of Pentavalent (diphtheria, pertussis, tetanus, Hep-B and Hib), 3 doses of polio and one dose of MR (Measles and Rubella) vaccines
Fully Vaccinated child by 12 months of age	A child is considered as fully vaccinated if the child has received all recommended dose according to the national immunization schedule by 12 months of age
Hard to Reach Area	Hard-to-reach area means char, haor, enclaves and hilly areas which is geographically partly or fully difficult to access. An area will be considered as hard-to-reach only when the time required for vaccine transportation from the UHC to the distribution point or from distribution point to the vaccination site is more than 2 hours using existing transport facility
Invalid dose	A dose is considered as invalid when it doesn't meet the immunization schedule criteria (dose given before a minimum age, or after a too short interval). For the multi-dose vaccine (Penta and OPV), if the document indicates that one of the earlier doses in a sequence was invalid but followed by valid doses then only the later dose will be considered as valid. Eg. Invalid penta1/OPV1: if 1st dose of Penta or 1st dose of OPV is given before 6 weeks of age of child Invalid penta2/OPV2: 2nd dose of Penta or 2nd dose of OPV is considered invalid if the interval between 1st & 2nd dose is less than 4 weeks Invalid Penta3/OPV3: 3rd dose of Penta or 3rd dose of OPV is considered invalid if the interval between 2nd & 3rd dose is less than 4 weeks Invalid MR 1st dose: if 1st dose of MR is given before 270 days or 9 months of age of child
Minimum age and minimum interval	The minimum age and intervals are used to determine if a dose is valid (i.e. physiologically efficacious).
Mohallas	Smallest identifiable area of urban area (municipalities, city corporation) which is known to the inhabitants as mohallas
MCV1	MR (measles containing vaccine) replaced the measles dose since it was introduced in 2012
Mouza	A revenue village with a jurisdiction list number and defined area is called mouza.
PAB	The newborn is protected if the mother received two valid doses of TT vaccine at least two weeks before delivery
Upazila	Lowest administrative unit (sub-district level)
Vaccination coverage	The proportion of individual in the target population who are vaccinated.
Valid dose	A dose that was administered when a child had reached the minimum age for the vaccine, and was administered with the proper interval between doses according to the national immunization schedule

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

Since it was inaugurated in 1979, Bangladesh's Expanded Programme on Immunization (EPI) has been an integral part of Bangladesh's efforts to reduce child mortality. From a crude fully vaccinated rate of 76.0 percent in 1995, the rate today has reached 94.2 percent. The tremendous improvement in EPI contributes substantially to Bangladesh's efforts to achieving Millennium Development Goal 4: Reducing Child Mortality Rates. Despite this remarkable achievement, it is yet to meet the childhood vaccination coverage objective, EPI has fixed a target of full vaccination coverage of 90 percent nationally and 85 percent in all districts and TT5 coverage among women of child-bearing age of 80 percent nationally and 75 percent at each district by 2018. Presently, the valid vaccination coverage rate by the age of 23 months nationally is 85.6 percent and can be as low as 82.5 percent in some divisions. So, the Government of Bangladesh (GoB), in collaboration with UNICEF, the World Health Organization (WHO), and other stakeholders, continues to identify obstacles and challenges to achieving the desired goals and seeks ways forward to overcome the barriers.

As one of its strategies to successfully implement EPI, the GoB periodically conducts EPI Coverage Evaluation Surveys (CES), which provide a scientific evaluation of the programme. The latest, CES was conducted in 2015. This report of CES 2015 presents the findings obtained from the household survey.

Both primary and the secondary stakeholders participated as survey respondents in this study. They were mothers/caregivers of children aged 0-11 months, 12-23 months, 18-29 months, 6-59 months, women aged 18-49 years. The study was carried out between October 20, 2015 and January 14, 2016.

The objectives of CES 2015 were to assess:

- Childhood vaccination coverage under routine EPI
- Measles Second Dose (MSD) vaccination coverage
- Status of TT Vaccination Coverage, protection at birth, ANC, micronutrient supplementation, delivery, PNC among the women having children less than one year old
- TT5 coverage among child bearing age women to assess the progress of the TT5 programme
- Vitamin A Coverage during the Vitamin A Plus campaign held on April 5, 2015
- Drop-out rates and quality (percentage of invalid doses, vaccination card availability, post-vaccination abscesses, other AEFI, reasons for left out and drop out and equity
- Trends in the vaccination coverage and drop-out rates at the national, divisional, city corporation and district levels
- Provide information as a basis for making concrete recommendations and planning for improving routine immunization activities

The findings are discussed in detail in Chapters 3 to 8 of this report.

METHODOLOGY

The World Health Organization's (WHO) 30 cluster sampling methodology was followed in this study. The study was quantitative in nature, where data were collected through face-to-face interviews with mothers/caregivers of children, women, and adolescent girls by visiting community households. There were five individual surveys targeting six different survey subjects. CES 2015 included 77 survey units, comprised of 64 districts, 11 city corporations, and 2 slums in Bangladesh: one in Dhaka and the other in Chittagong City Corporation. From each survey unit, 210 samples were covered. A total of 97,020 interviews, 16,170 from each survey, were conducted in 2,310 randomly selected mouzas/mohallas across. Thirty clusters from each survey unit were selected by following the systematic random sampling technique with Probability Proportion to Size (PPS). Respondents from each cluster were identified through a household listing operation and were selected randomly to administer the questionnaire.

FINDINGS

CHILDHOOD VACCINATION COVEARGE

National Coverage

Crude Vaccination Coverage by Age of 23 Months: Nationally, by age of 23 months 94.2 percent children had received all the eligible vaccines, irrespective of the whether the EPI-recommended age for administration and/or the interval between consecutive doses was met. BCG had the highest coverage (99.4 percent), with Penta1 close behind (99.3 percent), but with each subsequent dose, the rate progressively widened (Penta2 - 98.4 percent and Penta3 - 97.3 percent), with MR falling almost five percentage points to 94.4 percent (see Figure 1). A little variation was observed between rural (94.8 percent) and urban (91.7 percent) areas (see Figure 2).

Crude Vaccination Coverage by Age of 12 Months: Ninety percent of children received all the eligible vaccines by the age of 12 months, irrespective of the whether the EPI-recommended age for administration and/or the interval between consecutive doses was met. Again, BCG had the highest coverage (99.3 percent), followed closely by the Pentavalent doses, but falling considerably for MR (90.1 percent) (see Figure 3). Urban-rural analysis shows variation in the crude coverage between rural (90.8 percent) and urban (85.5 percent) areas (see Figure 4).

Valid Vaccination Coverage by Age of 23 Months: Valid coverage was defined as vaccines administered according to the EPI-recommended minimal age of the child and the recommended interval between doses. Nationally, 86.5 percent of the children received all doses of all antigens as scheduled, with the highest coverage being for BCG (99.4 percent). Penta1 coverage was 94.0 percent, Penta2 94.7 percent, and Penta3 94.1 percent. The coverage for MR, at 91.7 percent, was 7.7 percentage points lower than BCG (see Figure 5).

Valid Vaccination Coverage by Age of 12 Months: Overall, by age of 12 months 82.5 percent of children country wide received all scheduled vaccines, following EPI-recommended minimal ages for administration and valid intervals between doses. Valid BCG coverage, at 99.3 percent,

was the same as at 23 months, and the Pentavalent and OPV coverages were also almost exactly the same. Among all the antigens, valid MR coverage was the lowest (87.4 percent) (see Figure 7). Urban-rural analysis shows that rural children were more likely to receive valid doses (83.5 percent), compared to their urban counterparts (78.4 percent) (see Figure 8).

Coverage by Division

Crude Full Vaccination Coverage by Age of 23 Months: Crude full vaccination coverage was highest in Barisal (98.1 percent) and lowest in Sylhet (92.1 percent) divisions. Rangpur division achieved the second highest position with 96.5 percent coverage. The crude coverage was depicted as 95.2 percent in Khulna, 94.9 percent in Rajshahi, 93.6 percent in Chittagong, and 92.9 percent in Dhaka divisions (see Figure 9). The data indicate that the numbers of drop-outs from vaccination services attributed to the lower crude coverage.

Valid Full Vaccination Coverage by Age of 12 Months: Rajshahi division had the highest valid full vaccination coverage (86.1 percent), while Barisal division attained the second highest position, with 86.0 percent coverage. The valid vaccination coverage was 84.9 percent in Rangpur, 83.6 percent in Khulna, 81.6 percent in Chittagong, 81.1 percent in Dhaka, and 76.9 percent in Sylhet divisions (see Figure 9a). The coverage analysis and computation of valid coverage show that low drop-out rates, as well as the act of administering higher valid doses, contributed to the higher valid vaccination coverages.

Coverage by City Corporation

Crude Full Vaccination Coverage by Age of 23 Months: Nationally, urban coverage was observed to be 91.7 percent in CES 2015. Among the city corporations, the highest crude vaccination was found in Barisal City Corporation (BCC) (99.0 percent) and the lowest in Dhaka North City Corporation (DNCC) (84.8 percent). The crude vaccination coverage in other city corporations ranged between 85.2 percent in NCC and 97.6 percent in RCC (see figure 10).

Valid Full Vaccination Coverage by Age of 12 Months: Of the city corporations, Rajshahi City Corporation achieved the highest coverage, at 91.2 percent. The lowest coverage was observed in Dhaka North City Corporation (DNCC) (67.2 percent). The valid coverage in other city corporations was between 69.0 percent in NCC and 83.6 percent in BCC (see Figure 10a).

Coverage by Hard-to Reach Areas and Ownership of Mobile Phones

Valid Full Vaccination Coverage by Hard-to Reach Areas: A hard-to-reach area was defined as an area where two or more hours is required to reach it from the Upazila headquarters. Valid Full vaccination coverage was 3 percentage points higher in non-hard-to-reach areas than in hard-to-reach areas (83.0 percent vs.79.9 percent), which was true across all antigens (see figure 11).

Valid Full Vaccination Coverage by Age of 12 Months by the Ownership of Mobile Phones: In CES 2015, vaccination coverage was also analyzed by mobile phone ownership. A slight difference in coverage was noticed between those who owned mobile phones (82.8 percent) and those who did not (79.5 percent). As had been expected, the coverage of each antigen was also lower among those who did not have a mobile phone. Ownership of mobile ensure higher vaccination coverage due to easy access to mothers/caregivers to follow up and ensure subsequent doses (see figure 12).

Programme Quality

Incidences of Invalid Doses: A dose or antigen is considered to be invalid when the vaccine is administered without complying with the exact EPI-recommended minimal ages for starting the vaccine or with the minimum interval between the two consecutive doses. CES 2015 estimated the invalid doses for Penta1, Penta2, Penta3, and MR vaccines. Invalid doses were found to be most prominent for Penta3 (6.1 percent) and the least prominent for Penta1 (3.1 percent) across the country. The invalid doses of MR vaccine administered to children was also found to be 3.0 percent. A slight variation of invalid doses was noticed between urban and rural areas, with those in urban areas found higher in comparison with rural areas for both Penta and MR vaccines: invalid Penta1 was 3.3 percent, Penta2 4.8 percent, Penta3 6.5 percent and invalid MR was 3.4 percent in urban areas, while invalid Penta1 was found to be 3.0 percent, Penta2 4.6 percent, Penta3 6.0 percent and MR 2.9 percent in rural areas (see Figure 52).

The highest proportion of invalid Penta1 was administered in Sylhet division (4.4 percent) and the lowest in Rajshahi division (1.7 percent). Similarly, the highest invalid Penta2 (5.7 percent) and Penta3 (7.1 percent) were administered in Barisal division and the lowest in Rajshhi division (3.2 percent and 4.1 percent, respectively). Regarding invalid MR, Barisal division administered the highest invalid dose (4.8 percent), and lowest in Rajshahi (1.8 percent) (Appendix Table 6).

Among the city corporations, overall the highest invalid doses were found in SCC, with 7.0 percent invalid Penta1, 8.7 percent invalid Penta2, 10.7 percent invalid Penta3, and 1.8 percent invalid MR. The lowest invalid doses were in RCC (see Figure 54).

Vaccination Drop-out Rate: CES 2015 estimated the drop-out rates for Penta1-Penta3 and Penta1-MR. The drop-out rate from Penta1-Penta3 was defined as the proportion of children who received Penta1, but failed to receive Penta3. The drop-out rate from Penta1-MR was defined as the proportion of children who received Penta1, but failed to receive MR. Nationally, the Penta1-Penta3 drop-out rate was found to be 2.0 percent and the Penta1-MR drop-out rate was 4.9 percent as a whole (see Figure 55). Among the seven divisions, the Penta1-Penta3 drop-out rate was the highest in Dhaka division (2.6 percent) and the lowest in Barisal division (0.7 percent). Similarly, the Penta1-MR drop-out rate was the highest in Dhaka division (6.2 percent) and lowest in Barisal division (1.9 percent). In the other divisions, the Penta1-MR drop-out rate was between 5.4 percent and 3.2 percent (see Appendix Table 5).

Among the city corporations, the highest Penta1-Penta3 drop-out rate was observed in both DNCC and CCC (6.2 percent each), followed by NCC (4.9 percent), SCC (3.4 percent), DSCC (3.3 percent), KCC and Rang CC (2.9 percent each), GCC (2.4 percent), Com CC (1.9 percent), and BCC (0.5 percent). No drop-out from Penta1-Penta3 was observed in RCC. Similarly, the Penta1-MR drop-out rate was the highest (13.8 percent) in DNCC and the lowest (1 percent) in BCC. In the other city corporations, the Penta1-MR drop-out rate was between 2.4 percent and 12.6 percent (see Figure 57).

Adverse Events Following Immunization: Nationally, 1.4 percent of the mothers/caregivers of vaccinated children reported that their children developed abscesses after receiving Penta or MR vaccine. There was very little difference on the occurrence of abscesses after Penta and MR vaccine between the children of urban (1.6 percent) and rural (1.3 percent) areas (see Figure 65).

Card Retention Rate: The card retention rate was defined as the proportion of cards available during the survey against the total number of cards issued at the time of first vaccination. Nationally, 98.2 percent of the children received vaccination cards. Of those, 83.7 percent of the mothers/

care givers retained the cards, with the retention rate higher in rural areas (85.9 percent) than in urban areas (74.7 percent). Among rural divisions, the card retention rate was the highest in Khulna (92.6 percent), followed by Barisal (92.4 percent), Rangpur (91.5 percent), Sylhet (87.7 percent), Rajshahi (86.0 percent), Dhaka (83.0 percent), and Chittagong (80.1 percent) divisions. In comparison, among the city corporations, the card retention rate was the highest in BCC (82.9 percent) and the lowest in DSCC (46.0 percent). It was 81.6 percent in Rang CC, 81.3 percent in KCC, 78.4 percent in Com CC, 76.2 percent in RCC, 75.5 percent in CCC, 70.6 percent in SCC, 69.7 percent in NCC, 68.4 percent in GCC, and 63.8 percent in DNCC (see Figure 49-51).

Reasons for Never Vaccination: Among the surveyed children, less than 1 percent did not receive any vaccine. Table 5 presents reasons for never vaccinating children, with the reasons mentioned by the mothers/caregivers. The figure shows that about one-third (32.3.percent) of the mothers scared of side effect. By residence, rural were more scared of side effect compared to their urban counterparts (35.4 percent vs. 19 percent). Sixteen percent of the mothers/caregivers reported that they were busy with household's cores. Fifteen percent of them were unaware of vaccination service. More than one in ten mothers/caregivers reported that they don't believe in vaccination followed by unaware of schedule of subsequent doses (7.7 percent); and due to illness of child (6.3 percent).

Reasons for Partial Vaccination: About ten percent of the surveyed children received partial vaccinations. Thirty percent of the mothers/caregivers reported that they were busy with household's cores. About one-third of the mothers/caregivers residing in rural areas reported involvement with household chores for partial vaccination of their children, as compared to 26.4 percent in urban areas. Nationally, lack of awareness about schedule of MR doses was reported by 10.9 percent of the mothers/caregivers as a reason for partial vaccination, 9.5 percent in rural areas and 14.4 percent in urban areas. Another, 9.4 percent of the mothers reported about unawareness of 2nd or 3rd dose Penta/OPV as a reason for partial vaccination, 8.4 percent in rural areas and 11.9 percent in urban areas. A detail description of reasons for partial vaccination by rural divisions and city corporations are presented in the Table 8, 9 and Table 10

Knowledge about Common Side-effect of Vaccination

Vaccination can cause minimal undesirable side-effects, such as fever or local reactions at the injection site, CES 2015 assessed the knowledge of mothers/caregivers regarding minor side-effects after vaccination. Fever was found as the most reported side-effect as a whole. Overall, 92.6 percent of the mothers/caregivers, 88.6 percent from urban and 93.5 percent from rural areas reported knowing about it (see Figure 68).

MEASLES SECOND DOSE (MSD) COVERAGE

Eighty one percent of the children received valid MSD by age of 23 months across the country in CES 2015. Children from rural areas were slightly more likely to receive MSD than those from urban areas (81.5 percent vs. 76.4 percent) (see Figure 83). In contrast, 85.0 percent of the children received crude MSD nationally, with a slight variation noticed in coverage between rural and urban areas (85.9 percent in rural and 81.6 percent in urban areas) (see Figure 80).

Drop-out Rate from MR to MSD

Drop-out from the subsequent dose(s) of the same antigen or different antigen was the most notable obstacle in achieving the desired coverage target. A child was considered as a drop-out from MR, if s/he had failed to receive MSD after receiving MR. Nationally, the MR-MSD drop-out rate was found to be 9.8 percent. The drop-out rate was slightly higher (12.5 percent) in urban areas than that in rural ones (9.1 percent) (see Figure 89). However, by gender, no marked variation was observed between males and females (see Figure 89).

Among the seven rural divisions, the MR-MSD drop-out rate was the highest (11.2 percent) in Chittagong and the lowest (4.6. percent) in Barisal divisions. The rate was between 10.0 percent and 7.5 percent in the other divisions (see Figure 90). Among the city corporation MR-MSD drop-out was the highest in KCC (25.8 percent) and the lowest in BCC 1.4 percent (see Figure 91).

TT VACCINATION COVERAGE AMONG MOTHERS WITH 0-11 MONTHS OLD CHILDREN

Crude Coverage

Sixty-one percent of the mothers having 0-11 month-old children received 5 doses of TT vaccine across the country. Ninety-eight percent of them received TT1, 96.4 percent TT2, 89.1 percent TT3, and 76.3 percent TT4, respectively (see Figure 92).

Valid Coverage

Nationally, both the valid TT1 and TT2 vaccination coverages were about 97.7 and 96.3 percent. Valid TT3 vaccination coverage was 85.8 percent, TT4 68.5 percent and TT5 47.8 percent. Urban-rural analysis shows that TT1, TT2, TT3 and TT4 coverage were slightly higher in rural areas than those in urban areas. In contrast, the coverage of TT5 was 4.3 percentage points higher in rural areas compared to urban areas (48.7 percent vs. 44.4 percent) (see Figure 95).

Protection at Birth (PAB)

CES 2015 data show that countrywide 91.5 percent of the newborn were protected against tetanus at birth, with rural children slightly ahead of urban children in this context (91.7 percent vs. 90.8 percent). Among rural divisions children from Barisal (96.1 percent), Khulna (93.1 percent), Rajshahi (94.3 percent), Chittagong (92.3 percent) and Rangpur (91.7 percent) divisions were in higher position in terms of PAB than those in the other divisions. Children living in Sylhet division were found comparatively less protected (87.8 percent). The PAB was also quite good in RCC (98.6 percent), in BCC and Com CC (97.6 percent each),GCC (94.3 percent), Rang CC (93.8 percent), NCC (92.4 percent) and CCC (91.9 percent). However, the coverage was lower among the children in Sylhet City Corporation (82.4 percent), and Dhaka South City Corporation (83.8 percent). It was 87.1 percent in KCC and 85.2 percent in DNCC (see Figures 115 to 117).

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TT Vaccination Card Retention Rate

Nationally, 34.9 percent of the TT vaccination cards were found to be retained. The card retention rate was slightly higher in rural areas than that in urban areas (37.3 percent vs. 25.3 percent). Overall, in 93.0 percent of cases cards were issued at the time of TT vaccination. Only 32.5. Percent cards were available during data collection, while 60.5 percent of recipients lost them (see Figure 106).

TT5 VACCINATION COVERAGE AMONG CHILD BEARING AGE WOMEN

Crude TT5 Vaccination Coverage: Nationally, 57.1 percent of the women received all five doses of TT vaccines, with little variation in the coverage between rural and urban women (58.1 percent in rural and 53.3 percent in urban areas). Crude TT1 coverage was 96.0 percent, while TT2 was 94.2 percent, TT3 86.4 percent, and TT4 73.2 percent. A similar picture was observed both in rural and urban areas. In rural areas, the crude coverage of TT1, TT2, TT3, TT4 and TT5 were 96.6 percent, 94.8 percent, 87.4 percent, 74.4 percent, and 58.1 percent respectively. The corresponding figures were 93.8 percent, 91.7 percent, 82.3 percent, 68.6 percent, and 53.3 percent, respectively, in urban areas (see Figure 128).

Valid TT5 Coverage: More two-fifth (46.1 percent) of the surveyed women received all five doses of valid TT vaccine - 46.5 percent in rural and 44.6 percent in urban areas. Like crude TT coverage, valid TT coverage for the subsequent doses were also found to be decreasing (TT1 96.0 percent, TT2 94.0 percent, TT3 83.6 percent, TT4 66.7 percent, and TT5 46.1 percent). However, valid TT3 and TT4 coverages were slightly better in rural areas than in urban areas (TT3 coverage was 84.8 percent and TT4 67.7 percent in rural areas, as opposed to TT3 78.5 percent and TT4 62.9 percent in urban areas. In contrast, TT5 coverage was two percentage points higher in rural areas, compared to that in urban areas (46.5 percent vs. 44.6 percent) (see Figure 129).

MATERNAL AND NEWBORN HEALTH

Pregnancy and child-birth related complications are an important cause of maternal mortality. In Bangladesh, one in three women do not receive any antenatal care during pregnancy, and about three in five women deliver their babies without the assistance of a skilled birth attendant.

Antenatal Care

Antenatal Care Coverage: CES 2015 observed that two-third of mothers (67.0 percent) received any antenatal care (ANC) from medically-trained providers throughout the country. By residence, 71.6 percent women in urban areas and 65.9 percent women in rural areas received ANC from a medically-trained provider. According to the Bangladesh Demographic and Health Survey (BDHS) 2014, 63.9 percent of the women who gave birth within three years preceding the survey received ANC from a medically trained provider. However, Multiple Indicator Cluster Survey (MICS) 2012-2013 shows that 58.7 percent of the women who gave birth two years preceding the survey received ANC at least once from a medically trained provider (see Figure 146).

Number of Antenatal Visits: The minimum number of antenatal care visits during pregnancy recommended by Government is four, which has been recommended by UNICEF and WHO. A little over one-third of the mothers (34.8 percent) made four or more ANC visits across the country, slightly more for urban mothers (42.1 percent) than rural mothers (32.9 percent) (see Table 18).

Iron and Calcium Supplementation: Nationally, 72.4 percent women took iron tablets and about two-thirds (64.5 percent) took calcium tablets during their last delivery (see Figure 148 or 149).

Delivery Care

Place of Delivery: Nationally, 46.8 percent deliveries were made at a health facility, while 53.2 percent were at home. A 16 percentage point's variation was observed in health facility deliveries between rural and urban areas (43.5 percent and 59.7 percent, respectively). A private hospital/ clinic was the most common place for institutional deliveries (29.4 percent) (see Table 24).

Delivery Assistance: Reducing maternal deaths from birth complications is possible by increasing the number of births attended by a medically-trained provider (doctor, nurse, or trained midwife). CES 2015 findings show that a medically-trained provider attended 49.1 percent of total births nationally. The numbers of birth attended by medically-trained providers was remarkably higher in urban areas (60.4 percent) than that in rural areas (46.2 percent) (see Table 25).

Postnatal Checkup for Mother and Newborn

Nationally, 45.7 percent of women and 46.3 percent of newborns received a postnatal checkup (PNC) within two days of delivery from medically-trained providers. In contrast, 40.4 percent of mothers and 41.9 percent of newborns did not receive any postnatal care.

VITAMIN A COVERAGE AMONG 6-59 MONTHS OLD CHILDREN

A Vitamin-A Plus campaign was held in April 2015. Nationally, 79.6 percent of infants aged 6-11 months and 87.3 percent of children aged 12-59 months received Vitamin A capsules. No remarkable variation in coverage was observed between urban and rural areas. However, 37.6 percent of the mothers with children aged 0-11 months – 37.5 percent in urban and 37.7 percent in rural areas – received Vitamin A capsules after delivering their last child (see Figure 154).

DISCUSSION AND RECOMMENDATIONS

Nationally, by crude vaccination rates, 94.2 percent children received all the eligible vaccines, irrespective of the age and/or minimum intervals between doses, however in-terms of valid coverage, 82.5 percent of the children received all the scheduled vaccines by the age of 12 months. The difference between crude and valid coverage is about 12 percentage points. Urban-rural analysis shows that rural children were more likely to receive valid doses (83.5 percent) compared to their urban counterparts (78.4 percent). Out of 64 districts, 21 districts have reached the target of full vaccination coverage 85 percent and above. Eight districts having 85 percent coverage in 2014 are now below 85 percent in 2016, sustaining the high coverage is also challenging.

The BCG, the first dose vaccination coverage was 99.4 percent, however, the crude full coverage was 94.2 percent, which means 5.2 percent of the surveyed children dropped after receiving BCG. In contrast, valid full vaccination coverage was 82.5 percent, which was about 12 percentage points lower from crude coverage (94.2%). Drop-out and administering invalid dose attributed to such difference in coverages.

RECOMMENDATIONS

Based on the above detailed findings on the various survey components of CES 2015, the EPI authorities may consider the following recommendations for further improvement of the program:

- Listing of the drop-outs for every vaccination dose on a regular basis, and introduce default tracking system through domiciliary visits or using new technology devices
- Reduction of invalid doses and drop-out rates would significantly improve vaccination coverage
- Biometric or mobile phone technology can be used to avoid invalid doses and ensure timely vaccinations
- To maintain equities while sustainably increasing EPI in the chronically and emerging low performing districts and city corporations, special attention should be given to those areas.
- Experience of implementation of evidence-based planning & budgeting to address the bottlenecks could be shared with the low performing areas to replicate the ideas or ways of working of the high performing areas
- Regular monitoring the online reporting on DHIS-2 and to ensure data quality and timeliness of reporting
- Workers should be encouraged and a competitive environment should be maintained to provide better services

EPI authorities may set mechanisms to ensure a periodic review of the micro plan by upazilas through a bottle-neck analysis. Then, needs-based measures should be taken to address the weaknesses of the programme in the respective upazilas.

Table 1: Findings of Key Indicators

Indicators		BCG	OPV1	PENTA1	OPV2	PENTA2	OPV3	PENTA3	MR	FVC
Crude Vaccination Coverage by Age of 23 Months	National	99.4	99.3	99.3	98.4	98.4	97.3	97.3	94.4	94.2
	Urban	99.4	99.3	99.3	97.7	97.7	96.0	96.0	92.3	91.7
	Rural	99.4	99.3	99.3	98.5	98.5	97.6	97.6	94.9	94.8
	Male	99.4	99.4	99.4	98.5	98.5	97.8	97.8	95.0	94.8
	Female	99.3	99.2	99.2	98.3	98.3	96.8	96.8	93.7	93.5
By Division	Barisal	100.0	100.0	100.0	99.8	99.8	99.3	99.3	98.1	98.1
	Chittagong	99.1	99.1	99.1	98.0	98.0	97.2	97.2	93.7	93.6
	Dhaka	99.5	99.4	99.4	98.2	98.2	96.8	96.8	93.3	92.9
	Khulna	99.5	99.4	99.4	98.8	98.8	97.9	97.9	95.2	95.2
	Rajshahi	99.5	99.3	99.3	98.6	98.6	97.5	97.5	95.2	94.9
	Rangpur	99.8	99.7	99.7	99.5	99.5	98.5	98.5	96.5	96.5
	Sylhet	97.9	97.5	97.5	96.4	96.4	95.1	95.1	92.4	92.1
Valid Vaccination Coverage by Age 12 Months	National	99.3	93.9	93.9	94.5	94.5	93.6	93.6	87.4	82.5
	Urban	99.4	93.3	93.3	93.4	93.4	91.8	91.8	83.3	78.4
	Rural	99.2	94.0	94.0	94.7	94.7	94.0	94.0	88.4	83.5
	Male	99.3	94.3	94.3	94.6	94.6	94.2	94.2	88.6	83.8
	Female	99.2	93.5	93.5	94.3	94.3	92.9	92.9	86.2	81.1

By Division	Barisal	100.0	95.5	95.5	96.4	96.4	96.6	96.6	90.6	86.0
	Chittagong	98.9	93.3	93.3	94.5	94.5	93.6	93.6	86.1	81.6
	Dhaka	99.4	93.3	93.3	93.7	93.7	92.6	92.6	86.1	81.1
	Khulna	99.3	94.4	94.4	94.3	94.3	94.1	94.1	88.8	83.6
	Rajshahi	99.4	95.9	95.9	95.5	95.5	94.9	94.9	90.2	86.1
	Rangpur	99.7	94.9	94.9	95.5	95.5	94.5	94.5	90.1	84.9
	Sylhet	97.7	90.7	90.7	92.7	92.7	91.4	91.4	82.6	76.9

	National	Urban	Rural	Barisal	Chittagong	Dhaka	Khulna	Rajshahi	Rangpur	Sylhet
Drop-out Rate										
• **Penta1-Penta3**	2.0	3.3	1.6	0.7	1.9	2.6	1.5	1.9	1.3	2.4
• **Penta1-MR**	4.9	7.1	4.4	1.9	5.4	6.2	4.2	4.2	3.2	5.3
Incidence of Invalid Dose										
• **Invalid Penta1**	3.1	3.3	3.0	3.6	3.7	3.2	2.6	1.7	2.6	4.4
• **Invalid Penta2**	4.6	4.8	4.6	5.7	4.8	4.7	4.6	3.2	4.6	5.5
• **Invalid Penta3**	6.1	6.5	6.0	7.1	6.5	6.2	5.9	4.1	6.6	7.0
• **Invalid MR**	3.0	3.4	2.9	4.8	3.6	2.6	2.9	1.8	2.5	4.7
Card Retention Rate	83.7	74.7	85.9	91.3	79.6	78.4	91.7	85.4	91.0	86.5
Measles Second Dose (MSD) Vaccination Coverage										
• **Crude MSD Coverage**	85.0	81.6	85.9	93.3	82.9	83.0	87.2	87.3	86.5	83.5
• **Valid MSD Coverage by 23 Months**	80.5	76.4	81.5	87.9	77.8	78.2	82.7	83.4	83.8	77.4

Indicators	**National**	**Urban**	**Rural**	**Barisal**	**Chittagong**	**Dhaka**	**Khulna**	**Rajshahi**	**Rangpur**	**Sylhet**
TT Vaccination Coverage among Mothers with Children 0-11 Months Old										
• **Crude TT1**	97.7	96.0	98.2	98.8	98.6	96.2	98.6	99.0	98.8	96.2
• **Crude TT2**	96.4	94.5	96.9	97.1	97.4	94.9	96.7	98.0	97.9	94.3
• **Crude TT3**	89.1	85.0	90.1	89.9	91.1	86.0	89.6	91.5	91.6	88.5
• **Crude TT4**	76.3	72.4	77.3	76.6	78.6	73.3	75.3	79.3	78.3	76.9
• **Crude TT5**	61.3	57.1	62.3	61.2	65.3	57.7	58.8	63.2	62.5	65.6
• **Valid TT1**	97.7	96.0	98.2	98.8	98.6	96.2	98.6	99.0	98.8	96.2
• **Valid TT2**	96.3	94.5	96.8	96.9	97.4	94.8	96.7	97.9	97.9	94.3
• **Valid TT3**	85.8	81.1	86.9	87.3	87.7	81.9	87.1	88.6	88.1	85.9
• **Valid TT4**	68.5	64.2	69.6	69.7	70.7	64.8	69.2	71.7	69.4	70.6
• **Valid TT5**	47.8	44.4	48.7	47.4	49.2	45.1	46.9	50.2	47.4	54.9
Newborn Protected at Birth	91.5	90.8	91.7	95.8	92.8	89.3	92.6	94.5	91.5	87.5
TT5 Vaccination Coverage among aged 18-59 Years Old										
• **Crude TT1**	96.0	93.8	96.6	99.4	96.1	93.1	97.7	97.7	99.3	95.6
• **Crude TT2**	94.2	91.7	94.8	98.6	94.9	90.5	96.5	95.2	97.8	94.0
• **Crude TT3**	86.4	82.3	87.4	94.5	87.9	81.0	88.9	87.4	90.9	88.4
• **Crude TT4**	73.2	68.6	74.4	84.8	74.9	67.0	73.9	73.5	78.2	78.7
• **Crude TT5**	57.1	53.3	58.1	67.8	59.7	50.8	54.4	57.9	63.3	63.8
• **Valid TT1**	96.0	93.8	96.6	99.4	96.1	93.1	97.7	97.7	99.3	95.6
• **Valid TT2**	94.0	91.6	94.6	98.6	94.7	90.3	96.5	95.1	97.7	93.9
• **Valid TT3**	83.6	78.5	84.8	92.7	85.1	77.5	86.5	84.7	87.8	86.8
• **Valid TT4**	66.7	62.9	67.7	77.7	68.5	61.0	69.4	65.9	68.9	73.6
• **Valid TT5**	46.1	44.6	46.5	55.3	46.0	42.2	45.3	45.7	49.7	53.8

CHAPTER 1

INTRODUCTION

INTRODUCTION

1.1 PROFILE OF BANGLADESH

History

Bangladesh has emerged as an independent sovereign country in the face of world atlas in 1971, after a nine-month war of liberation where 3 million people have sacrificed their lives.

Geographical location

Located in Southern Asia, Bangladesh is bordered by India to the north, west and east, Myanmar to the south-east, and the Bay of Bengal to the south. The country has a total land 147,570 square kilometers (56,977 square miles). Rather a low-lying country and occupying one of the largest river deltas in the world, Bangladesh is comprised primarily of floodplains, with scattered hills in its eastern and northern parts.

Religion and Culture

Approximately 89 percent of the population is Muslim, with the rest of the population comprised of Hindus (9.6 percent), Buddhists (0.6 percent), and Christians (0.3 percent). Although over 98 percent of the people speak Bangla, English is widely spoken, as well. The country's rich cultural traditions are found in its archaeological sites, sculptures, terracotta, architecture, museums, archives, libraries, classical music, dance, paintings, dramas, folk arts, festivals, and ethnic diversities.

Population and Demography

As of 2014, the population of Bangladesh was 159.1 million. Bangladesh is one of the most densely-populated countries in the world, with 1,221.1 people living per square km. About 34 percent of the population lives in urban areas. Life expectancy at birth for both the sexes is 72 years.[1] The average household size is 4.35[2].

1 World Bank
2 Socio-Economic and Demograpic Report 2011, BBS

Localities

Bangladesh is divided into seven administrative divisions, in which there are 64 districts, with each district is subdivided into a number of upazilas, which in turn consist of several unions. Under each union there are nine wards. Again, there are several villages in one ward. The city corporations and municipalities are denoted as urban areas. At present there are 11 city corporations and 324 municipalities in the country[3]. The city corporations are divided into zones and wards. In each ward of the city corporation, there are several paras/mohallas. Similarly, each municipality is divided into different wards, also with several paras/mohallas each

1.2 BACKGROUND OF EPI

In Bangladesh, EPI was inaugurated in the year 1979. However, the national vaccination coverage remained less than 2 percent until 1985. Committing to the Global Universal Child Immunization Initiative, the the aim of vaccinating all infants against six vaccine-preventable diseases. In the course of time, new vaccines were introduced into the routine vaccination schedule under EPI in Bangladesh. In last eigth years, EPI has introduced four antigens into the routine vaccination schedule: 1) measles and rubella (MR) vaccine, at 9-month-old children and, 2) Measles Second Dose (MSD) at 15-months of age, 3) Pneumococal Conjugated Vaccine (PCV) and 4) IPV vaccine.

In rural areas, the EPI programme is implemented by the Ministry of Health and Family Welfare (MoHFW), while in urban communities, the programme is implemented by the Ministry of Local Government, Rural Development and Cooperatives; MoHFW oversees vaccines and other logistics throughout the country.

Among rural communities, the existing immunization programme strategy is based on a model of eight outreach sites per ward (old), covering two vaccination sessions per week. At the village level, vaccinations are administered by health assistants with the help of Family Welfare Assistants appointed by MoHFW. Vaccination services in urban areas are provided through a public-private partnership. Although the city corporations (CCs) and the municipal governments are responsible for providing EPI services, 95 percent of the vaccinations are conducted by different national-level NGOs, with the remaining 5 percent being delivered by CCs and municipalities. The CCs assist NGOs in planning, monitoring, and evaluation.

The government-led programme of EPI is a noteworthy example of successful collaborative efforts between the UNICEF, WHO, and other development partners. The tremendous success of EPI in Bangladesh contributes significantly to achieving Millennium Development Goal 4: reducing child mortality rates. For its outstanding performance in achieving Millennium Development Goal 4, Bangladesh obtained a UN award in 2010.

3 Statistical Year Book 2014

To uphold the status, the Government of Bangladesh, UNICEF, WHO, and other stakeholders are making continuous efforts to identify obstacles or challenges and then ways forward to overcome the barriers for achieving the desired goals by meeting both the coverage and the disease reduction objectives. To meet the childhood vaccination coverage objective, EPI has targeted full vaccination coverage at 90 percent nationally and 85 percent in all districts and TT5 coverage among women of child-bearing age at 80 percent nationally and 75 percent at each district by 2018. The establishment of an EPI micro plan (evidence-based strategic planning) is one of the most successful key strategies in this aspect. To make more targeted and equity focued immunization activities in the districts and sub-districts, the annual district EPI micro-planning has been revised with introduction of Evidence Based Planning and monitoring of effective coverage of fully vaccinated children. This resulted in thorough analysis of problem and barriers, understanding the bottlenecks in the health system which prevents to get higher immunization coverage and planning of activities accordingly. Additionally, EPI takes the initiative for conducting supplementary immunization activities, like National Immunization Days (NIDs), measles catch-up campaigns, measles follow-up campaigns, MR campaign, etc., to supplement the routine immunization programme.

For the successful implementation of the different activities, EPI has incorporated various strategies, based on past experiences, as well as on the scientific evaluation of the programme periodically. The Coverage Evaluation Survey has proved to be the essential means for monitoring and evaluating the programme. Since 1991, EPI has conducted Coverage Evaluation Survey (CES) in each year, with the exceptions of 1996, 2004, 2008, and 2012. The last CES (21st CES) was conducted in 2015.

1.3 OBJECTIVES OF EPI CES

The objectives of CES 2015 were to assess the following:

- Childhood vaccination coverage under routine EPI
- Measles Second Dose (MSD) vaccination coverage among 18-29-months-old children
- Status of TT Vaccination Coverage, protection at birth, ANC, micronutrient supplementation, delivery, PNC among the women having children less than one year old
- TT5 coverage among child bearing age womento assess the progress of the TT5 programme
- Vitamin A Coverage during the Vitamin A Plus campaign held on April 5, 2015
- Drop-out rates and quality (percentage of invalid doses, vaccination card availability, post-vaccination abscesses, other AEFI, reasons for left out and drop out and equity
- Trends in the vaccination coverage and drop-out rates at the national, divisional, city corporation and district levels
- Provide information as a basis for makin concrete recommendations and planning for improving routine immunization activities

As a routine EPI performance evaluation, CES 2015 was conducted by the Center for Social and Market Research (CSMR), Bangladesh and funded by UNICEF. Technical collaborative support was provided by UNICEF, WHO and EPI.

1.4 ORGANIZATION OF THE REPORT

The CES 2015 report is organized in line with the objectives of the study, beginning with the Executive Summary as a stand-alone and relatively comprehensive write-up that contains all relevant key findings and a brief analysis of these. The report then consists of 9 chapters. Chapter 1 Introduction, Chapter 2 deals with the methodological aspects, which include data collection techniques, sample size determination, distribution of sample size, and sampling. Chapter 3 presents the findings of Childhood Vaccination Coverage survey. Chapter 4 describes the results gathered from the MSD Coverage survey. Chapter 5 describes the findings of TT vaccination coverage of mothers with children 0-11 months old. Chapter 6 presents the findings of the TT5 vaccination coverage survey of child bearing age women. Chapter 7 describes the situation of maternal and newborn health obtained from the Maternal and Neonatal Health Survey. Chapter 8 descried the coverage of Vitamin A during the Vitamin-A Plus Campaign. The major key findings and recommendations of the study are then presented in Chapter 9.

The text part of the report contains a total of 31 tables and 158 figures.

CHAPTER 2

METHODOLOGY

METHODOLOGY

2.1 SURVEY DESIGN

The World Health Organization's (WHO) recommended 30 clusters sampling methodology was followed in CES 2015 to ensure representative samples in different strata, such as districts, divisions, and city corporations. The survey was quantitative in nature. A total of 77 survey units were covered countrywide, included in the following: 7 divisions (Dhaka, Chittagong, Rajshahi, Khulna, Barisal, Sylhet, and Rangpur) and 11 City Corporations (Dhaka North City Corporation, Dhaka South City Corporation, Chittagong City Corporation, Rajshahi City Corporation, Khulna City Corporation, Barisal City Corporation, Narayanganj City Corporation, Rangpur City Corporation, Comilla City Corporation, Gazipur City Corporation and Sylhet City Corporation) and 2 slums (slum of Dhaka City Corporation and slum of Chittagong City Corporation).

2.2 INDIVIDUAL SURVEYS

Under CES 2015, the following five individual surveys were conducted:

- Childhood Vaccination Coverage Survey
- Measles Second Dose Coverage Survey
- Tetanus Toxoid Vaccination Coverage Survey (TT Survey) among mothers with 0-11-months old children
- Tetanus Toxoid Vaccination Coverage Survey among child bearing age women (TT5 Survey)
- Vitamin-A Coverage Survey among the 6-59 months old aged children

2.3 SURVEY SUBJECT

As has been mentioned earlier, CES 2015 included five individual surveys targeting six different survey subjects. The survey subjects are shown below by individual survey.

Childhood Vaccination Coverage Survey: According to EPI programme, a child should be vaccinated with all eligible antigens within 1 year after its birth. Therefore, children who were aged between 12 and 23 months and were born between 1 July 2013 and 30 June 2014 were one of the subjects of CES 2015.

Measles Second Dose (MSD) Coverage Survey: MSD should be received between 15 and 18 months after one's birth. Therefore, children who were aged between 18 and 29 months and were born between 01 January 2013 and 31 December 2013 were included in CES 2015.

TT Survey: Bangladesh achieved neonatal tetanus (NT) elimination status in 2008. To uphold and sustain this elimination status, EPI monitored this status through assessing mothers' TT status.

Therefore, mothers who had 0-11-month-old children and who delivered their children between 01 July 2014 and 30 June 2015 were the subjects of TT survey.

TT5 Coverage Survey: In the case of women, TT vaccination starts with the first dose after one attains the age of 15 years, and it takes 2 years and 7 months to complete all 5 doses of TT vaccine. To estimate TT5 coverage, women aged between 18-49 years were included in TT5 Vaccination Coverage Survey.

Vitamin A Coverage Survey: Two types of survey subjects were included in CES 2015:

1. Children aged 12 - 59 months and
2. Children aged 06 - 11 months

2.4 SAMPLE SIZE

The sample size of CES 2015 was calculated separately for each survey unit by following the WHO 30 cluster survey methodology. According to WHO 30 cluster sampling methodology, 30 clusters with seven survey subjects in each district/city corporation are considered to be representative to estimate the coverage by survey unit. Therefore, 30 X 7 = 210 samples were recommended to produce district/ city corporation survey unit-wise result. Based on these calculations, a total of 97,020 samples were estimated for 77 survey units in 6 different target groups in CES 2015. The following table shows the distribution of samples by survey units as well as the target audience.

Table 2: Distribution of Survey Units, Clusters and Survey Subjects by Division/City Corporation Areas

Divisions/City Corporations/ Slum areas	No. of survey units	No. of clusters	No. of 12-23 months old children (Child)	No. of 18-29 months old children (MSD)	No. of mothers with children of 0-11 months old (TT)	No. of women 18-49 years of age (TT5)	No. of 06-11 months old children (Vitamin A-1,00,000 IU)	No. of 12-59 months old children (Vitamin A capsule – 2,00,000 IU)
Barisal Division	6	180	1,260	1,260	1,260	1,260	1,260	1,260
Chittagong Division	11	330	2,310	2,310	2,310	2,310	2,310	2,310
Dhaka Division	17	510	3,570	3,570	3,570	3,570	3,570	3,570
Khulna Division	10	300	2,100	2,100	2,100	2,100	2,100	2,100
Rajshahi Division	8	240	1,680	1,680	1,680	1,680	1,680	1,680
Rangpur Division	8	240	1,680	1,680	1,680	1,680	1,680	1,680
Sylhet Division	4	120	840	840	840	840	840	840
City Corporation	11	330	2,310	2,310	2,310	2,310	2,310	2,310
Slum of DCC	1	30	210	210	210	210	210	210
Slum of CCC	1	30	210	210	210	210	210	210
Total	**77**	**2,310**	**16,170**	**16,170**	**16,170**	**16,170**	**16,170**	**16,170**

2.5 SAMPLING

Selection of Primary Sampling Units and Survey Subjects

Like previous CESs, a Systematic Random Sampling technique was followed in CES 2015. The Bangladesh Bureau of Statistics (BBS) has developed the list of all mouzas and mohallas. Using this list, a sampling frame with all mouzas and mohallas in a district/city corporation was prepared, from which 30 mouzas/mohallas were selected for each survey unit. In total, 2,310 clusters were selected country- wide. The detailed sampling technique is discussed below.

The following four steps were followed for selecting the samples under CES 2015:

Step 1: Taking into consideration all the mouzas and mohallas available, a sampling frame was prepared. Then, 30 mouzas/mohallas were selected by using the systematic random sampling technique with Probability Proportion to Size (PPS).

Step 2: Following the segmentation method, a mouza/mohalla was divided into segments in such a way that each segment comprises 120 households. Then one segment was selected randomly and was considered to be the final Primary Sampling Units of CES 2015.

Step 3: A list of all eligible respondents was prepared separately for each category of survey through a household listing exercise. Finally, seven survey subjects were selected randomly from each category and administered the survey questionnaire.

Step 4: Interviews were conducted with the selected samples through a pre-designed questionnaire

2.6 QUESTIONNAIRE

Structured questionnaires were used to obtain data for CES 2015. Each questionnaire was pre-tested to check the consistency, language, time, and other difficulties that would be encountered during the interviews. Findings from pre-testing were incorporated into the questionnaire and were finalized with technical assistance from UNICEF, WHO, and EPI-DGHS. Five separate survey tools were prepared for five individual surveys: Child form; MSD form; Maternal and Neonatal Health form; TT5 form; and Vitamin-A Plus Campaign form. In addition, the household listing form and sampling frame for each target group were prepared and used. All types of questionnaires are attached in the Appendix as ready reference.

2.7 IMPLEMENTATION OF THE SURVEY

2.7.1 Recruitment

Recruitment of quality control officers, supervisors, and interviewers took place in October 2015. One's educational attainment, previous experiences in conducting CES or similar kind of study, honesty and sincerity, team spirit and ability to work in any place for longer period, results of written test, mock test, and field test as well as his/her performance during the period of training were considered. The best performers were selected as Quality Control Officers and Supervisors.

2.7.2 Training

A seven-day exclusive participatory training programme was held for the field personnel from 6-12 October, 2015. The training programme included classroom lectures, using multimedia, demonstration interviews, role-playing, field practices, and reviewing of problems. Present in the training programme as resource persons were Director, Primary Health Care and Line Director Maternal, Neonatal, Child & Adolescent Health; Programme Manager, EPI and Surveillance; Assistant Director, EPI and Surveillance; Deputy Programme Manager, EPI & Surveillance; Deputy Programme Manager, Field Services, EPI; Deputy Programme Manager, Training, EPI; Training Officer, EPI; and Statistical Officer, EPI. Additionally, the Immunization Specialist from UNICEF and National Professional Officer, EPI Surveillance and Data Manager from WHO also provided technical input as resource persons.

2.7.3 Fieldwork/Data Collection

The data collection for CES 2015 was carried out over a period of 75 days, starting from October 20, 2015 and ending January 14,2016. Forty teams were involved in the data collection process, with each team comprised of three members: one Supervisor and two Field Interviewers. Moreover, 20 interviewers and 10 supervisors worked as reserve field resources. In addition to the supervisors, 10 Quality Control Officers were involved in maintaining quality control, and one consultant was engaged to monitor and check data quality from time to time over the entire period of field activities. Field visits were also accompanied by personnel from EPI-Directorate General of Health Services, UNICEF, and WHO to monitor the field activities.

2.7.4 Data Management and Statistical Analysis

A Statistical Package for Social Science was used for analyzing the data. A series of activities were undertaken to manage and analyze the data, which included the following: data cleaning, processing, coding, data punching, quality control, and final analysis to obtain the required output. Data obtained from the field under CES 2015 were handled by using the database software FOXPRO version 2.6, and cleaning was done by using the software Clipper Version 5.3.

2.8 WEIGHTING

Weight was assigned for estimating the national and divisional coverage for each indicator of every survey component.

CHAPTER 3

CHILDHOOD VACCINATION COVERAGE

CHILDHOOD VACCINATION COVERAGE

3.1 CHILDHOOD VACCINATION

Children may inherit some immunity against some specific infections from their mothers to protect themselves, with variant durability, against those diseases. In the course of time, this type of immunity eventually comes to a point where it requires active or passive immunization to have the desired immunity to protect oneself from the specific disease. At present, EPI in Bangladesh deals with vaccines against a number of fatal diseases under the routine childhood vaccination schedule. These diseases are the followings: Childhood Tuberculosis, Diphtheria, Pertussis, Tetanus, Hepatitis B, *Hemophilus Influenza type b*, Poliomyelitis, Measles, and Rubella.

The BCG vaccine provides protection against childhood tuberculosis; the Oral Polio Vaccine (OPV) provides protection against Poliomyelitis; the Pentavalent (DPT+Hep-B+Hib) vaccine provides protection against Diphtheria, Pertussis, Tetanus, Hepatitis B, and *Hemophilus Influenza type b*; and the Measles and Rubella (MR) vaccine provides protection against Measles and Rubella. For a quick understanding about the current childhood vaccination schedule under EPI in Bangladesh, the following table provides information about diseases protected by the vaccines, number of dose(s), minimum interval between the doses and starting time.

Table 3: EPI Childhood Vaccination Schedule

Name of Diseases	Name of vaccine	Number of doses	Minimum interval between doses	Starting time
Tuberculosis	BCG	1	-	At Birth
Diphtheria, Pertussis, Tetanus, Hepatitis-B, Haemophilus Influenza type b(Hib)	Pentavalent (DPT, Hep-B, Hib)	3	4 weeks	6 weeks
Poliomyelitis	OPV	4*	4 weeks	6 weeks
Measles and Rubella	MR	1	-	9 months (270 days)
Measles	Measles Second Dose (MSD)	1	-	15 months

* The 4th dose of OPV is given with the MR vaccine

3.2 CHILDHOOD VACCINATION COVERAGE

A child who has received all the doses of all antigens as recommended in the EPI programme under the childhood vaccination schedule is considered to be fully vaccinated. The EPI has a WHO-recommended vaccination schedule to administer and complete the required doses of all antigens. According to the EPI childhood vaccination schedule, a child should receive all eligible vaccines within one year of age, complying with the recommended minimal age for starting the vaccines and the intervals between the consecutive doses. Two types of coverage – crude and valid – were estimated and analyzed as per WHO guidelines and presented in CES 2015.

Valid coverage informs us that the first dose of a vaccine was given at the recommended age and the recommended minimum interval between doses was maintained. Therefore, any dose of a scheduled vaccine received by a recipient that was administered at the appropriate age and at the minimum time interval between the doses was considered as a valid dose. If any child received all the valid doses within age of 12 months, CES termed it as valid coverage by age of 12 months. And, if s/he received all the valid doses within age of 23 months, CES termed it as valid coverage by age of 23 months. Conversely, the coverage was defined as crude when a child received all the scheduled vaccines, whether or not the recommended starting age or intervals between the doses were complied with as recommended by EPI Bangladesh.

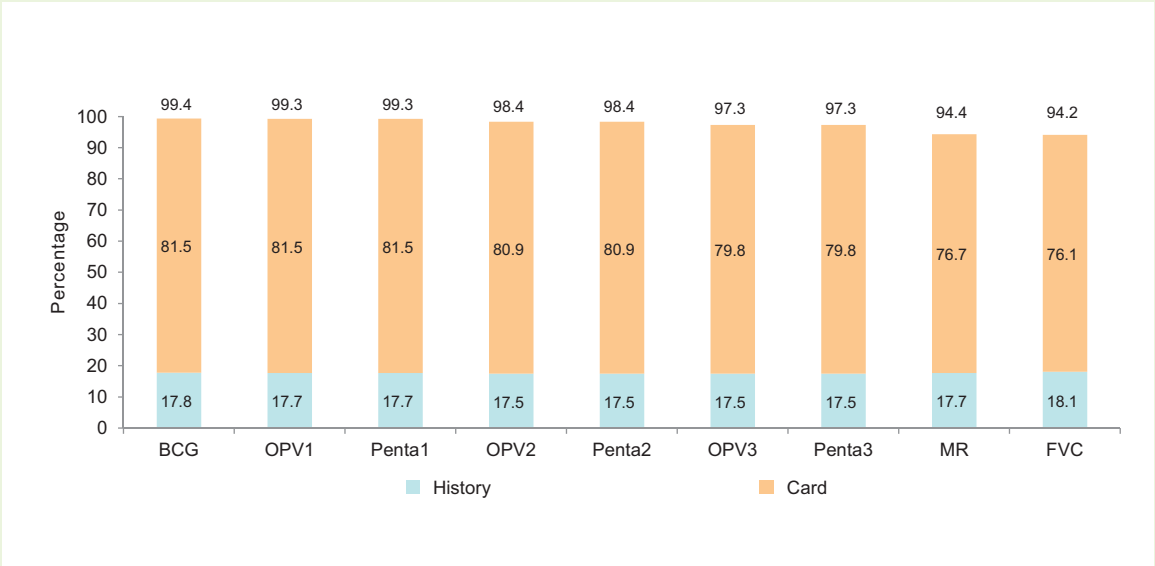
3.3 COVERAGE RATES FROM CARD AND HISTORY

Total coverage is an aggregated result obtained from both vaccination cards and history. Information about CES 2015 was gathered from those two sources: card and history. For children who didn't have a vaccination card, their vaccination information was recorded by taking their history from their mother/ caregiver. CES 2015 analyzed the coverage of both the sources separately. The findings are presented below.

3.3.1 Levels of Crude Vaccination Coverage by Age of 23 Months

Crude vaccination coverage was defined as the vaccines given to children when the exact age for starting the vaccination and/or the interval between the doses as recommended in the EPI schedule were or were not met. Information about the child's vaccinations was obtained from children aged 12-23 months, of whom 82.5 percent had vaccination cards. Figure 1 presents crude vaccination coverage separately obtained from two sources: cards and history.

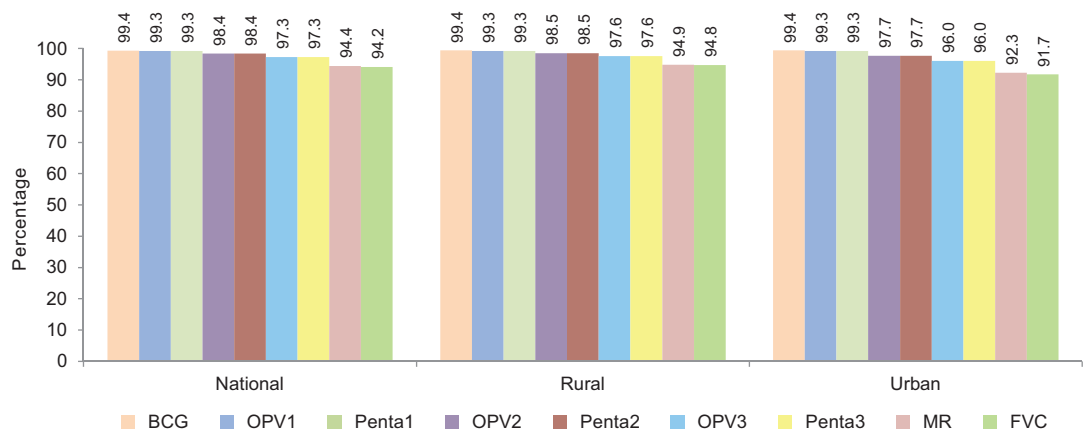
Figure 1: Crude Vaccination Coverage by Age of 23 Months at National Level by Card and History in 2015



Nationally, 94.2 percent of the children received all the eligible vaccines, irrespective of the appropriate time for starting the antigen and/or the minimum interval between the two doses. Following the order by which the EPI schedule recommended doses, as shown in Figure 1, BCG had the highest coverage (99.4 percent), followed by Penta1, Penta2, Penta3, and MR. The difference between BCG and MR was the most prominent (5 percentage points), while the difference was least prominent between BCG and Penta1 (0.1 percentage point), a pattern common in all the variations of vaccination coverage. The difference gradually narrowed for subsequent doses. The gap in coverage between the two antigens/doses might be caused by the dropouts from subsequent doses.

By residence, a little variation was observed in crude full vaccination coverage between rural and urban areas (94.8 percent vs. 91.7 percent) (Figure 2).

Figure 2: Crude Vaccination Coverage by Age of 23 Months by National, Rural and Urban Areas in 2015



3.3.2 Levels of Crude Vaccination Coverage by Age of 12 Months

Crude Vaccination Coverage by Age of 12 Months: Ninety percent of children received all eligible vaccines by age of 12 months, irrespective of whether the age for starting the antigen and/or the minimum interval between the consecutive doses was as recommended. Following the order by which the EPI schedule recommended doses, as shown in Figure 3, coverage ranged from BCG at 99.3 percent, with a gradual descrease through to Penta3 at 96.7 percent, and then a 3.4 percent drop for MR (90.1 percent). Urban rural analysis shows little variation between rural and urban areas, with rural children slightly more likely to receive the crude vaccine by age of 12 months than children residing in urban areas (90.8 percent vs. 85.5 percent, respectively) (see Figure 4).

Figure 3: Crude Vaccination Coverage by Age of 12 Months at National Level by Card and History in 2015

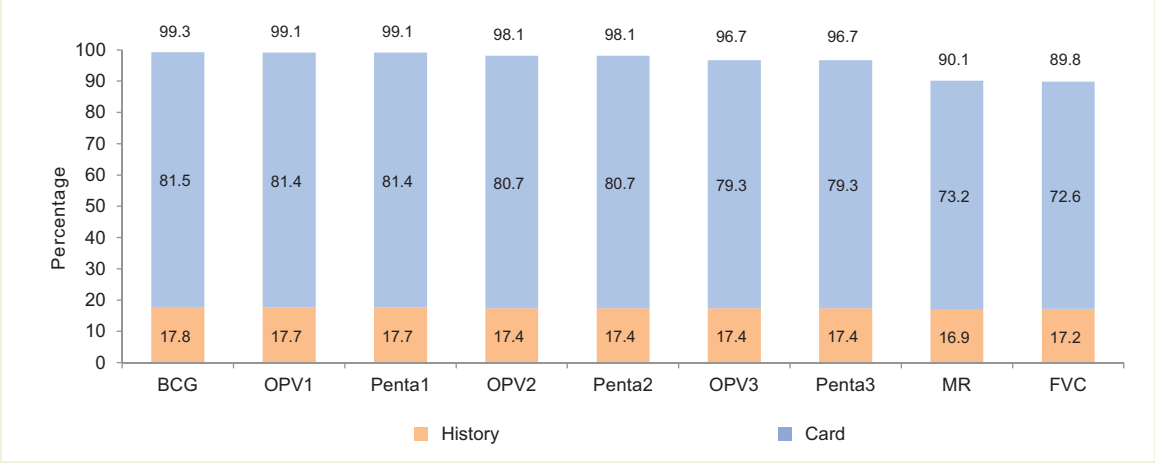
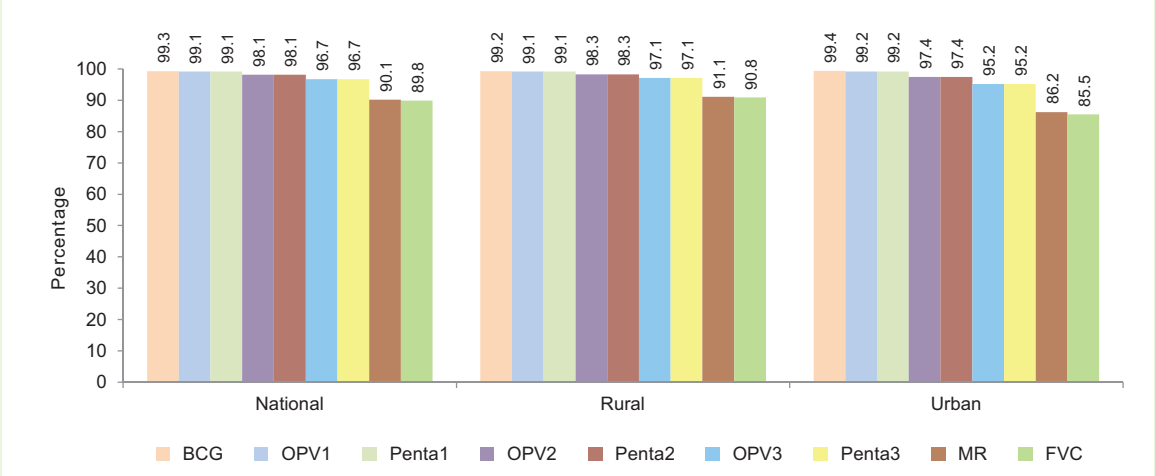


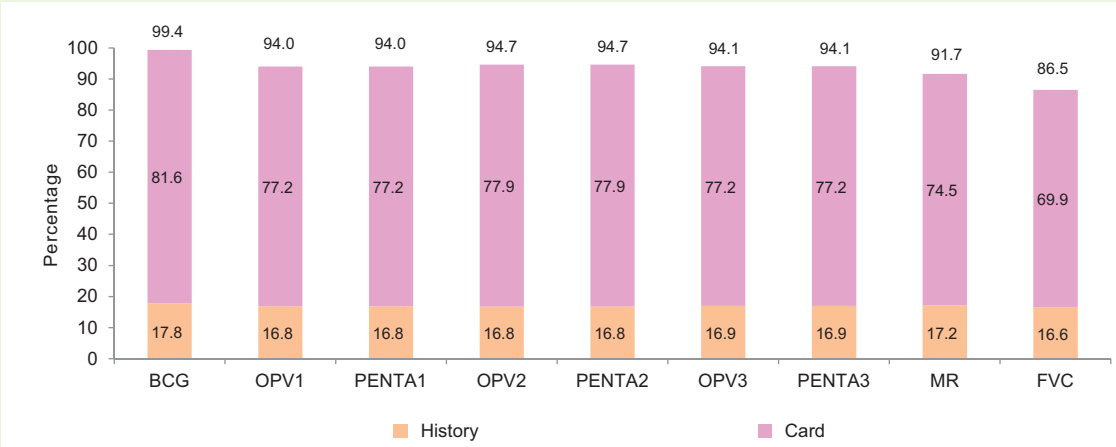
Figure 4: Crude Vaccination Coverage by Age of 12 Months by National, Rural and Urban Area in 2015



3.3.3 Levels of Valid Vaccination Coverage by Age of 23 Months

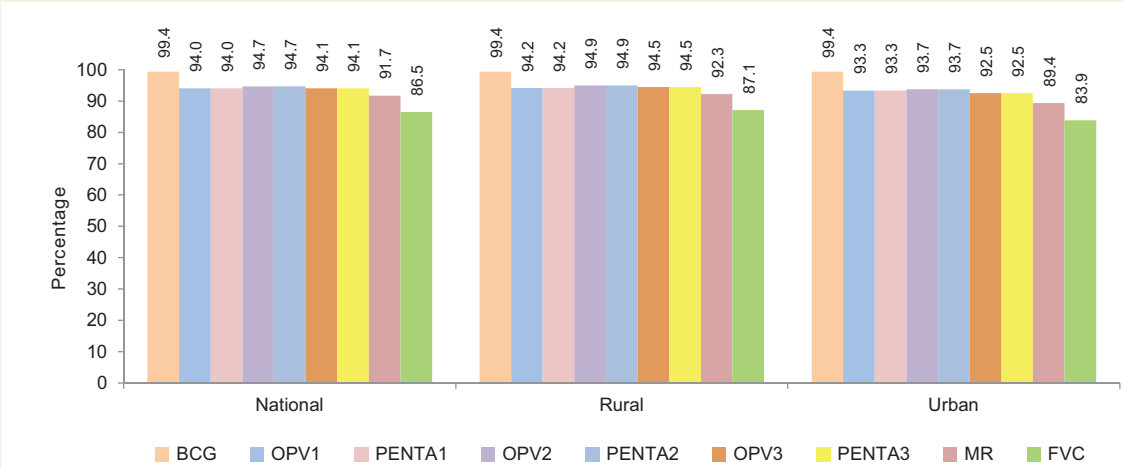
Figure 5 presents valid full vaccination coverage by age of 23 months. Valid coverage was defined as vaccines received by following the EPI-recommended age and dose interval for each antigen. Nationally, 86.5 percent of the children received all the scheduled doses of all antigens with BCG coverage being at 99.4 percent. Penta1 coverage was 94.0 percent, Penta2 94.7 percent, and Penta3 94.1 percent. Moreover, MR coverage (91.7 percent) was revealed to be 8 percentage points lower than BCG (99.4 percent).

Figure 5: Valid Vaccination Coverage by Age of 23 Months at National Level by Card and History in 2015



By residence, valid full vaccination coverage was 3.2 percentage points higher in rural areas (87.1 percent), compared to those who resided in urban areas (83.9 percent) (see Figure 6).

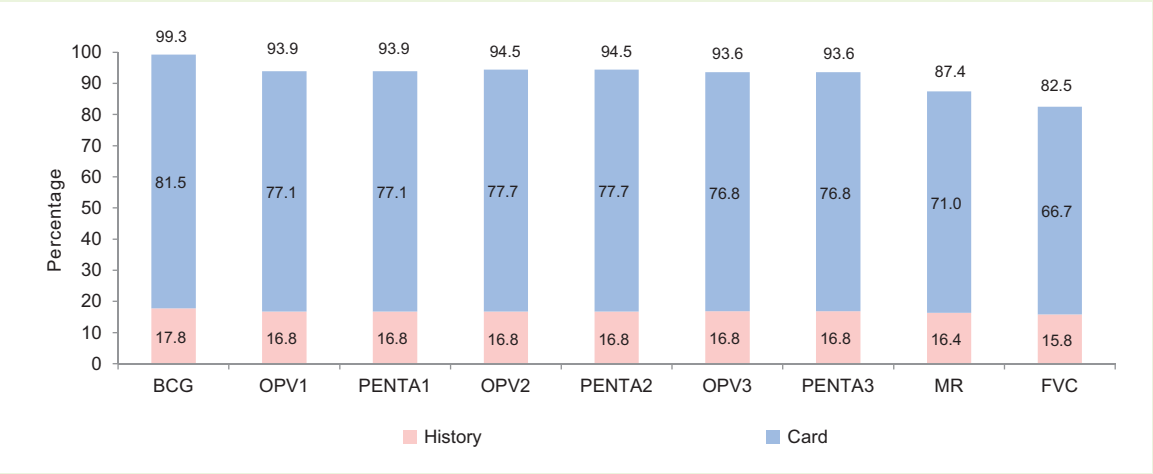
Figure 6: Valid Vaccination Coverage by Age of 23 Months by National, Rural and Urban Areas in 2015



3.3.4 Valid Vaccination Coverage by Age of 12 Months

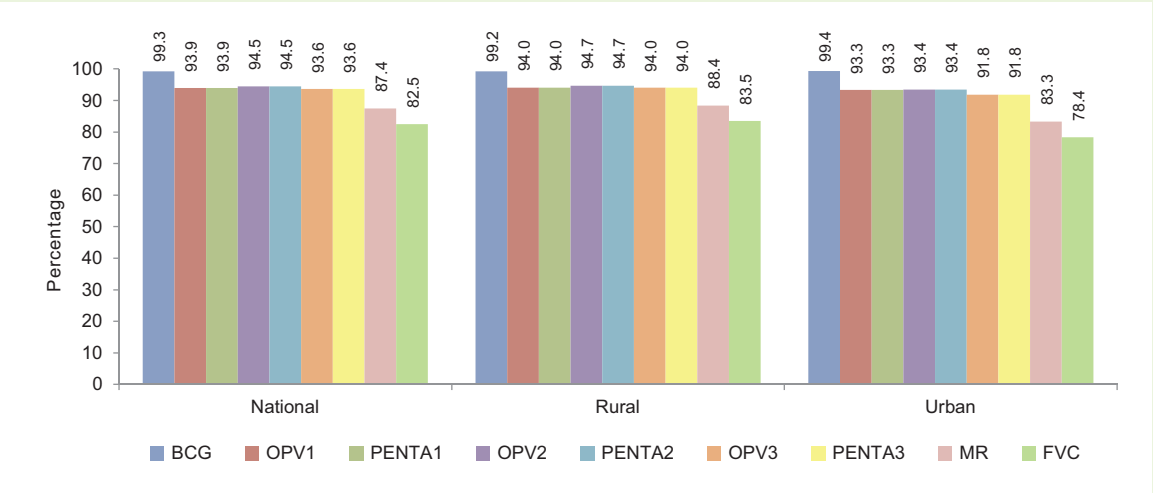
Figure 7 presents the valid full vaccination coverage by age of 12 months. It is evident from the figure that nationally 82.5 percent of children received all the scheduled vaccines by age of 12 months, following EPI-recommended age and dose intervals for each antigen. The drop from BCG coverage (99.3 percent) to the Penta3 (93.6 percent) was 5.7 percentage points. Valid MR coverage was 12 percentage points lower than for the BCG coverage. Administering vaccines without following the EPI-recommended minimum age and intervals caused invalid doses, as well as drop-outs from BCG; and the subsequent dose of OPV and Penta vaccines attributed to lower MR coverage.

Figure 7: Valid Vaccination Coverage by Age of 12 Months at National Level, by Card and History in 2015



Similiar to valid full vaccination coverage by age of 23 months, valid full coverage by age of 12 months was higher among children in rural areas. Eighty-four percent of children in rural areas received all valid full vaccines by age of 12 months, as against 78.4 percent of those residing in urban areas (see Figure 8).

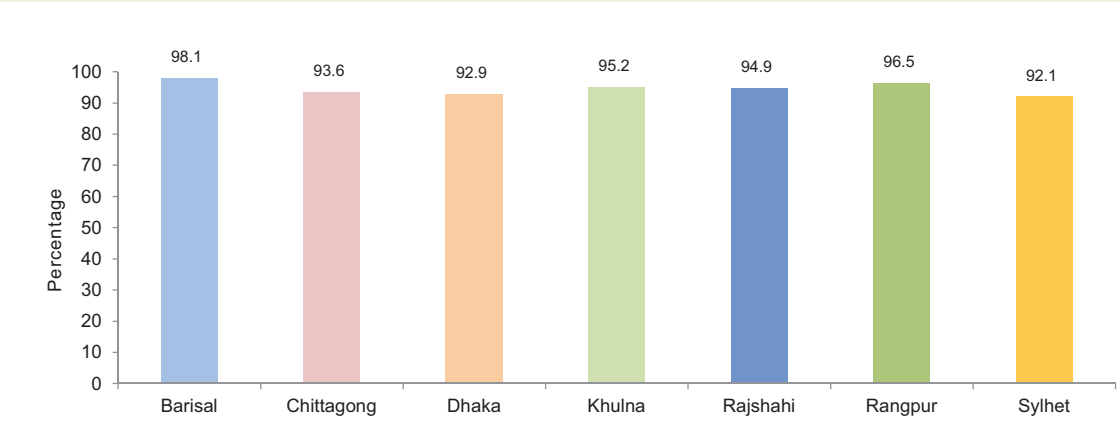
Figure 8: Valid Vaccination Coverage by Age of 12 Months by National, Rural and Urban Areas in 2015



3.3.5 Crude Full Vaccination Coverage by Age of 23 Months by Division

Figure 9 presents crude full vaccination coverage by 23 months of age, by division. It shows that crude vaccination coverage was the highest in Barisal (98.1 percent) and lowest in Sylhet (92.1 percent) divisions. Elsewhere coverage ranged from 96.5 percent in Rangpur, to 92.9 percent, in Dhaka division.

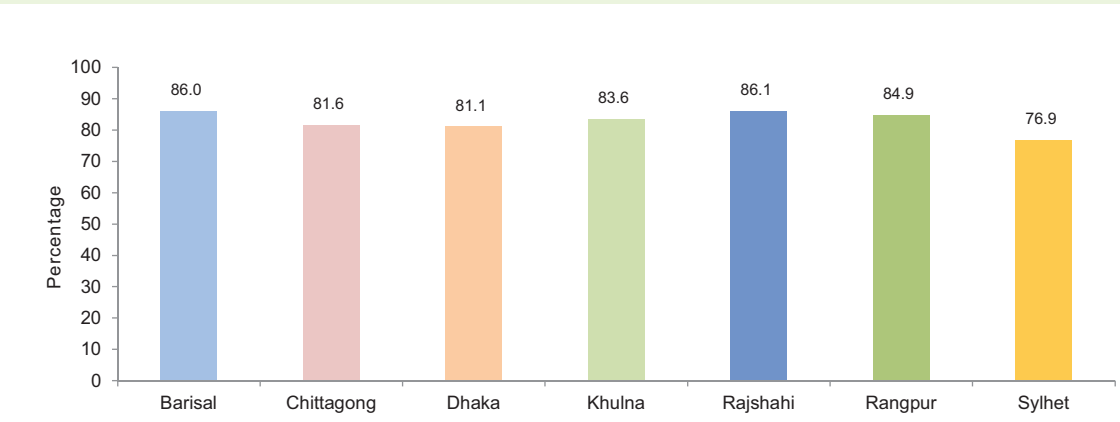
Figure 9: Crude Full Vaccination Coverage by Age of 23 Months by Divisions in 2015



3.3.6 Valid Full Vaccination Coverage by Age of 12 Months by Division

Valid full vaccination coverage by age of 12 months is displayed in Figure 9a. Rajshahi division had the highest valid vaccination coverage (86.1 percent) and Sylhet the lowest (76.9 percent). Conversely, higher drop-out rate and administering invalid dose contributed to lower valid vaccination coverage.

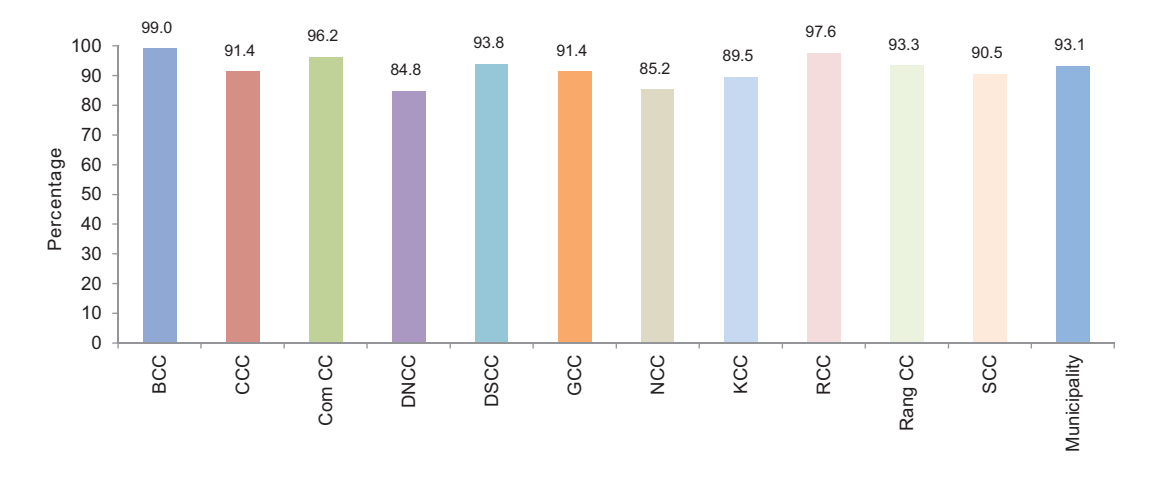
Figure 9a: Valid Full Vaccination Coverage by Age of 12 Months by Division in 2015



3.3.7 Crude Full Vaccination Coverage by Age of 23 Months in Urban Areas by City Corporation and Municipality

Figure 10 presents crude full vaccination coverage by 23 months of age, by City Corporation and municipality. It shows that crude vaccination coverage was the highest in BCC (99.0 percent) and lowest in DNCC (84.8 percent) divisions. Elsewhere coverage ranged from 97.6 percent, in RCC, to 85.2 percent, in NCC.

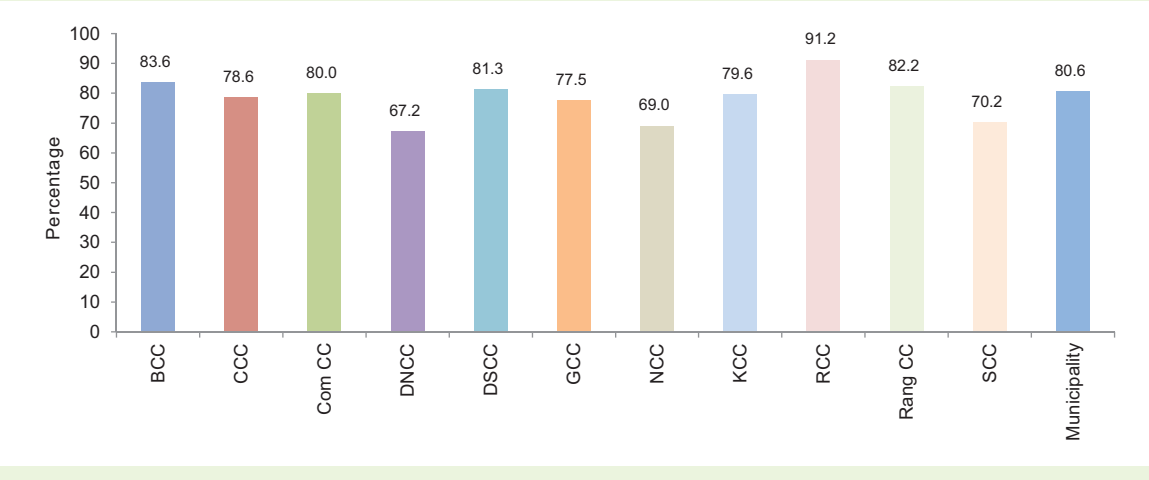
Figure 10: Crude Full Vaccination Coverage by Age of 23 Months in Urban Areas by City Corporation and Municipality in 2015



3.3.8 Valid Full Vaccination Coverage by Age of 12 Months in Urban Areas by City Corporation and Municipality

Valid full vaccination coverage by age of 12 months is displayed in Figure 10a. The figure shows that RCC had the highest valid full vaccination coverage (91.2 percent) and DNCC had the lowest (67.2 percent).

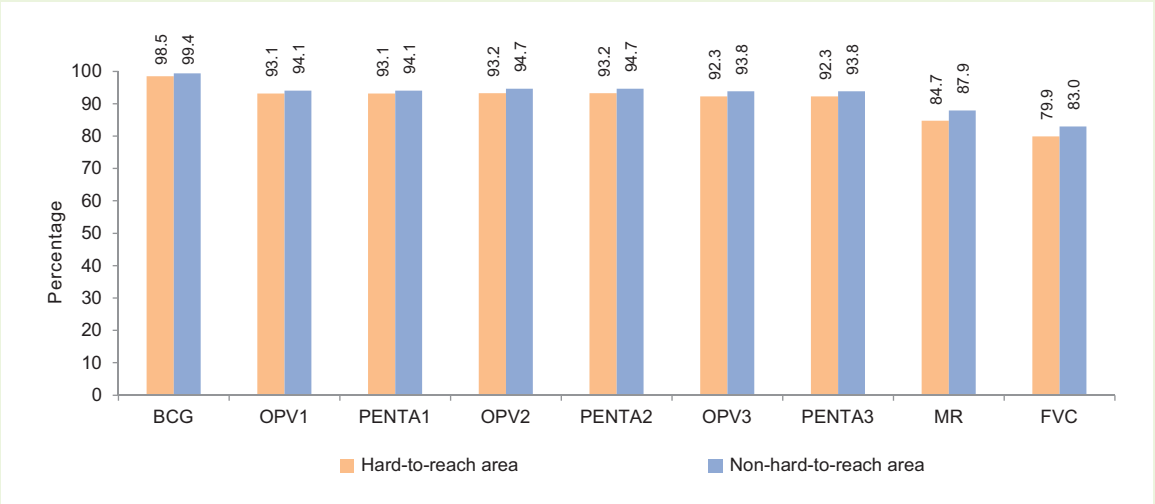
Figure 10a: Valid Full Vaccination Coverage by Age of 12 Months in Urban Areas by City Corporation and Municipality in 2015



3.3.9 Valid Full Vaccination Coverage by Hard-to Reach Areas

A hard-to-reach area was defined as an area where two or more hours is required to reach it from the Upazila headquarters. Figure 11 indicates that the valid full vaccination coverage was 3 percentage points higher in non hard-to-reach areas than in hard-to-reach areas (83.0 percent vs 79.9 percent), which was true across all antigens.

Figure 11: Valid Full Vaccination Coverage by Age of 12 Months by Hard-to-Reach Area in 2015



3.3.10 Differential in Valid Vaccination Coverage by Age of 12 Months by Background Characteristics

Table 4 presents valid vaccination coverage by age of 12 months by background characteristics, such as gender and areas, which showed little variation, and the education of mothers and wealth of families, which had greater influences. There was slight gender disparity, with valid vaccination coverage at 83.8 percent for males and 81.1 percent for females. As for residence, 5 percentage points difference was noticed between rural (83.5 percent) and urban (78.4 percent) areas.

However, regarding the educational attainment of mothers, valid vaccination coverage was higher among those children whose mothers had higher education. Coverage was considerably higher among children whose mothers had more than ten years of education (84.1 percent), as compared to those with five years (81.9 percent) and those with no education (76.8 percent). Beyond the graduate level, additional education actually resulted in a decrease in coverage (90.0 percent for a degree and 84.9 percent for a Masters).

In terms of income, no remarkable variation in valid full vaccination coverage was observed between the highest and the lowest income group. Valid full vaccination coverage was the highest in the lowest income group (85.4 percent) compared to other income groups. The findings revealed that lower income group people are more aware to vaccinate their children.

Moreover, vaccination coverage was also assessed by wealth quintile, which was calculated by using a principal component analysis. In compared to income, the vaccination coverage was lower in the poorer wealth quintiles. The coverage was 83.3 percent in the richest wealth quintile, which was actually one percent lower than the second and 80.2 percent in the poorest quintile.

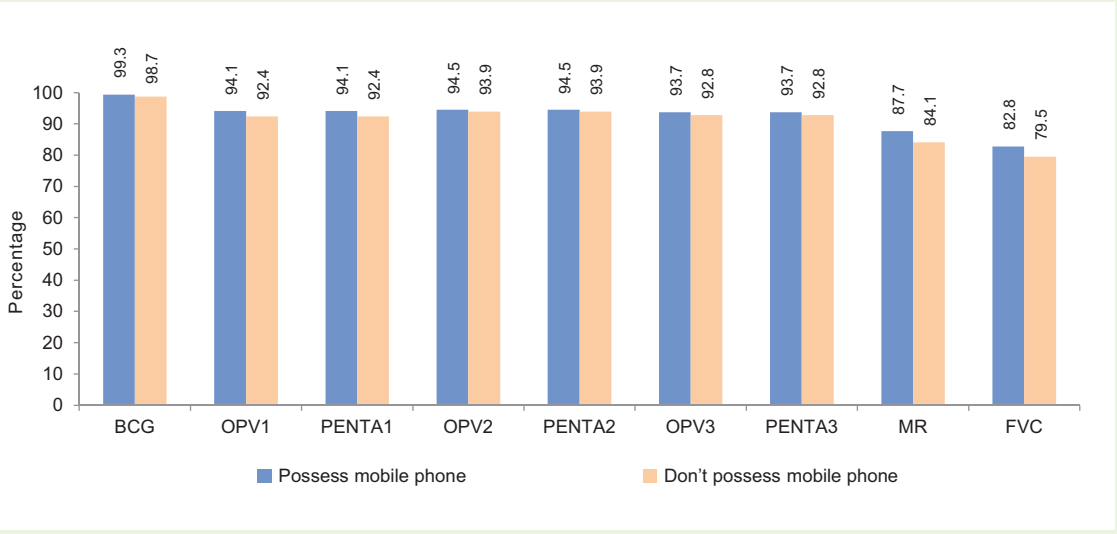
Table 4: Percentage Distribution of Children who received all Valid Vaccine by Age of 12 Months by Background Characteristics

	Valid Coverage								
	BCG	**OPV1**	**PENTA1**	**OPV2**	**PENTA2**	**OPV3**	**PENTA3**	**MR**	**FVC**
Sex									
Male	99.3	94.3	94.3	94.6	94.6	94.2	94.2	88.6	83.8
Female	99.2	93.5	93.5	94.3	94.3	92.9	92.9	86.2	81.1
Residence									
Rural	99.2	94.0	94.0	94.7	94.7	94.0	94.0	88.4	83.5
Urban	99.4	93.3	93.3	93.4	93.4	91.8	91.8	83.3	78.4
Education of mothers									
Illiterate	98.2	91.7	91.7	91.6	91.6	90.0	90.0	81.7	76.8
Primary	99.2	93.7	93.7	93.9	93.9	93.0	93.0	86.7	81.9
Secondary	99.5	94.2	94.2	94.9	94.9	94.2	94.2	88.5	83.4
SSC/Dakhil/'O' Level	99.3	95.0	95.0	96.4	96.4	95.7	95.7	88.6	84.1
HSC/Alim/'A' Level	99.8	95.2	95.2	95.9	95.9	95.6	95.6	92.3	87.5
Degree/Fazil	99.8	97.3	97.3	97.7	97.7	97.0	97.0	90.1	90.0
Masters/Kamil	98.9	93.2	93.2	94.5	94.5	93.2	93.2	88.9	84.9
Monthly income									
Upto 3000	97.9	93.2	93.2	95.2	95.2	93.1	93.1	88.9	85.4
3001 – 5000	99.1	92.4	92.4	91.8	91.8	92.7	92.7	85.2	79.6
5001 – 7000	98.8	93.3	93.3	92.5	92.5	92.8	92.8	84.9	79.3
7001 - 10000	99.1	93.6	93.6	94.4	94.4	92.9	92.9	87.5	82.6
10000+	99.6	94.7	94.7	95.5	95.5	94.6	94.6	88.4	83.9
Wealth Quintiles									
Poorest	98.8	93.0	93.0	92.9	92.9	92.2	92.2	85.2	80.2
Second	99.4	94.1	94.1	94.5	94.5	93.6	93.6	88.6	84.1
Middle	99.3	94.0	94.0	94.7	94.7	94.0	94.0	88.6	83.3
Fourth	99.5	93.7	93.7	95.0	95.0	93.9	93.9	87.1	81.5
Richest	99.3	94.8	94.8	95.2	95.2	94.3	94.3	87.3	83.3
Hard to reach area									
Yes	98.5	93.1	93.1	93.2	93.2	92.3	92.3	84.7	79.9
No	99.4	94.1	94.1	94.7	94.7	93.8	93.8	87.9	83.0
Ownership of Mobile phone									
Yes	99.3	94.1	94.1	94.5	94.5	93.7	93.7	87.7	82.8
No	98.7	92.4	92.4	93.9	93.9	92.8	92.8	84.1	79.5
National	**99.3**	**93.9**	**93.9**	**94.5**	**94.5**	**93.6**	**93.6**	**87.4**	**82.5**

3.3.11 Valid Full Vaccination Coverage by Age of 12 Months by the Ownership of Mobile Phones

In CES 2015, vaccination coverage was also analyzed by mobile phone ownership. A slight difference in coverage was noticed between those who owned mobile phones (82.8 percent) and those who did not (79.5 percent). As had been expected, the coverage of each antigen was also lower among those who did not have a mobile phone. The rate of difference varied from 0.4 percent for BCG coverage to 3.3 percent for MR. Ownersip of mobile ensure higher vaccination coverage due to easy access to mothers/caregivers to follow up and ensure subsequent doses. Thus reduce drop-out as against to those whose mothers/caregivers don't own it.

Figure 12: Valid Full Vaccination Coverage by Age of 12 Months by Ownership of Mobile Phone



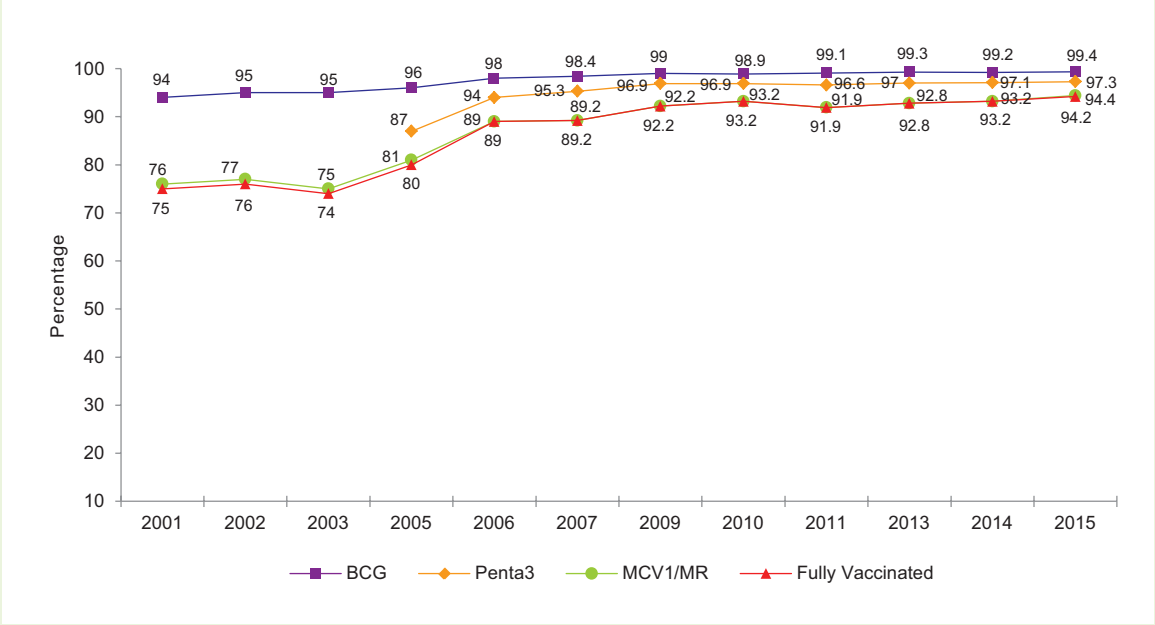
3.3.12 Trends in Coverage

Over the last two decades, enormous changes in terms of program implementation strategies and introduction of new vaccines had taken place in the EPI program. Those changes might act as an influencing factor to ascertain higher coverage. CES 2015 analyzed the trend in the coverage by using time series data produced in the previous CESs since 2001. A tremendous improvement of coverage with some fluctuation was observed over time. A detailed discussion of the trend in crude and valid coverage is given below.

Crude Coverage by Age of 23 Months

Figure 13 presents the trend in Crude Vaccination Coverage by age of 23 months over the last two decades, from 2001 to 2015. The figure indicates that crude coverage increased by 19.2 percentage points, beginning at 52.0 percent in 2001, with fluctuations as low as 74.0 percent in 2003. However, since 2003 the trend has been gradually increasing in coverage, with the exception of 2011, such that the rate in 2015 had climbed to 94.2 percent.

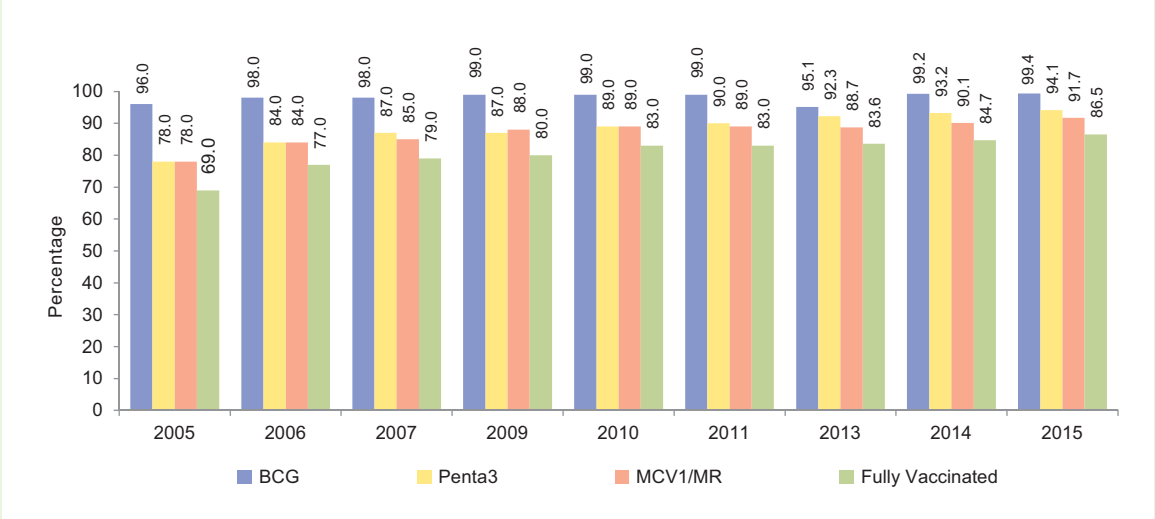
Figure 13: Annual Trend in National Crude Vaccination Coverage by Age of 23 Months from 2001 to 2015



Valid Coverage by Age of 23 Months

Figure 14 shows Valid Vaccination Coverage by age of 23 months since 2005, portraying a gradual improvement in valid vaccination coverage. Valid vaccination coverage increased by 17.5 percentage points, from 69.0 percent in 2005 to 86.5 percent in 2015.

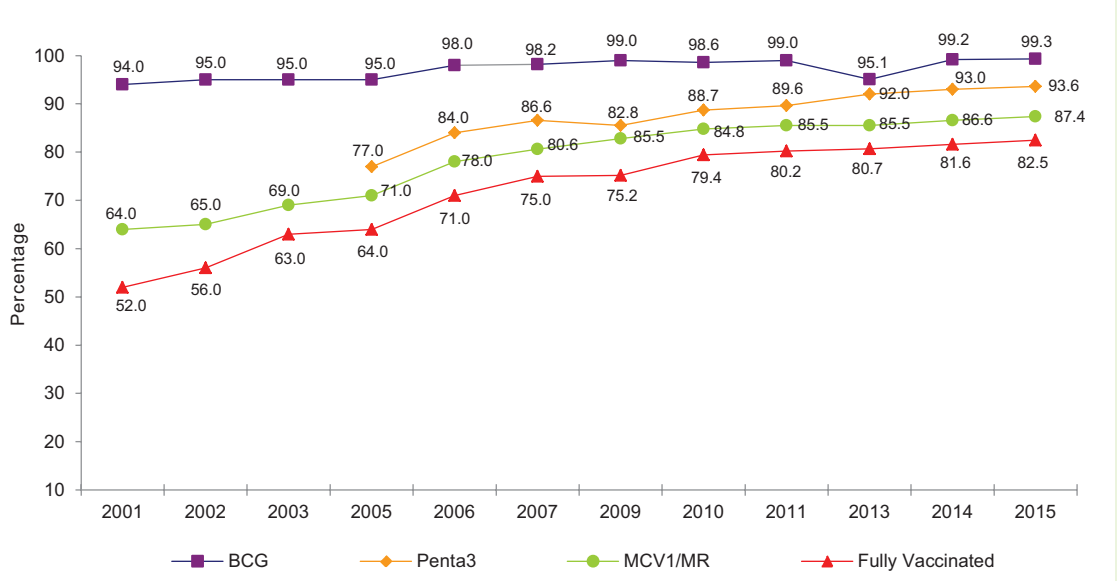
Figure 14: Annual Trend in National Valid Vaccination Coverage by Age of 23 Months from 2005 to 2015



Valid Coverage by Age of 12 Months

Improvement of valid coverage by age of 12 months is the ultimate goal of EPI. The programme has set a target of achieving 90.0 percent vaccination coverage nationally and at least 85.0 percent in each district by 2016. Figure 15 indicates the increasing trend in the coverage from 2001 to 2015. A remarkable increase in vaccination coverage has occurred in the last 15 years, increasing to 30.5 percentage points from 75 percent in 2001 to 82.5 percent in 2015. The trend analysis indicates that gradual improvement in BCG, Penta3, and Measles/MR coverage attributed to the continuous improvement in the fully valid vaccination coverage.

Figure 15: Annual Trend in National Valid Vaccination Coverage by Age of 12 Months from 2001 to 2015



3.3.13 Trend in Vaccination Coverage by Division

Analysis of the divisional trends will help district and divisional health managers to understand the performances in vaccination coverage over time in their respective divisions. Similar to the trends in the national coverage, the trends in the divisional coverage are discussed below. For each division, three figures are presented: the first depicts crude coverage, the second valid coverage by age of 23 months, and the third shows valid coverage by age of 12 months.

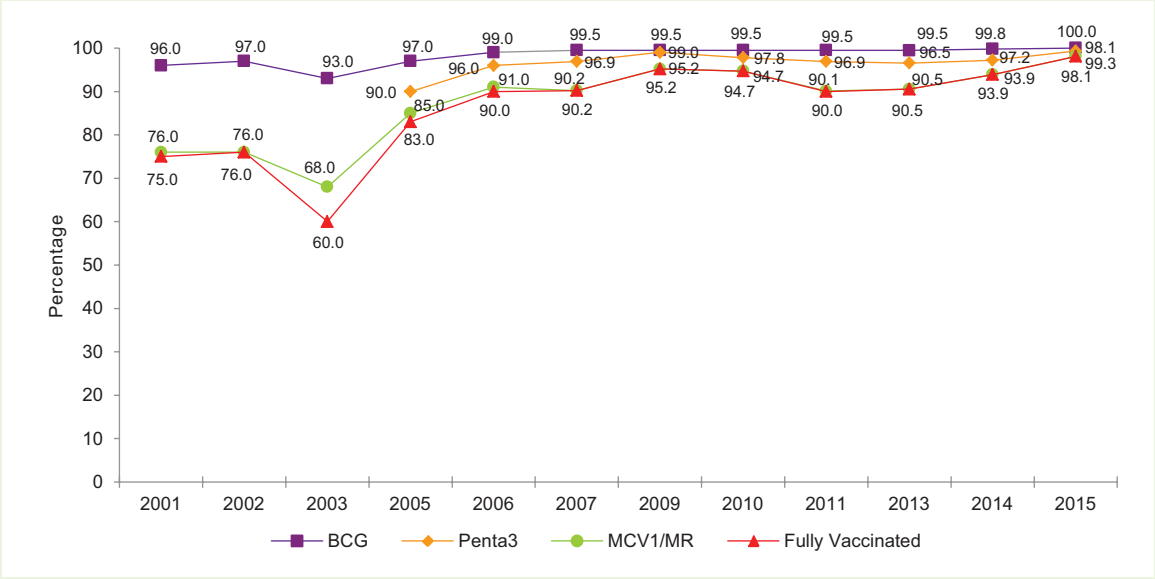
Barisal Division

Crude coverage in Barisal division was found to fluctuate widely between 2001 and 2003, as shown in Figure 16. Crude coverage declined from 75.0 percent in 2001 to 60.0 percent in 2003. A substantial improvement in crude coverage was noticed between 2003 and 2005, when it rose 23 percentage points to 83.0 percent. Since then an uninterrupted increase with some fluctuation in the coverage resulted in a rate of 98.1 percent in 2015.

Valid coverage by age of 23 months, as shown in Figure 17, also had a significant increase, of 19.6 percent with some fluctuation, in the last decade. In just the period between CES 2014 and CES 2015, valid coverage increased by 3.2 percentage points.

The trend in the valid coverage by age of 12 months, as is presented in Figure 18, was similar to that for crude vaccination coverage, in that it fluctuated considerably between 2001 and 2003, but has steadily increased since then. After a jump from 50.0 percent in 2003 to 67.0 percent in 2005, coverage steadily rose another 19 percentage points to 86.0 percent in 2015.

Figure 16: Annual Trend in Crude Vaccination Coverage by Age of 23 Months in Barisal Division from 2001 to 2015



* MCV1 was replaced with MR vaccine in 2012

Figure 17: Annual Trend in Valid Vaccination Coverage by Age of 23 Months in Barisal Division from 2005 to 2015

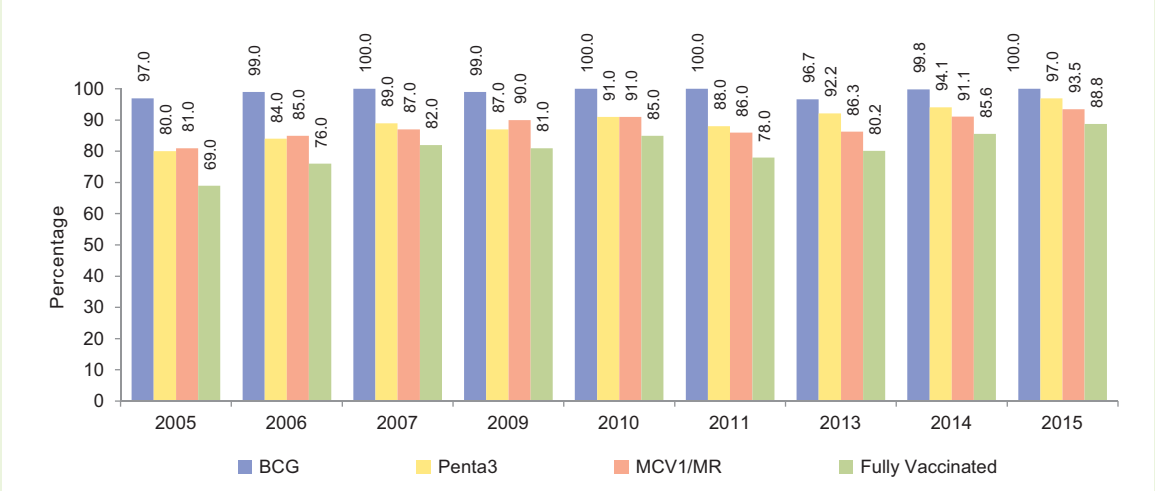
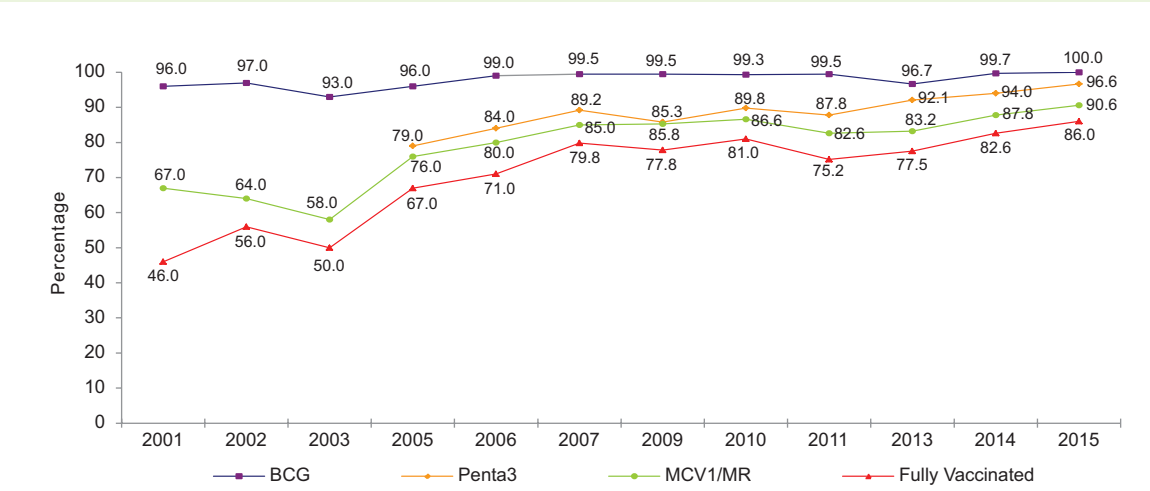


Figure 18: Annual Trend in Valid Vaccination Coverage by Age of 12 Months in Barisal Division from 2001 to 2015

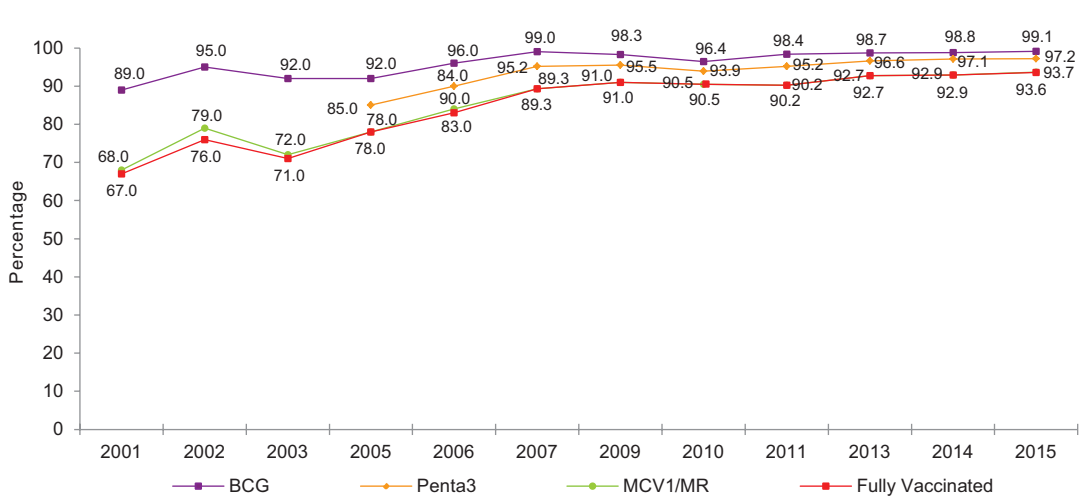


Chittagong Division

The trend in crude vaccination coverage in Chittagong division is presented in Figure 19, which indicates a sharp 9 percentage points increase in coverage between the years 2001 and 2002, from 67.0 percent to 76.0 percent. After considerable decline it reached 71.0 percent in 2003. Since then the trend has been towards a substantial, almost uninterrupted improvement with crude coverage increasing another 22.6 percentage points to 93.6 percent in 2015, and increased by 0.7 percentage point between CES 2014 and CES 2015.

Figure 20 presents valid coverage by age of 23 months as having increased by 21 percentage points, with some fluctuations, in the last decade. Having started at 65.0 percent in 2005 the rate increased to 85.6 percent in 2015, with a slight decrease just between CES 2009 and CES 2010.

Figure 19: Annual Trend in Crude Vaccination Coverage by Age of 23 Months in Chittagong Division from 2001 to 2015



While sharing the same 2001 to 2003 sharp increase that was seen in the 23 months crude vaccination coverage, valid coverage by age of 12 months has also increased considerably since then. Just between 2001 and 2015, it has Increased by 34.6 percentage points, from 47.0 percent to 81.6 percent in 2015 (see Figure 21).

Figure 20: Annual Trend in Valid Vaccination Coverage by Age of 23 Months in Chittagong Division from 2005 to 2015

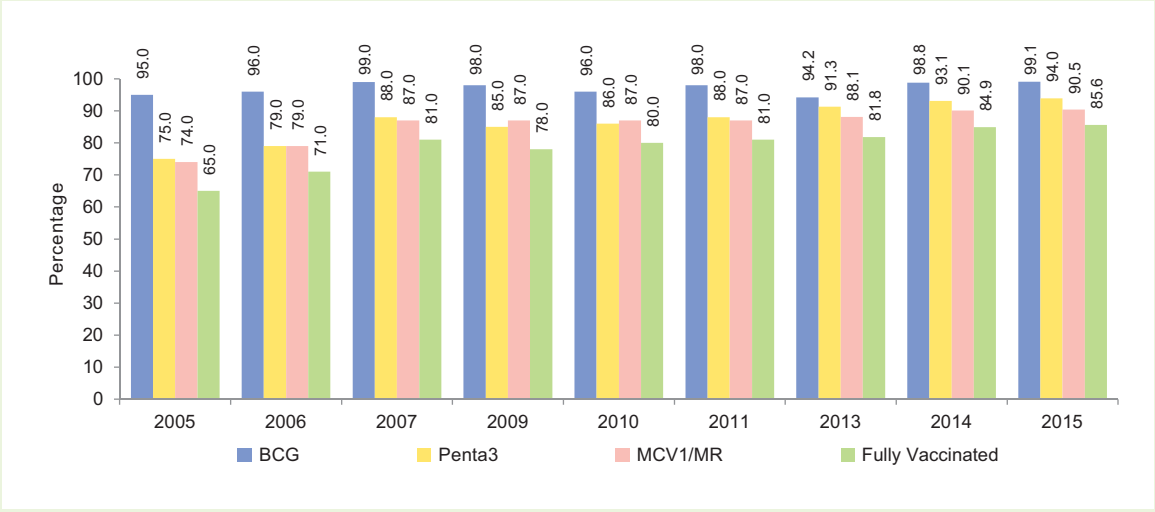
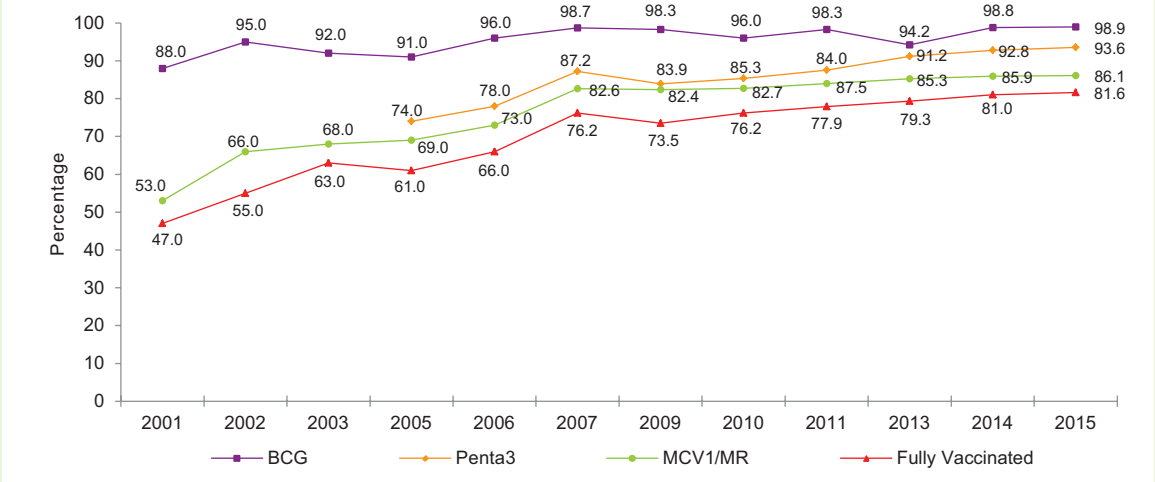


Figure 21: Annual Trend in Valid Vaccination Coverage by Age of 12 Months in Chittagong Division from 2001 to 2015



Dhaka Division

Dhaka divisions' fluctuations in crude vaccination coverage were not as wide as for Barisal and Chittagong, but in common with them, coverage began to climb after 2003. Dhaka experienced a steep 19.0 percent age points increase in the rate to 90.0 percent in 2006 (see Figure 22). From 2006 to 2015, coverage remained almost constant at 90.0 percent to 92.9 percent.

It is evident from Figure 23 that the valid coverage by age of 23 months substantially increased during the last decade – from 63.0 percent in 2005 to 82.9 percent in 2014 – and it remained almost static between CES 2013 (82.7) and CES 2014 (82.9 percent). However, coverage increased to 85.4 percent in 2015.

Figure 22: Annual Trend in Crude Full Vaccination Coverage by Age of 23 Months in Dhaka Division from 2001 to 2015

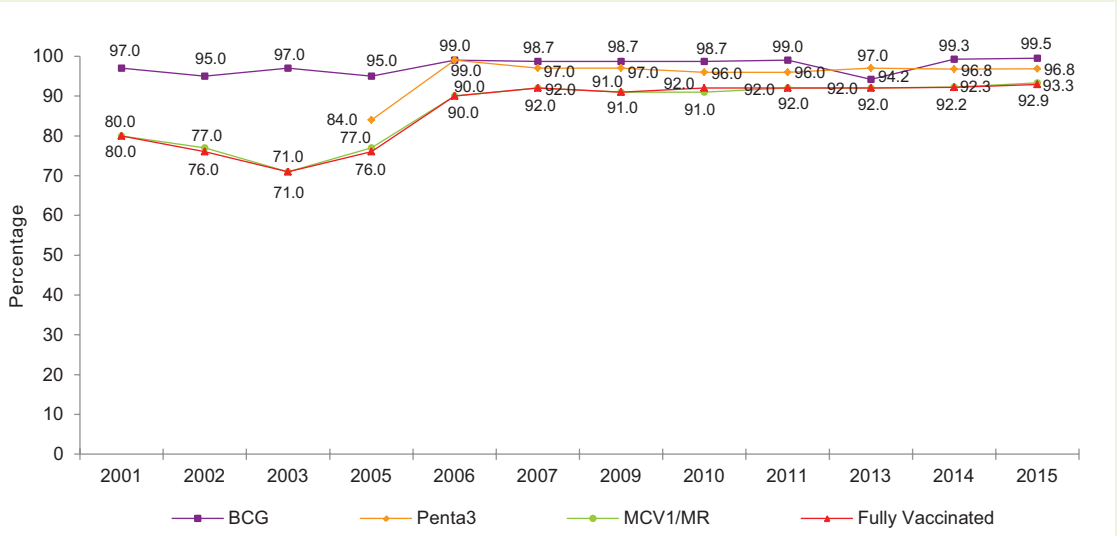
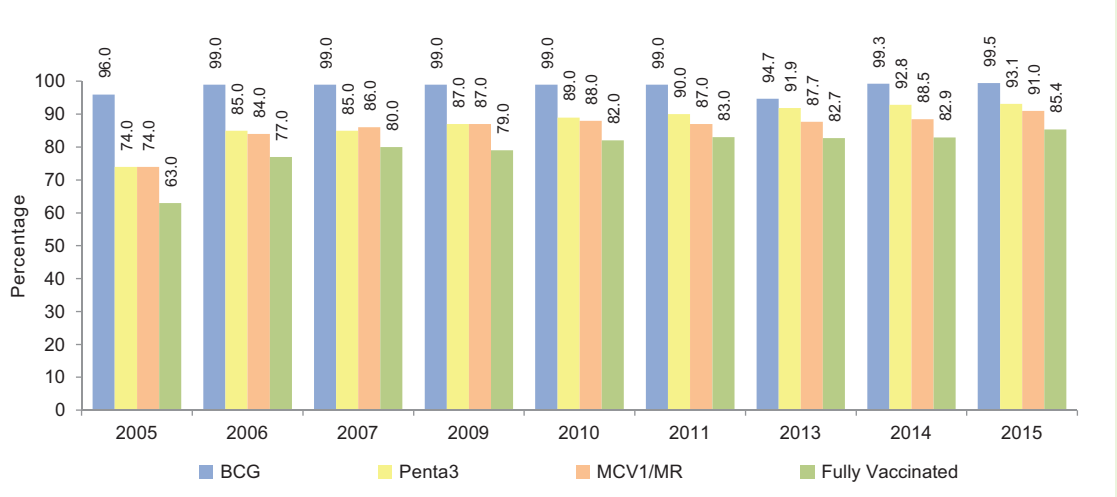
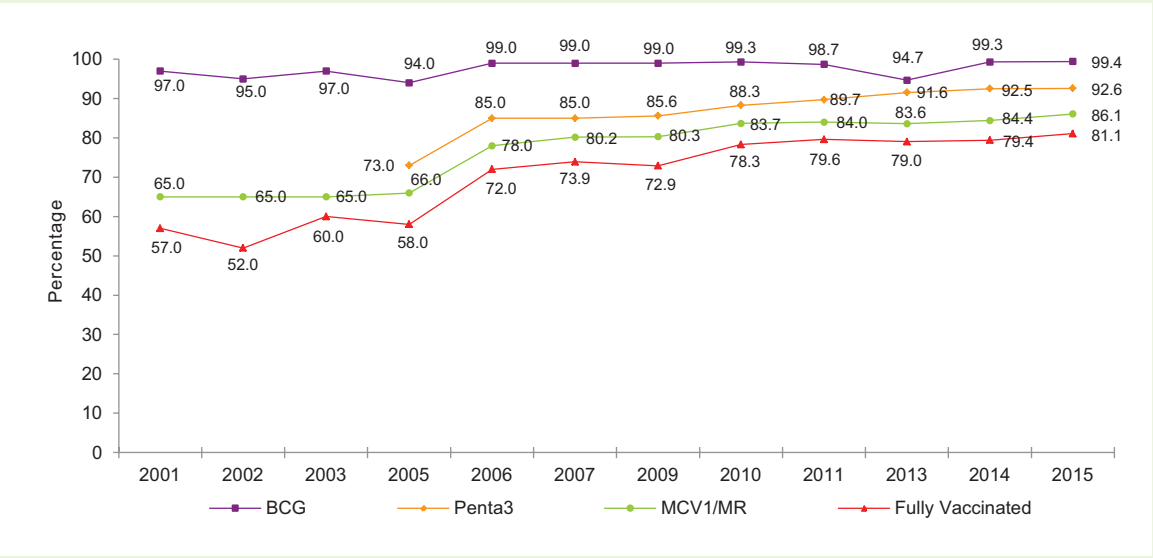


Figure 23: Annual Trend in Valid Full Vaccination Coverage by Age of 23 Months in Dhaka Division from 2005 to 2015



For valid vaccination coverage by age of 12 months, the rate has increased one-quarter since 2001, from 57.0 percent in 2001 to 81.6 percent in 2015 (see Figure 24). Following the greatest increase between 2002 and 2006, from 52.0 percent to 72.0 percent, the rate of increase as slowed, with only a 1.7 percent rise between CES 2014 and CES 2015, and stayed on an upward path.

Figure 24: Annual Trend in Valid Full Vaccination Coverage by Age of 12 Months in Dhaka Division from 2001 to 2015



Khulna Division

Of the five divisions that have records to 2001, Khulna division has had the flattest rise in coverage figures, having started at the highest percentage for crude vaccination coverage, 86.0 percent in 2001 (see Figure 25). While the division shared with the others a drop and then the fluctuations of the early years, it also stabilized earlier, in 2001, when the rate was 86.0 percent and then generally rose until 2011, when it reached a high of 94.4 percent. Since then, it has declined slightly in CES 2013 and 2014 but increased at 95.2 percent in 2015.

Figure 25: Annual Trend in Crude Full Vaccination Coverage by Age of 23 Months in Khulna Division from 2001 to 2015

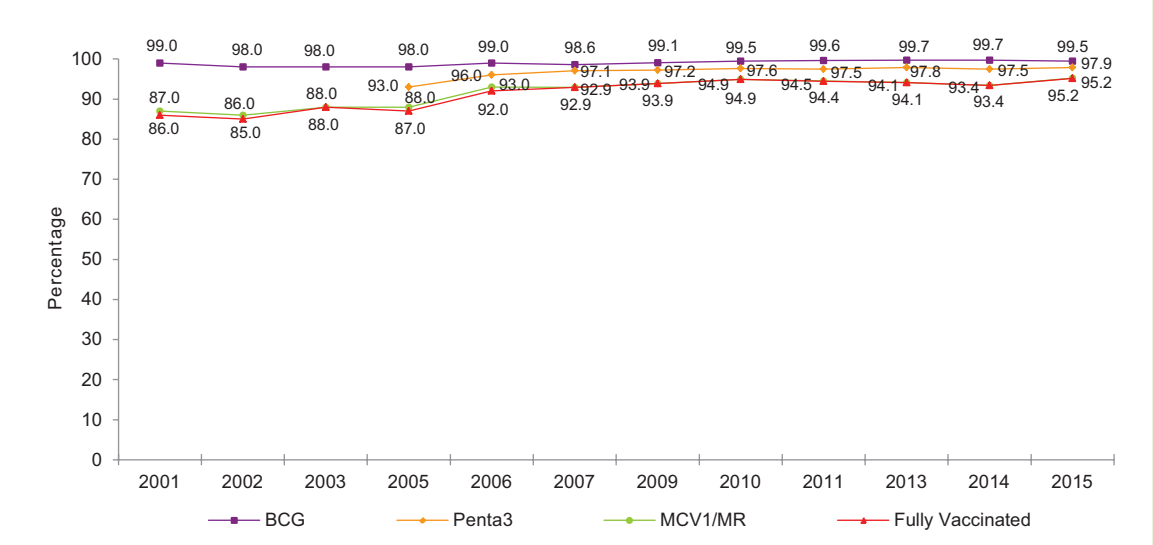


Figure 26 presents valid vaccination coverage by age of 23 months since 2005. The figure indicates that it increased by 12 percentage points, from 75.0 percent in 2005 to 87.1 percent in 2013. Showing a similar trend as the crude coverage, the valid vaccination coverage decreased by about 2 percentage points between the CES 2013 and CES 2014, from 87.1 percent to 85.3 percent. It again increased to 87.2 percent in 2015.

Figure 27 illustrates the trend of valid coverage by age of 12 months. It shows a slow increase in coverage between 2001 and 2006, from 65.0 percent to 77.0 percent. After some fluctuation, coverage rose to 72.2 percent in 2007 and since then there was a continuous improvement in coverage to 2013, when it was 84.8 percent. Coverage again dropped in 2014, to 81.9 percent and further rose to 83.6 percent in 2015.

Figure26: Annual Trend in Valid Full Vaccination Coverage by Age of 23 Months in Khulna Division from 2005 to 2015

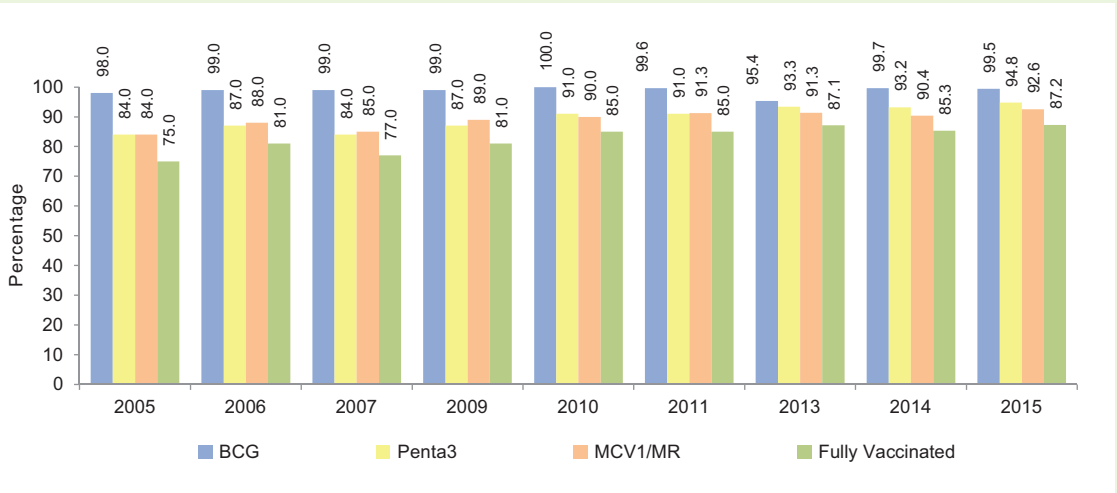
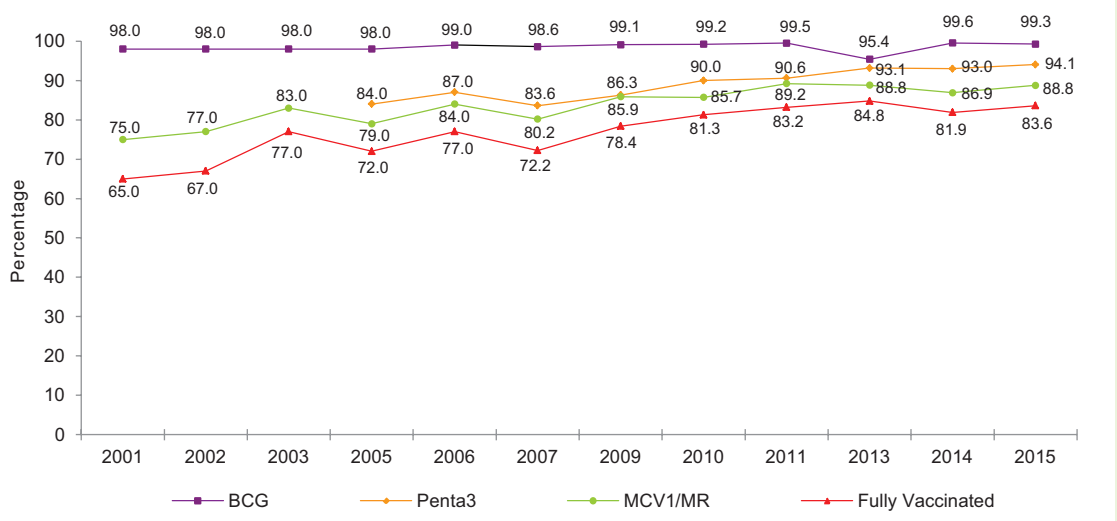


Figure 27: Annual Trend in Valid Full Vaccination Coverage by Age of 12 Months in Khulna Division from 2001 to 2015



Rajshahi Division

The trend in crude vaccination coverage by age of 23 months in Rajshahi division since 2001 follows much the same pattern as other divisions. The coverage of Rajshahi division was fluctuating between 2001 and 2003 (see Figure 28). The most considerable jump was between 2003 and 2006, when the rate increased by 16 percentage points to 91.0 percent. This rapid jump contributed to Rajshahi's attainment of the status of the highest performing division in Bangladesh. Since 2007, crude coverage remained almost static, ranging from 93.9 percent to 96.1 percent; between 2013 and 2014, the rate increased 1.6 percentage points to 96.8 percent. Further dropped in coverage was noticed in 2015 (96.8 percent in 2014 to 94.9 percent in 2015)

The trend of valid vaccination coverage by age of 23 months, presented in Figure 29, shows that the rate fluctuated with almost each CES, beginning at 72.0 percent in 2005 and reaching a high of 88.8 percent in 2014. Although fluctuating CES to CES, the overall trend has been up, including between 2013 and 2014, when the rate increased 2 percentage points. Coverage again increased to 89.2 percent in 2015

Figure 30 shows that valid coverage by age of 12 months quite steadily decreased from 54.0 percent in 2001 to 64.0 percent in 2003 in Rajshahi division. Since then there was an almost continuous improvement, increasing by 22 percentage points to 86.1 percent in 2014. Between the latest two surveys, valid vaccination coverage decrease by 0.9 percentage point.

Figure 28: Annual Trend in Crude Full Vaccination Coverage by Age of 23 Months in Rajshahi Division from 2001 to 2015

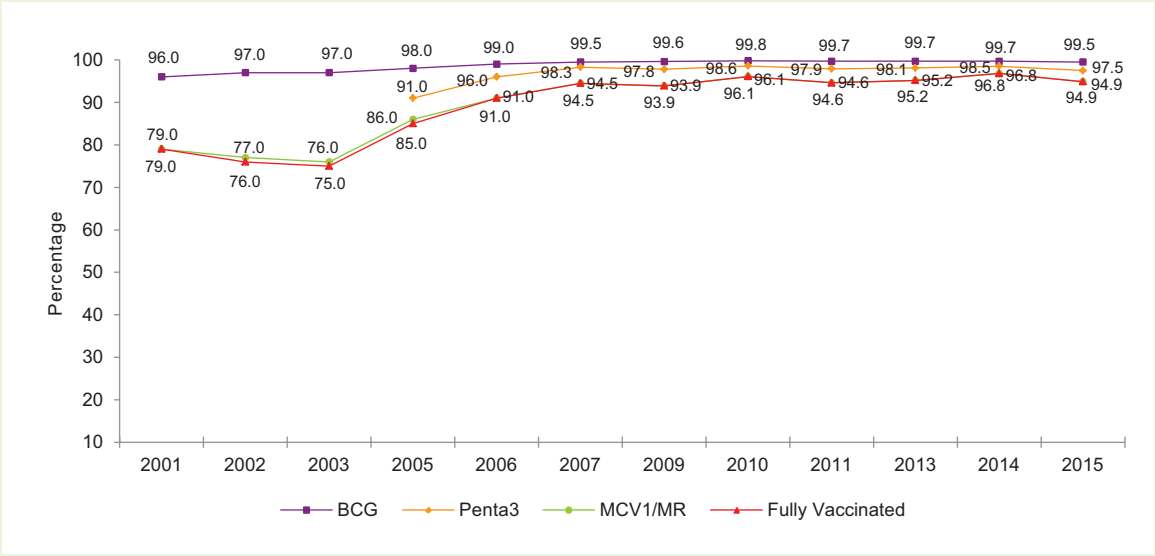


Figure 29: Annual Trend in Valid Full Vaccination Coverage by Age of 23 Months in Rajshahi Division from 2005 to 2015

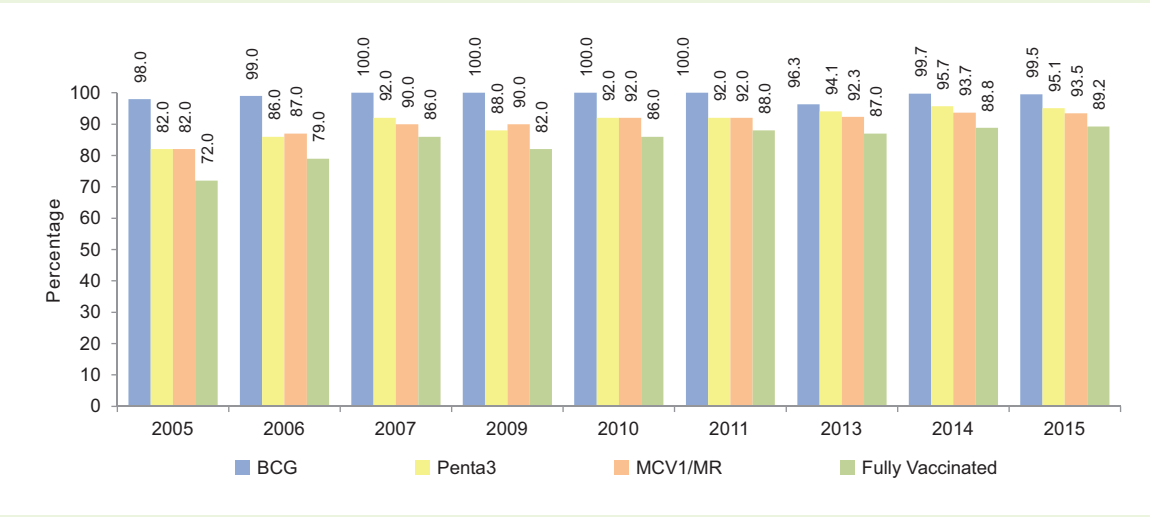
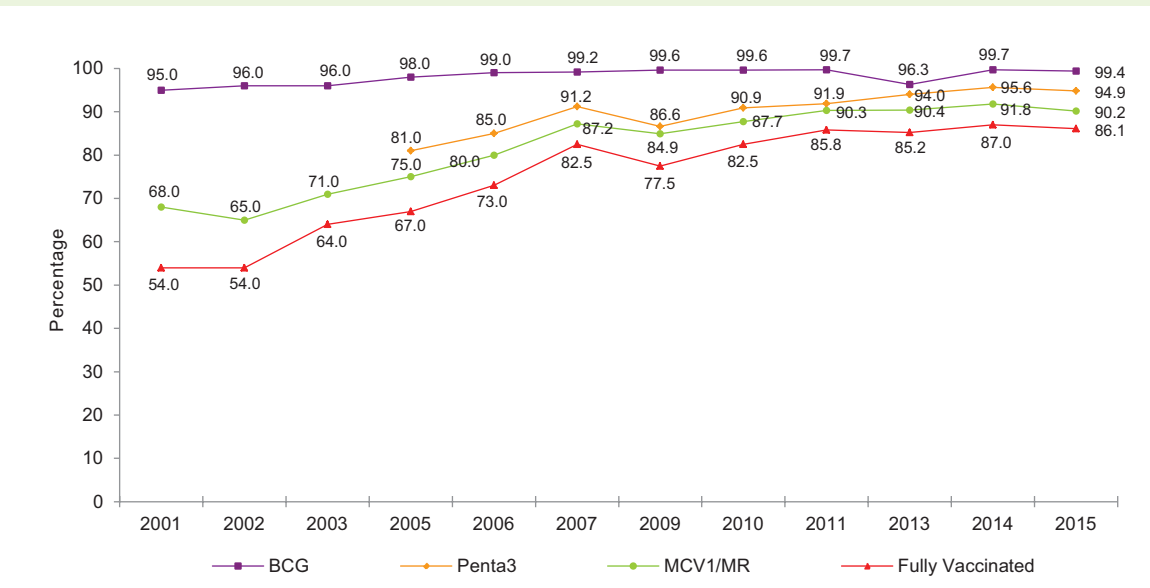


Figure 30: Annual Trend in Valid Full Vaccination Coverage by Age of 12 Months in Rajshahi Division from 2001 to 2015



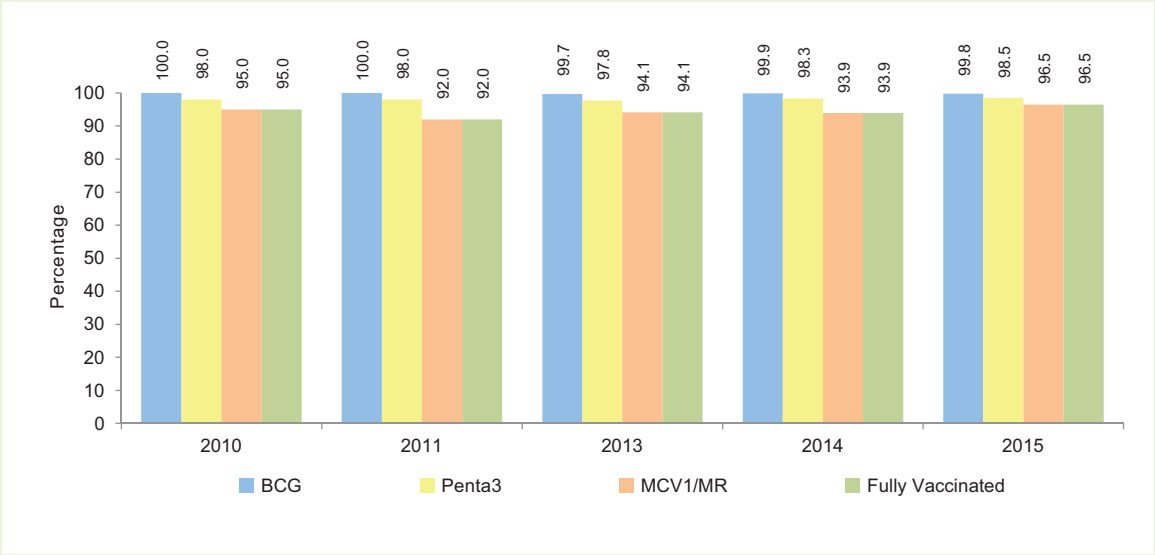
Rangpur Division

Rangpur is the youngest of the the seven divisions in Bangladesh. As an independent administrative division, it emerged in 2010. Therefore, the trend in Rangpur division, as shown in Figure 31, describes vaccination coverage only since 2010. Crude vaccination coverage was 95.0 percent in 2010, decreased to 92.0 percent in 2011, and rose again, to 96.5 percent, in 2015.

As regards valid vaccination coverage by age of 23 months, it was found to be almost static during the years 2010 to 2014. Valid vaccination coverage has risen slightly; from 84.0 percent in 2010 to 88.7 percent in 2015 (see Figure 32).

The valid coverage by age of 12 months trend was similar to the trend of valid coverage by age of 23 months. Both coverages were found to be increasing at a slow pace, with valid coverage up from 78.0 percent in 2010 to 81.5 percent in 2014 and unchanged between the 2013 and 2014 CESs (see Figure 33). However, it increased to 84.9 percent in 2015.

Figure 31: Annual Trend in Crude Full Vaccination Coverage by Age of 23 Months in Rangpur Division* from 2010 to 2015



* Rangpur division was included in Rajshahi division till 2009

Figure 32: Annual Trend in Valid Full Vaccination Coverage by Age of 23 Months in Rangpur Division from 2010 to 2015

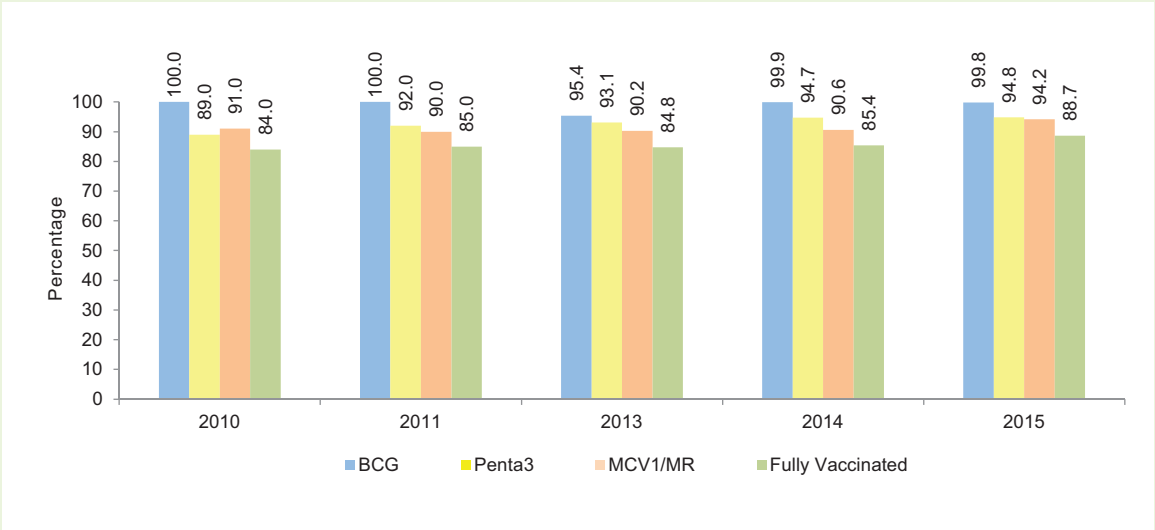
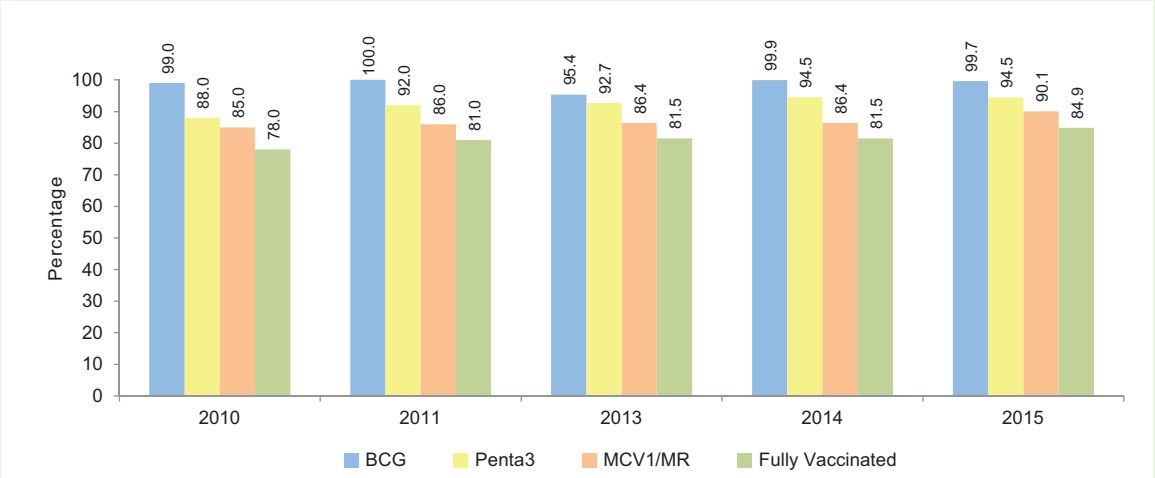


Figure 33: Annual Trend in Valid Vaccination Coverage by Age of 12 Months in Rangpur Division* from 2010 to 2015



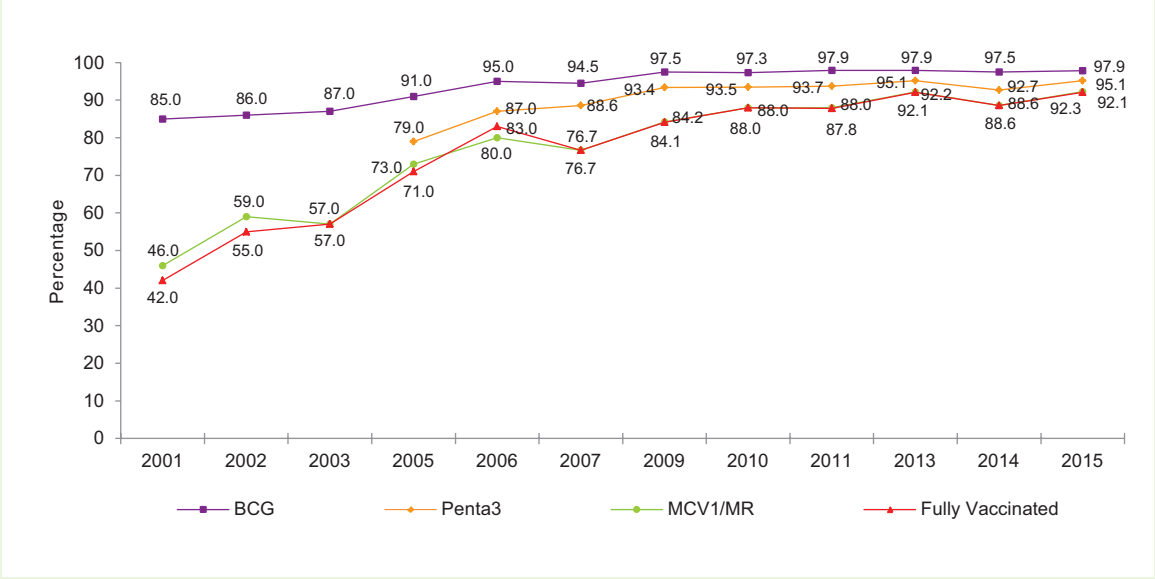
Sylhet Division

As with Rangpur division, Sylhet division is a newer division, having been part of Chittagong division until 1998. Consequently, Figure 34, illustrating crude coverage in Sylhet division by age of 23 months, presented since in 2001, when the crude coverage rate was 42.0 percent. But after that, coverage has for the most part continually increased to 92.1 percent in 2013. Between 2013 and 2014, the rate dropped three and a half points, to 88.6 percent. And, again increased to 92.1 percent in 2015.

As for valid vaccination coverage by age of 23 months, this trend is similar to that of crude coverage: an uninterrupted but substantial increase in coverage from 2005 to 2013 (see Figure 35). Valid coverage increased by 24 percentage points, from 59.0 percent in 2005 to 83.4 percent in 2013. However, a slight decrease in coverage was observed in 2014. It again increased from 82.1 percent in 2014 to 82.5 percent in 2015.

Similarly, Figure 36 shows that valid coverage by age of 12 months increased, following the same trend as valid coverage by age of 23 months, between the periods 2001-2003 and 2005-2014. Valid coverage by age of 12 months increased from 23.0 percent in 2001 to 42.0 percent in 2003, with fluctuations, followed by a continuous improvement during the years 2003-2013. Valid coverage increased by 39 percentage points, from 42.0 percent in 2003 to 80.7 percent in 2013. However, in 2014, it decreased by 2 percentage points, from 80.7 percent in 2013 to 78.6 percent. Similar decreasing trend was observed in 2015. Valid coverage decreased to 76.9 percent in 2015.

Figure 34: Annual Trend in Crude Full Vaccination Coverage by Age of 23 Months in Sylhet Division from 2001 to 2015



*** Sylhet division was included in Chittagong division until 1999**

Figure 35: Annual Trend in Valid Full Vaccination Coverage by Age of 23 Months in Sylhet Division from 2005 to 2015

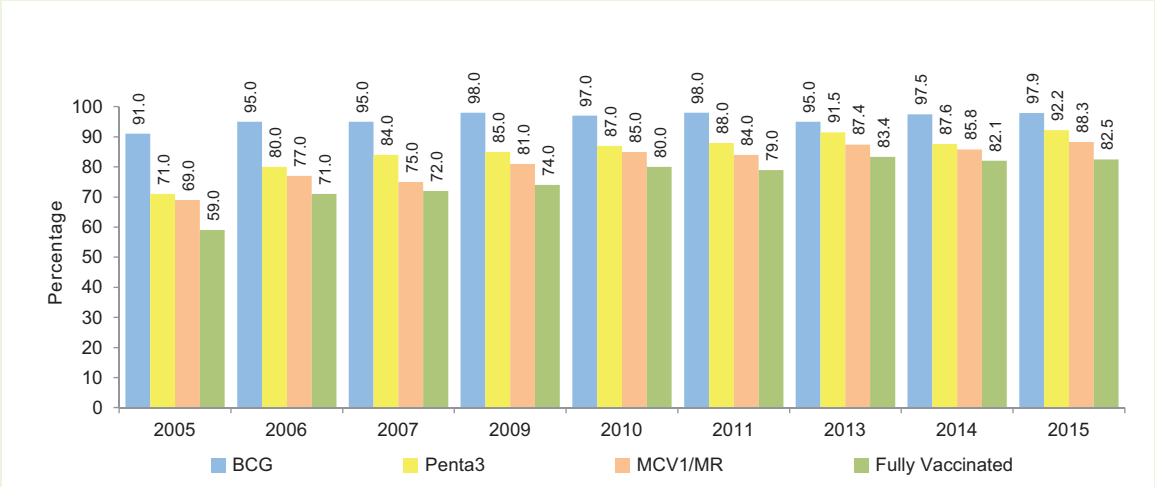
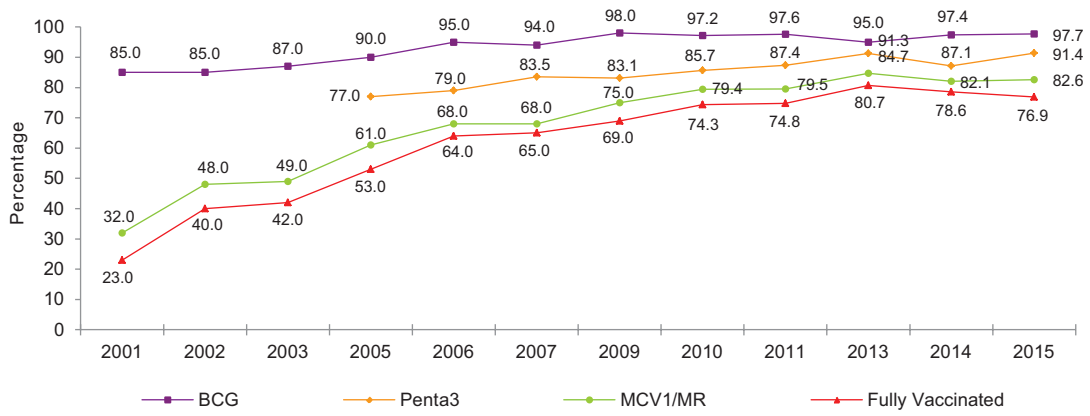


Figure 36: Annual Trend in Valid Full Vaccination Coverage by Age of 12 Months in Sylhet Division from 2001 to 2015

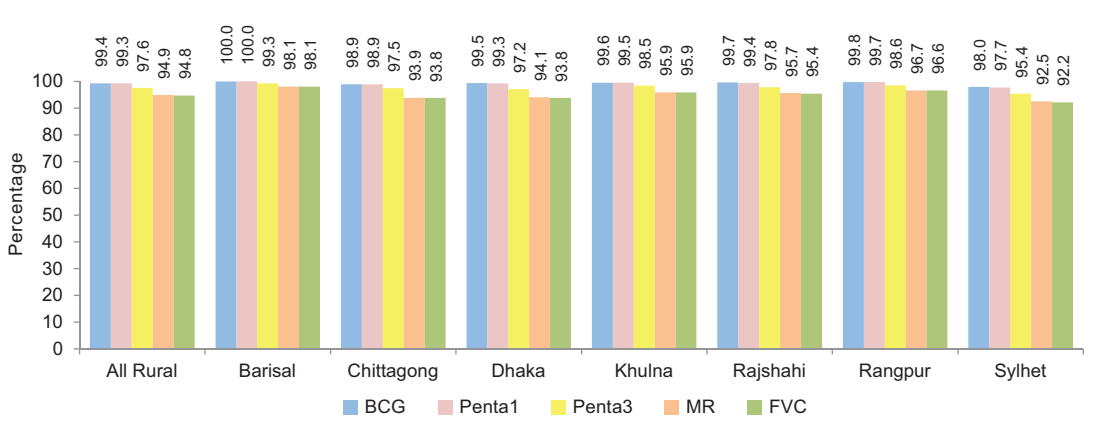


3.3.14 Rural Coverage by Division

Crude Vaccination Coverage by Age of 23 Months

Crud Full vaccination coverage by age of 23 months varied slightly by rural division. As Figure 37 shows all were within six percent of the national rural average of 94.8 percent. Crude vaccination coverage was highest in Barisal division (98.1 percent) and lowest in Sylhet (92.2 percent). Along with Sylhet, only Chittagong and Dhaka were below the national average. By vaccine type, all achieved a BCG coverage rate of 99.5 percent or higher, except Chittagong (98.9 percent) and Sylhet (98.0 percent). The same general patterns were observed for Penta1 and Penta3. The pattern remained same for MR coverage, where Barisal division had the highest coverage (98.1 percent) and Khulna was in the middle of the rates (95.9 percent), Sylhet again with the lowest rate (92.5 percent).

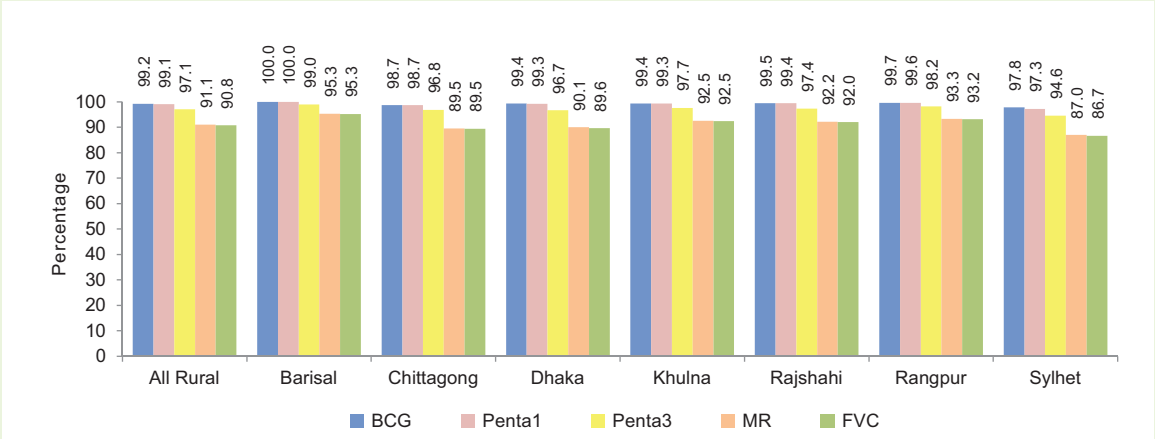
Figure 37: Crude Full Vaccination Coverage by Age of 23 Months in Rural Areas by Division in 2015



Crude Full Vaccination Coverage by Age of 12 Months

Similar to the crude coverage by age of 23 months, Barisal division achieved the highest crude full vaccination coverage (95.3 percent) by age of 12 months. It was the lowest in Sylhet division (86.7 percent). Crude coverage was 93.2 percent in Rangpur, 92.5 percent in Khulna, 92.0 percent in Rajshahi, 89.6 percent in Dhaka and 89.5 percent in Chittagong divisions (Figure 38)

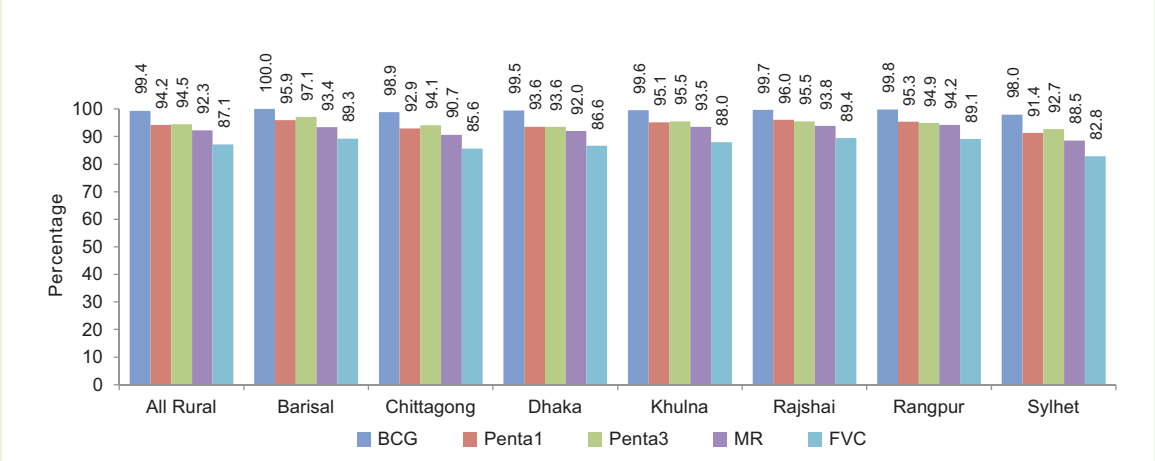
Figure 38: Crude Full Vaccination Coverage by Age of 12 Months in Rural Areas by Division in 2015



Valid Full Coverage by Age of 23 Months

Nationally, 87.1 percent of rural children received all vaccines by 23 months, by the EPI-recommended age and intervals between doses. Of the seven divisions, children from rural areas of Rajshahi division (89.4 percent) received highest doses of all valid vaccines than those from the other rural divisions.

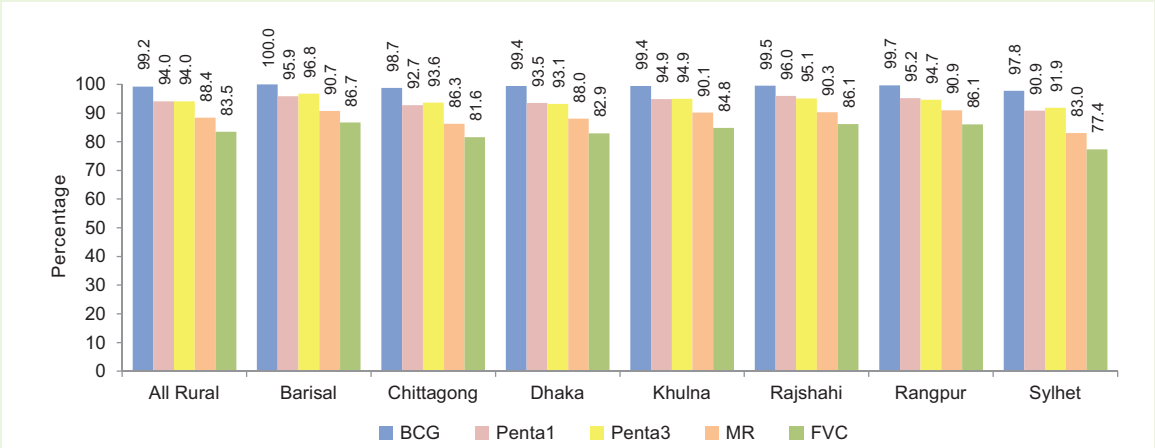
Figure 39: Valid Full Vaccination Coverage by Age of 23 Months in Rural Areas by Division in 2015



Valid Full Coverage by age of 12 Months

Figure 40 presents the valid vaccination coverage by age of 12 months. Nationally, valid coverage in rural areas was 83.5 percent, with slight variation between divisions from the highest in Barisal (86.7 percent) to the lowest in Sylhet (77.4 percent).

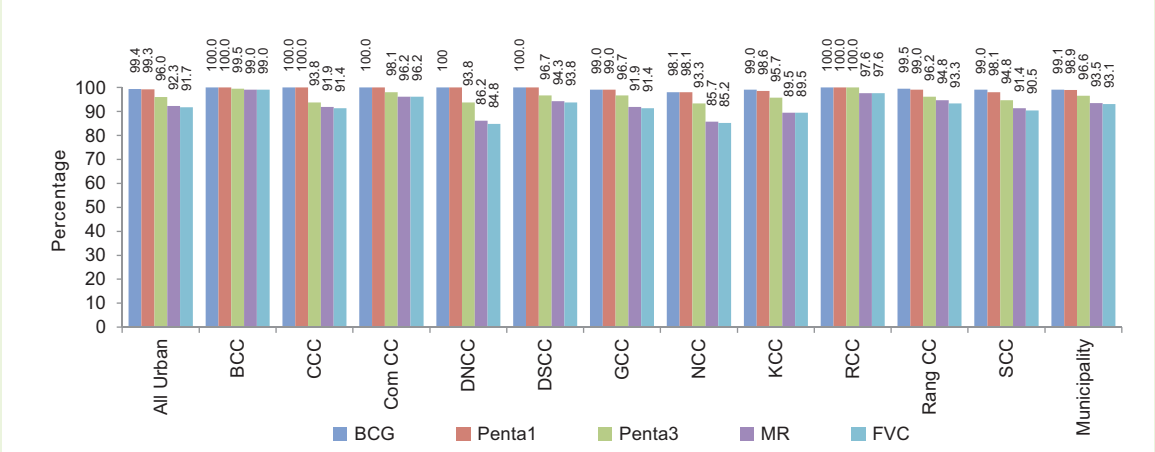
Figure 40: Valid Full Vaccination Coverage by Age of 12 Months in Rural Areas by Division in 2015



3.3.15 Coverage by City Corporation and Municipality

Figures 41, 42, 43 and 44 depict city corporation-wise vaccination coverage. For CES 2015, each of the 11 city corporations in Bangladesh were surveyed as separate survey strata.

Figure 41: Crude Full Vaccination Coverage by Age of 23 Months in Urban Areas by City Corporation and Municipality in 2015

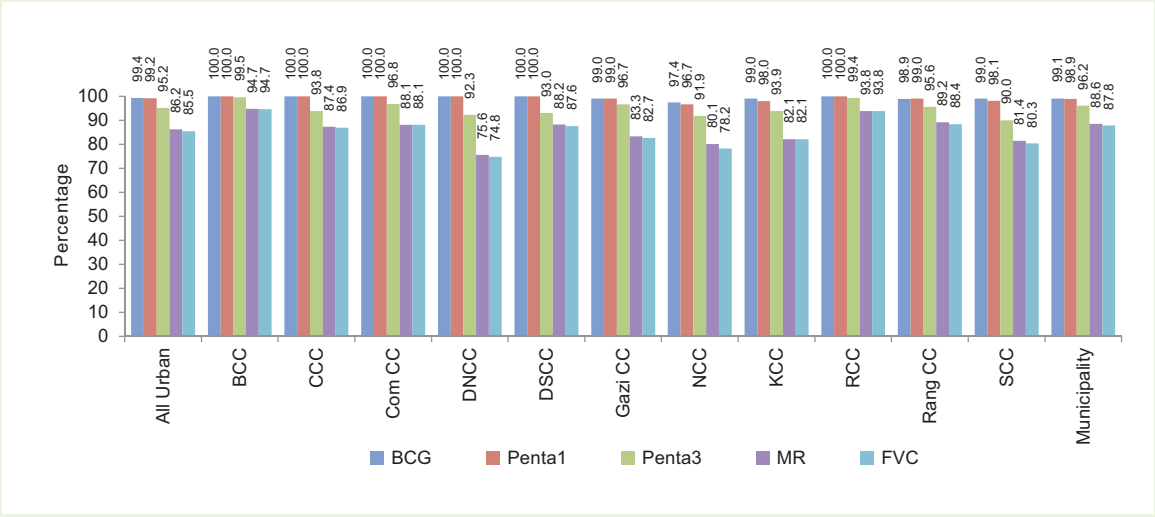


Crude Full Vaccination Coverage by age of 23 Months: Figure 41 shows urban vaccination coverage by City Corporation. Nationally, urban coverage was depicted 91.7 percent in CES 2015. Among the city corporations, the highest crude vaccination coverage was in BCC and the lowest

in DNCC, with 99.0% and 84.8 percent coverage, respectively. The crude vaccination coverage in other city corporations ranged between 85.2 percent in NCC and 97.6% percent in RCC.

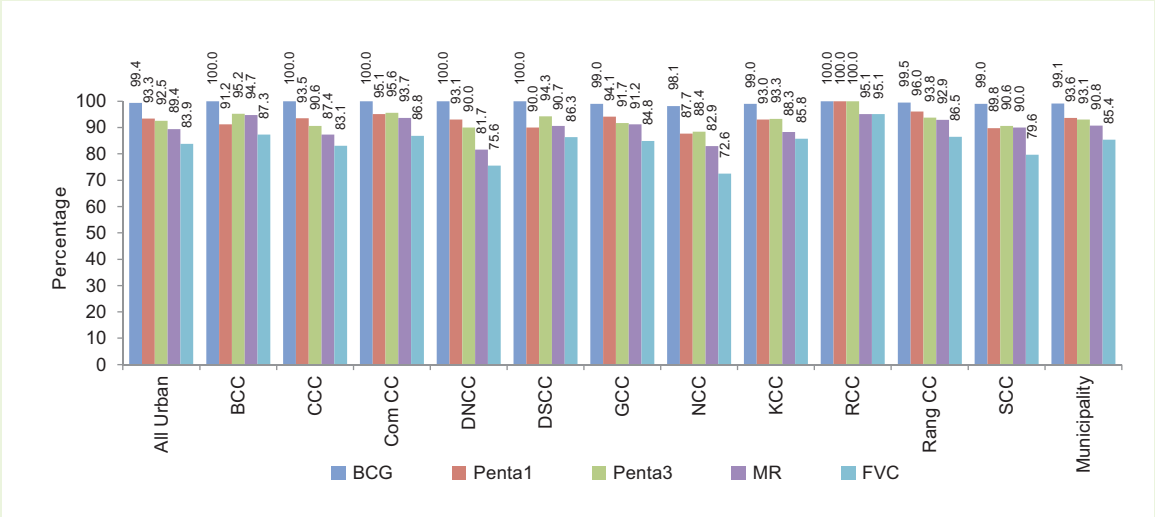
Crude Full Vaccination Coverage by Age of 12 Months: Figure 42 illustrates the crude vaccination coverage by age of 12 months. BCC attained the highest coverage (94.7 percnet) and DNCC the lowest (81.6 percent).

Figure 42: Crude Full Vaccination Coverage by Age of 12 Months in Urban Areas by City Corporation and Municipality in 2015



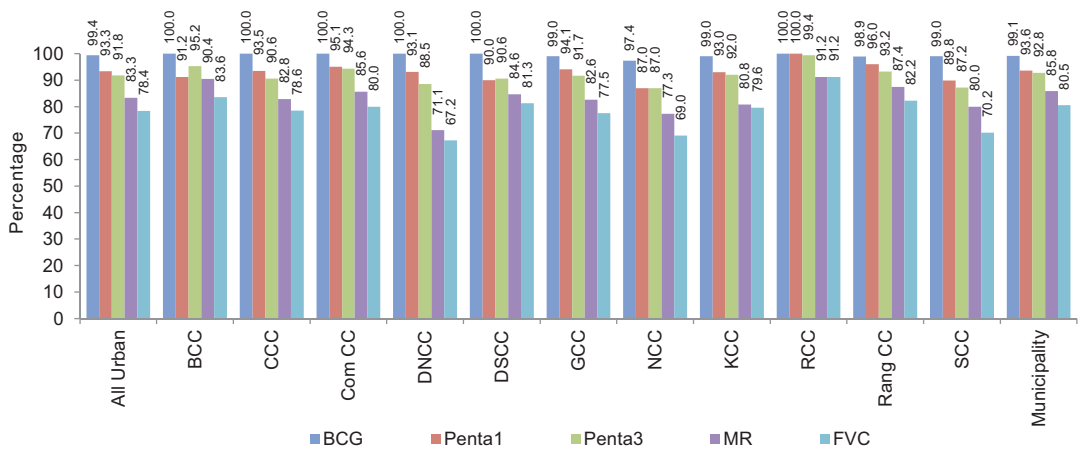
Valid Full Vaccination Coverage by Age of 23 Months: Figure 43 highlights the valid vaccination coverage by age of 23 months by CC. The figure shows that the valid coverage was the highest in RCC (95.1 percent). The next highest was BCC at 87.3 percent, with the rest being between 86.8 percent and the lowest rate of 72.6 percent, in NCC.

Figure 43: Valid Full Vaccination Coverage by Age of 23 Months in Urban Areas by City Corporation and Municipality in 2015



Valid Full Vaccination Coverage by Age of 12 Months: The valid full vaccination coverage by age of 12 months is shown in Figure 44. Among all the city corporations, RCC achieved the highest position with 91.2% coverage. The lowest coverage was revealed in DNCC (67.2 percent). The valid coverage in other city corporations was between 69 percent in NCC and 83.6 percent in BCC.

Figure 44: Valid Full Vaccination Coverage by Age of 12 Months in Urban Areas by City Corporation and Municipality in 2015



3.3.16 Sex Differentials in Coverage

Crude Full Vaccination Coverage by Age of 23 Months by Sex

Figures 45a-45c present the crude full vaccination coverage by age of 23 months. Nationally, 1.3 percentage points difference was noticed in the crude coverage between males and females. The crude full vaccination coverage was 94.8 percent among the males as against 93.5 percent of the females. Similarly, a slight difference was observed between males and females in both the urban and the rural areas.

Figure 45a: Crude Full Vaccination Covearge by Age of 23 Months by Sex in 2015

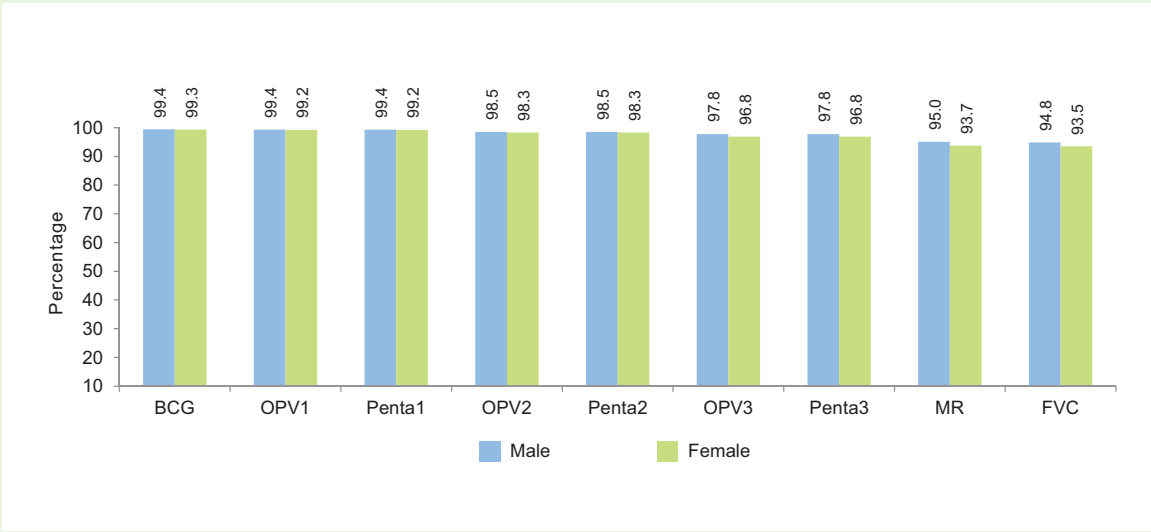


Figure 45b: Crude Full Vaccination Covearge by Age of 23 Months in Urban Areas by Sex in 2015

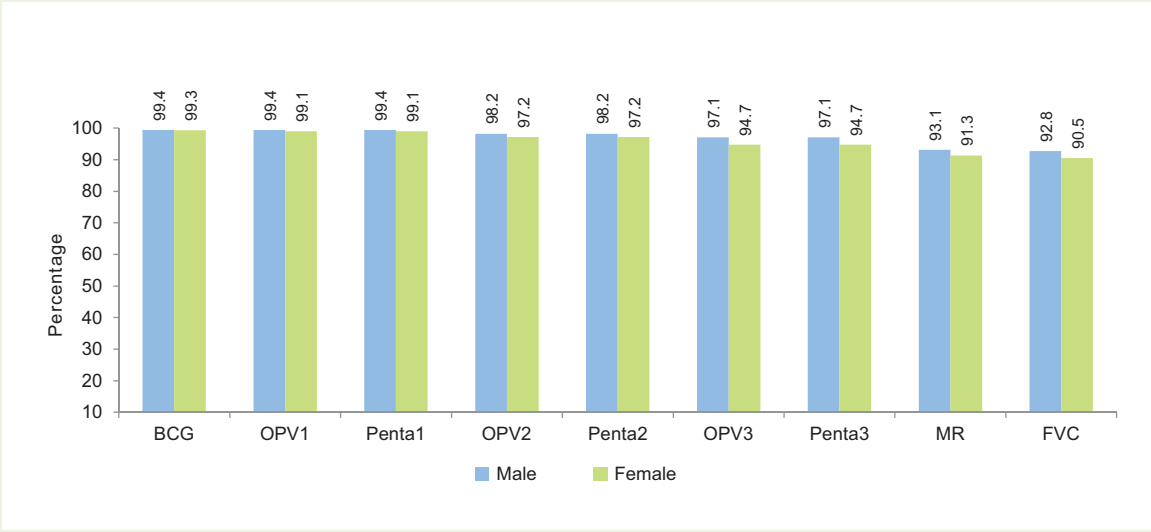
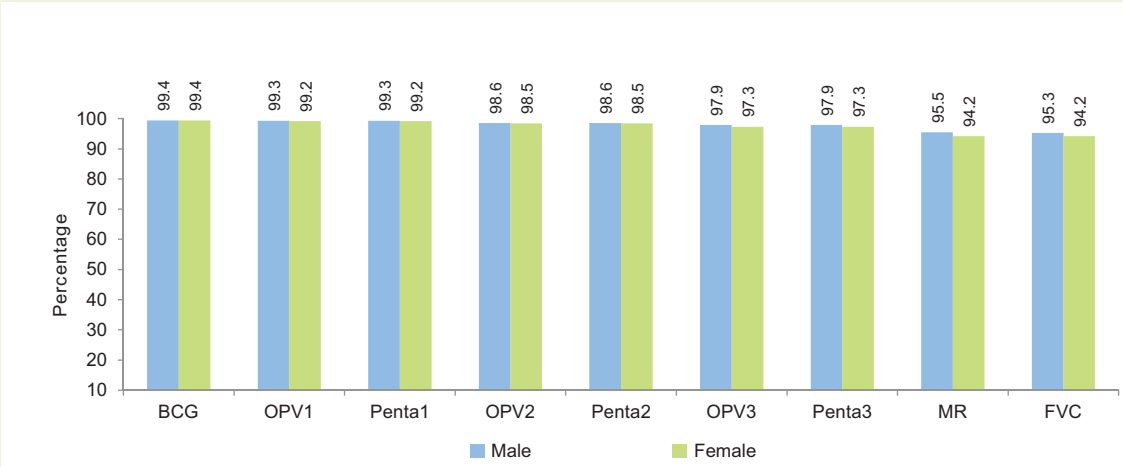


Figure 45c: Crude Full Vaccination Coveage by Age of 23 Months in Rural Areas by Sex in 2015



Crude Full Vaccination Coverage by Age of 12 Months by Sex

Figures 46a-46c present the crude full vaccination coverage by the age of 12 months. Nationally, 2.2 percentage point of difference was noticed in the crude coverage between males and females (90.9 percent vs.88.7 percent). Similarly, males were more likely to receive crude vaccine than females in both the urban (87.1 percent vs. 83.7 percent) and the rural areas (91.8 percent vs. 89.9 percent).

Figure 46a: Crude Full Vaccnation Coverage by Age of 12 Months by Sex in 2015

Figure 46b: Crude Full Vaccination Coverage by Age of 12 Months in Urban Areas by Sex in 2015

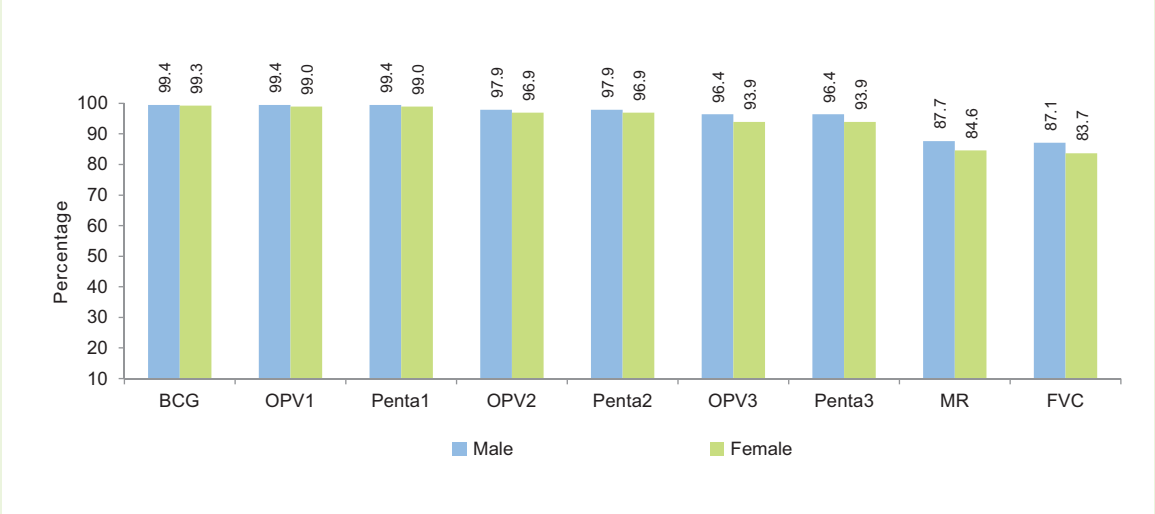
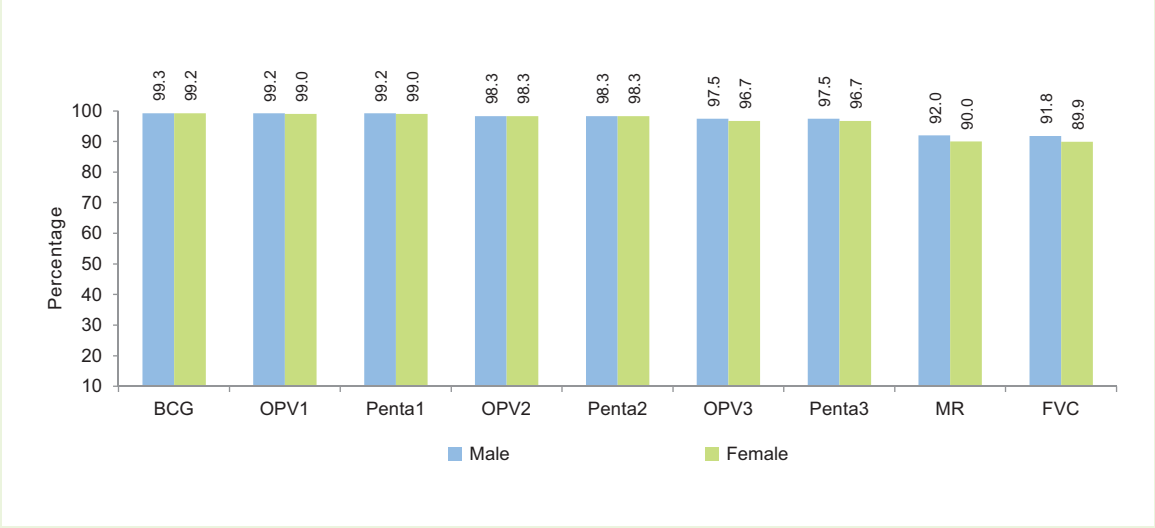


Figure 46c: Crude Full Vaccination Coverage by Age of 12 Months in Rural Areas by Sex in 2015



Valid Full Vaccination Coverage by Age of 23 Months by Sex

Figures 47a-47c depicts the valid full vaccination coverage by age of 23 months. It shows that the valid coverage was 87.5 percent for males and 85.4 percent females. Similarly, it was found slightly higher among the males than the females both in the rural and urban areas.

Figure 47a: Valid Full Vaccination Coverage by Age of 23 Months by Sex in 2015

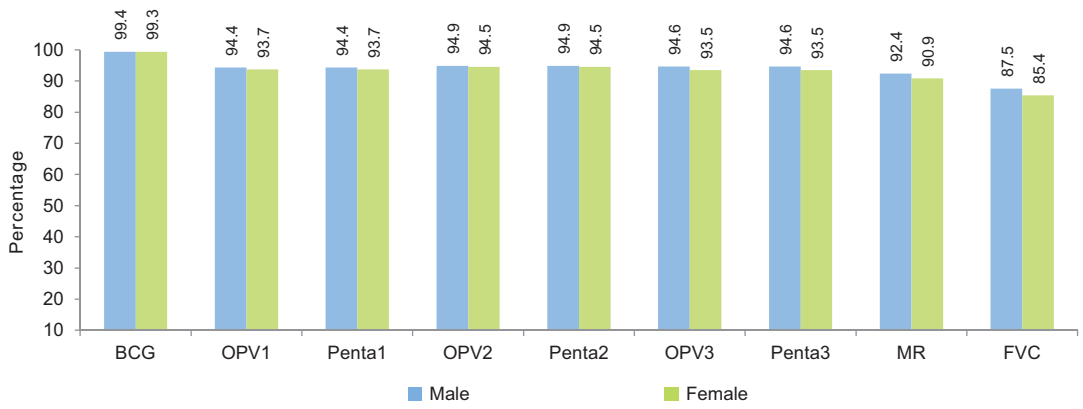


Figure 47b: Valid Full Vaccination Coverage by Age of 23 Months in Urban Areas by Sex in 2015

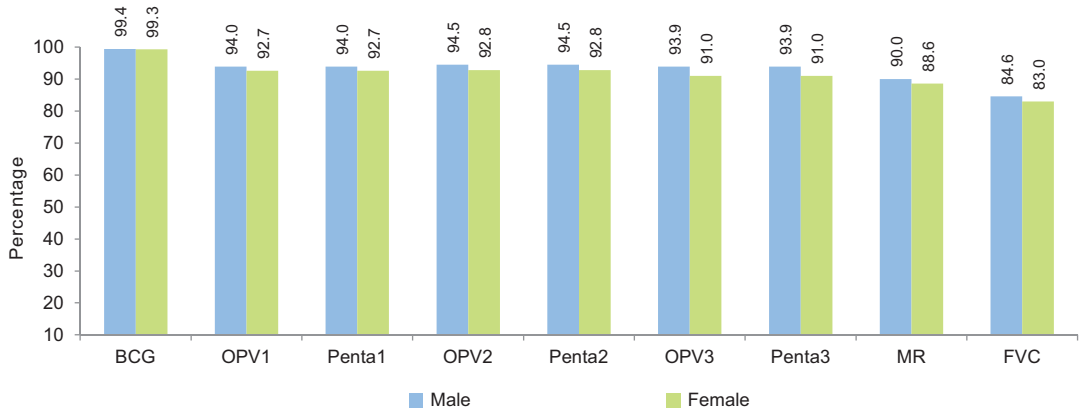
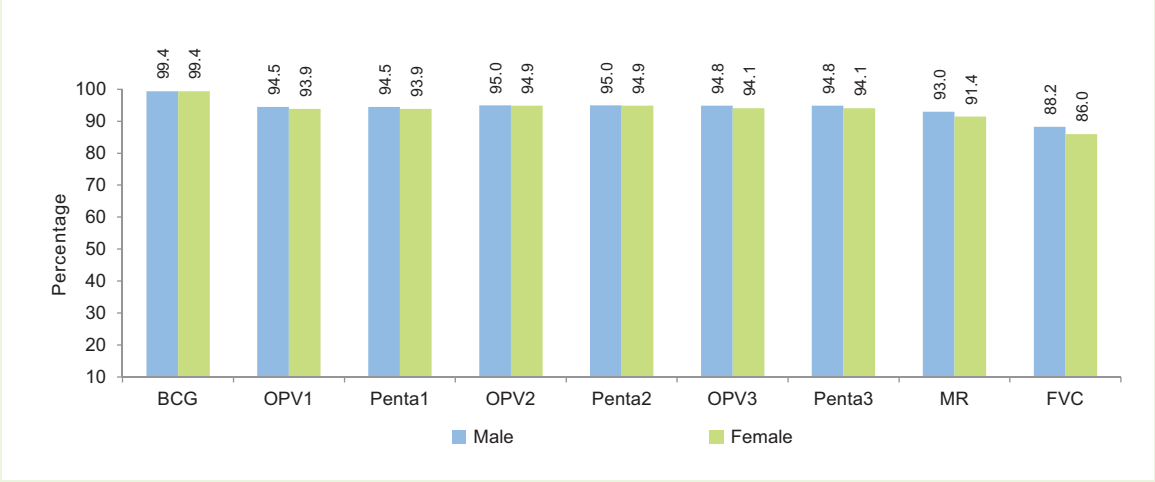


Figure 47c: Valid Full Vaccination Coverage by Age of 23 Months in Rural Areas by Sex in 2015



Valid Full Vaccination Coverage by Age of 12 Months by Sex

Sex differential in the valid full vaccination coverage by age of 12 months is presented in Figures 48a-48c. The valid coverage was found 83.8% for males and 81.1 percent for females. By residence, similar trend in difference was observed between males and females residing in the urban and rural areas.

Figure 48a: Valid Full Vaccination Coverage by Age of 12 Months by Sex in 2015

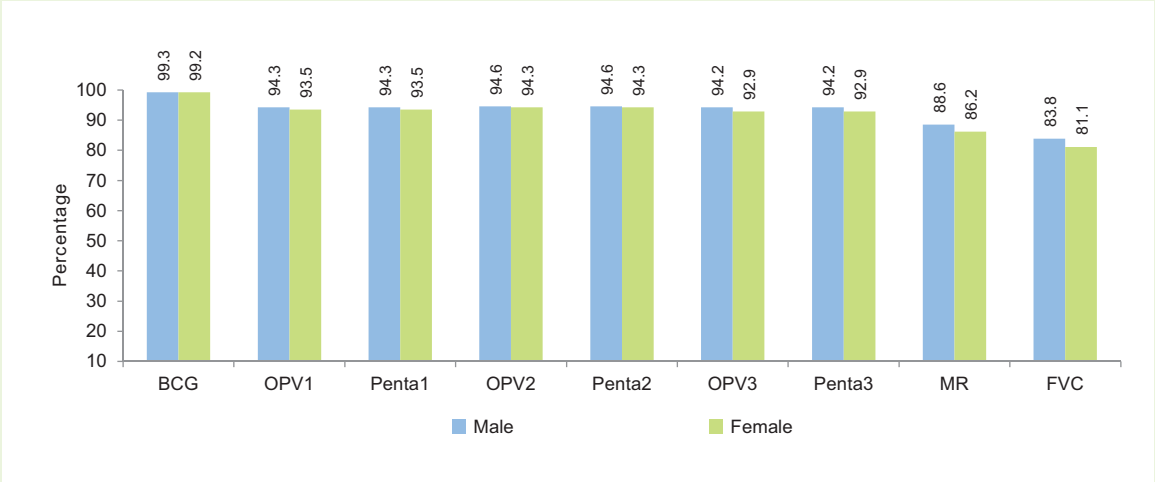


Figure 48b: Valid Full Vaccination Coverage by Age of 12 Months in Urban Areas by Sex in 2015

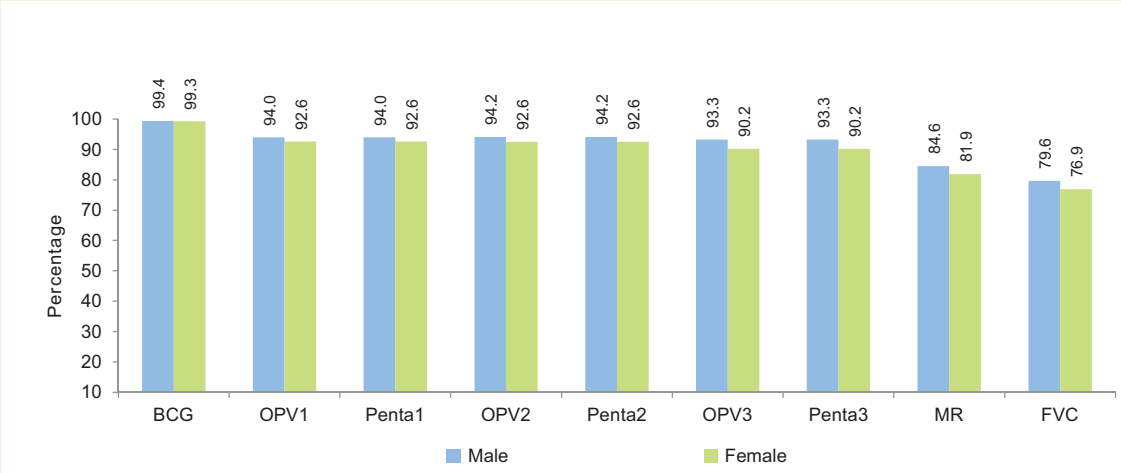
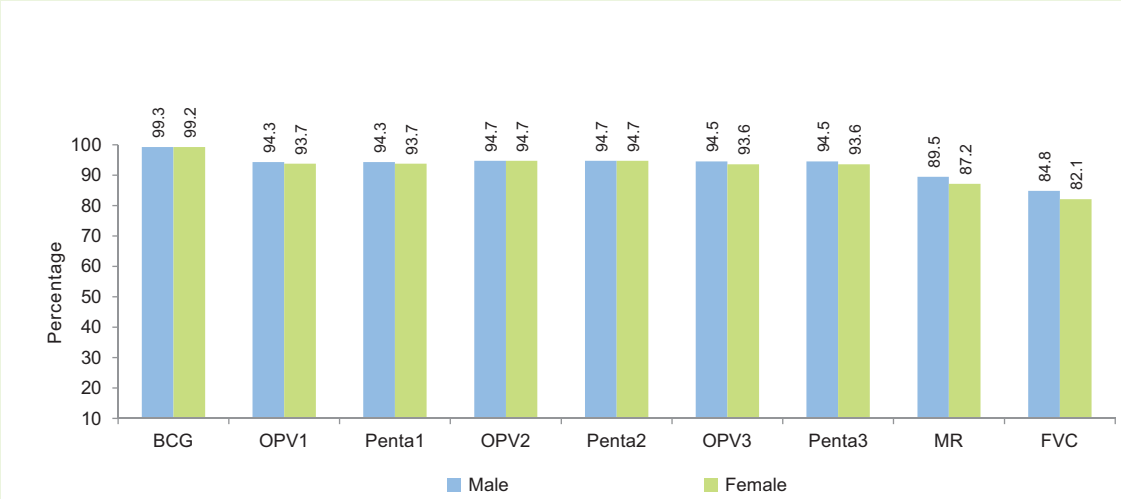


Figure 48c: Valid Full Vaccination Coverage by Age of 12 Months in Rural Areas by Sex in 2015

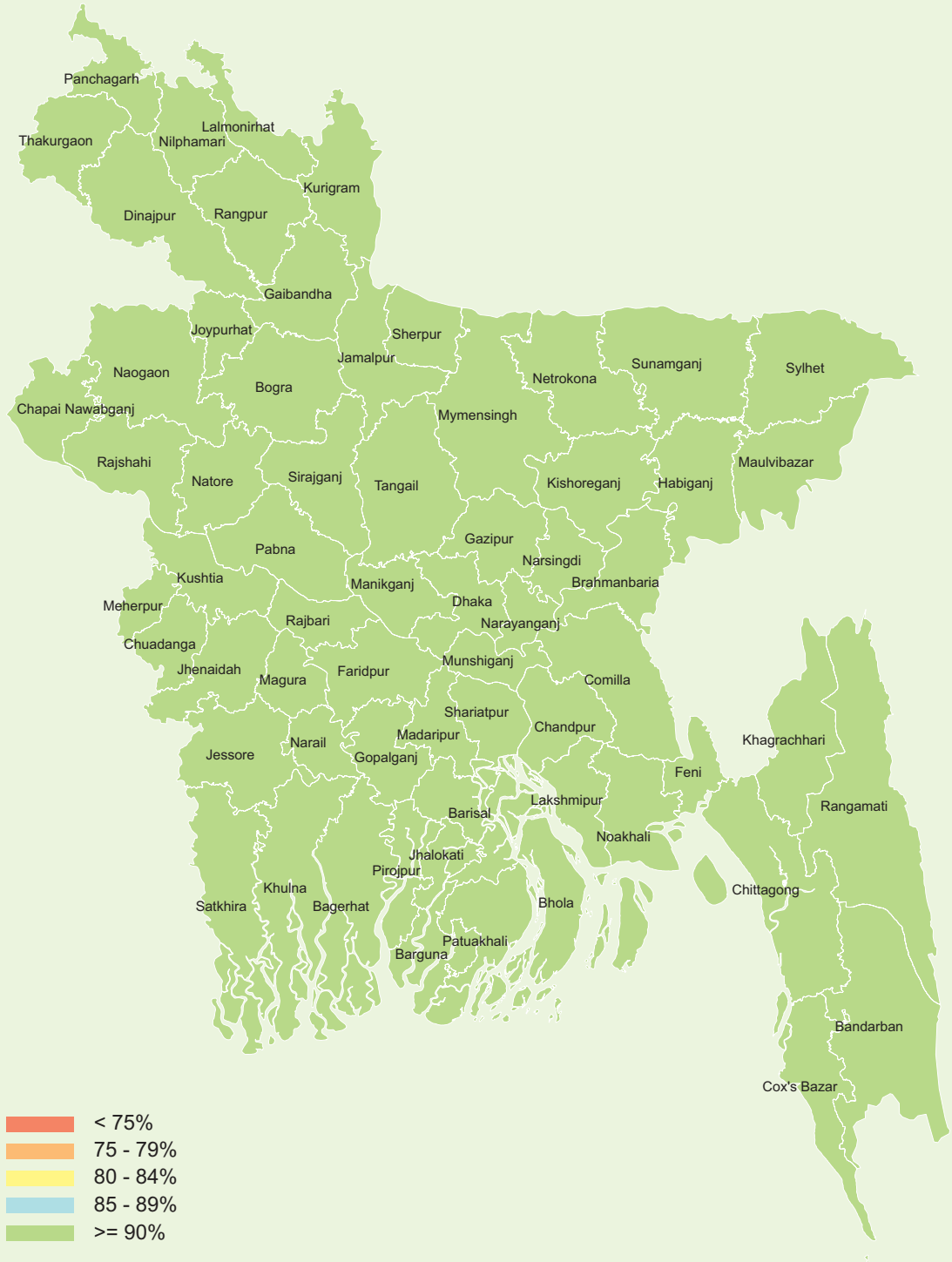


Map 1: Crude Full Vaccination Coverage by Age of 23 Months by District

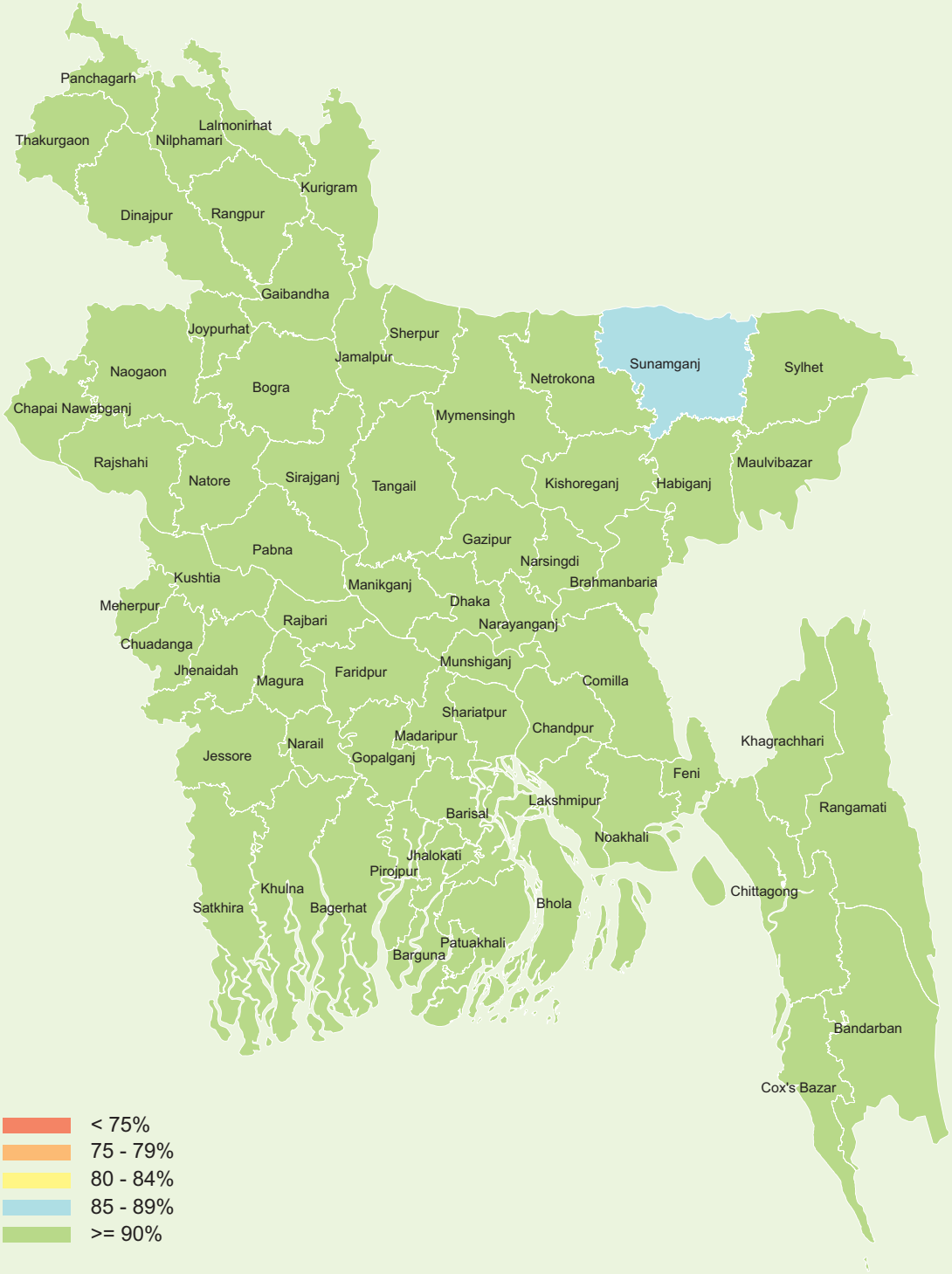
Map 2: Valid Full Vaccination Coverage by Age of 23 Months by District

Map 3: Valid Full Vaccination Coverage by Age of 12 Months by District

Map 4: Valid Penta 3 Vaccination Coverage by Age of 23 Months by District



MAP 5: Valid Penta 3 Vaccination Coverage by Age of 12 Months by District



MAP 6: Valid MR Vaccination Coverage by Age of 23 Months by District

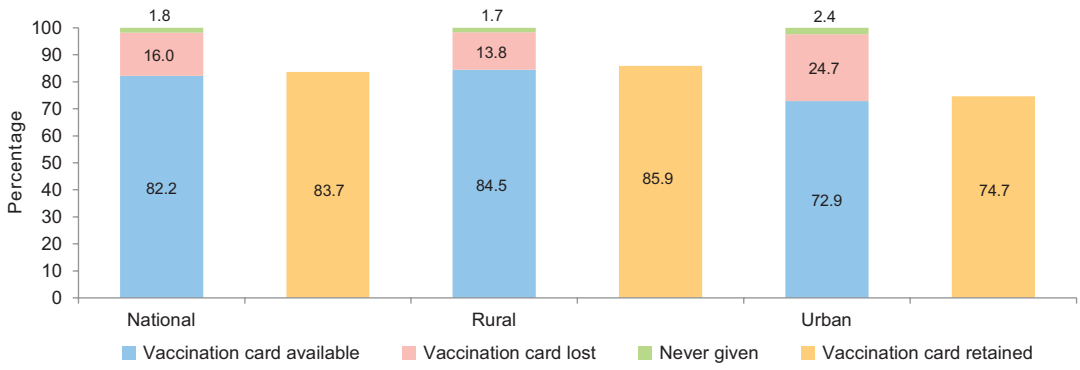
Map 7: Valid MR Vaccination Coverage by Age of 12 Months by District

3.4 PROGRAMME QUALITY

3.4.1 Card Retention Rate

Vaccination cards were issued to all children at the time of their first vaccination. The card contains the dates of first vaccines given to the children, as well as the dates they received subsequent doses. The availability of the card was an important tool for the Coverage Evaluation Survey, as vaccination dates were obtained from the card to estimate the crude and valid coverage. The card retention rate was defined as the proportion of cards available during the survey from the number cards issued at the time of first vaccination. Nationally, 98.2 percent of children received the vaccination card and 83.7 percent of the mothers/caregivers retained it (see Figure 49). The retention rate was considerably higher in rural areas (85.9 percent) than urban ones (74.7 percent).

Figure 49: Vaccination Card Status by National, Rural and Urban Areas in 2015



Among rural areas, the card retention rate was highest in Khulna division (92.6 percent) and lowest in Chittagong (80.1 percent) divisions, with the others being in the upper to mid-80's percentages (see Figure 50) except Barisal and Rangpur division (92.4 percent and 91.5 percent respectively).

Figure 50: Vaccination Card Status in Rural Areas by Division in 2015

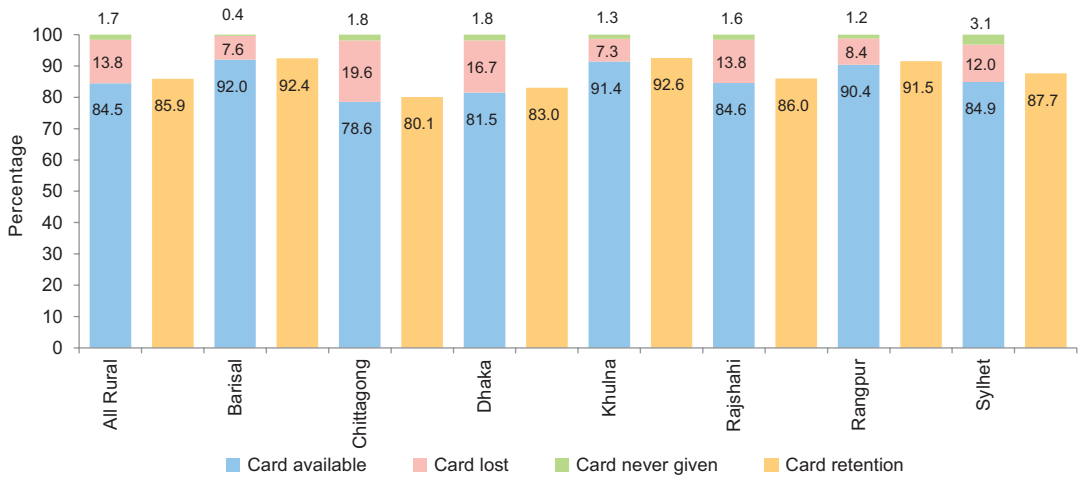
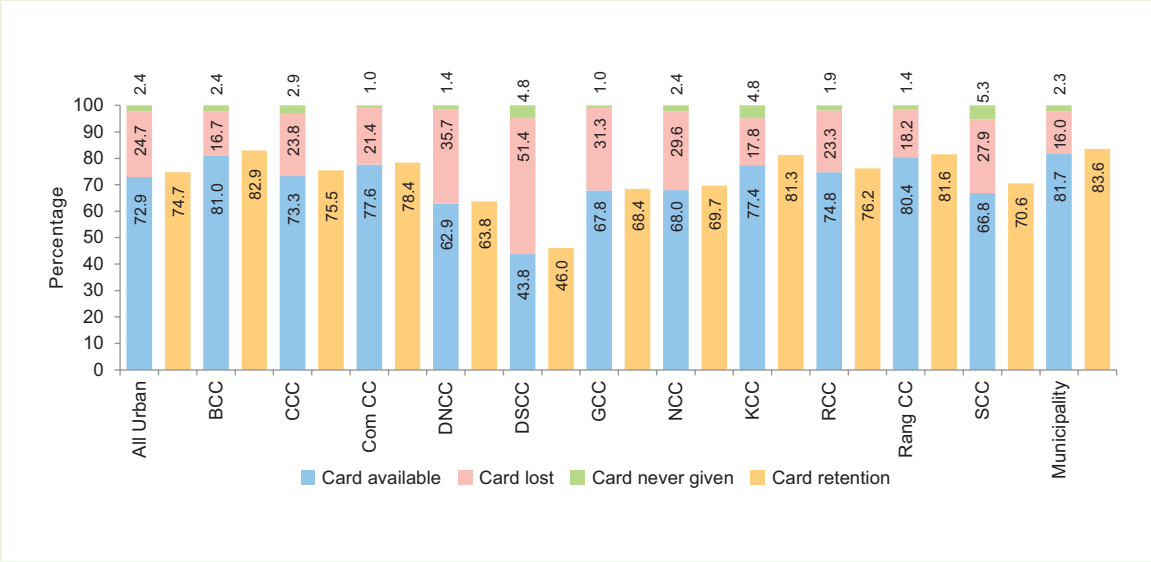


Figure 51 depicts the card retention rate in urban areas by City Corporation. It shows that card retention rate was highest in BCC (82.9 percent) and lowest in DSCC (46.0 percent) with some variations among the others between those two numbers.

Figure 51: Vaccination Card Status in Urban Areas by City Corporation and Municipality in 2015



Map 8: Card Retention Rate of Childhood Vaccination by District

3.4.2 Incidence of Invalid Doses

As it has been discussed earlier, a dose was considered to be invalid when the vaccine was administered any dose of any antigen is administered before the recommended age and/or interval, it is treated as "invalid" dose. CES 2015-estimated invalid doses for Penta1, Penta2, Penta3, and MR vaccines are presented in Figure 52. The highest number of invalid doses were for Penta3 (6.1 percent) and the lowest numbers were for Penta1 and MR vaccines, at 3.1 percent and 3.0 percent respectively. There was a slight variation of invalid doses between urban and rural areas, with invalid doses found to be higher in urban areas.

Figure 52: Incidence of Invalid Penta1, Penta2, Penta3, and MR by National, Rural and Urban Areas in 2015

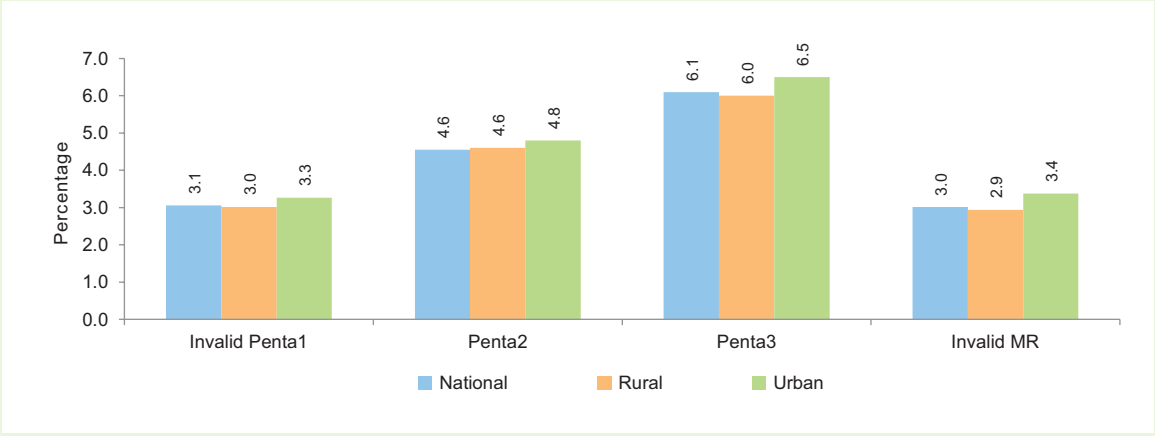
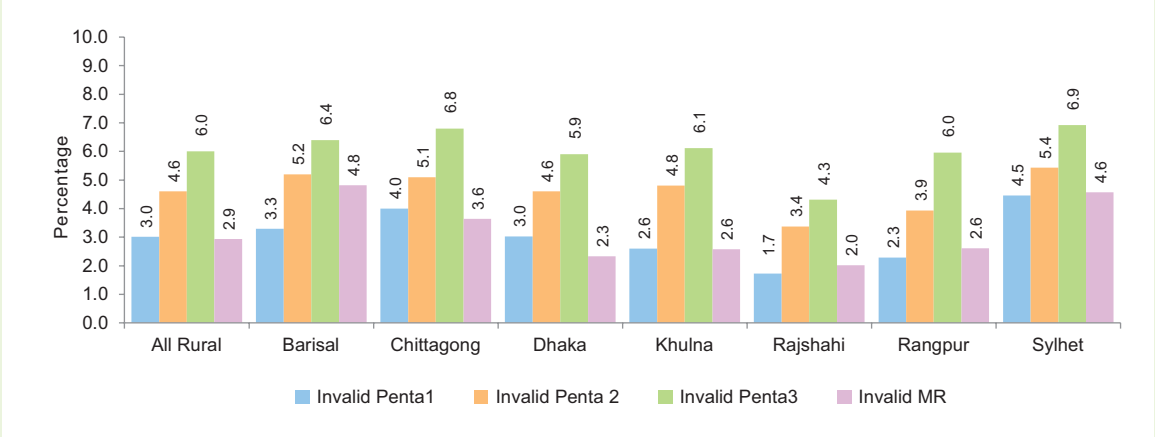


Figure 53 presents invalid doses of different antigens by rural division. It shows that the highest proportion of invalid Penta1 dose was administered in Sylhet division (4.5 percent) and the lowest in Rajshahi division (1.7 percent). Invalid Penta2 and Penta3 doses were highest again in Sylhet division (5.4 percent, and 6.9 percent) and lowest in Rajshahi division (3.4 percent and 4.3 percent, respectively). Regarding invalid MR, Barisal division administered the highest invalid dose (4.8 percent) and Rajshahi division administered the lowest (2.0 percent).

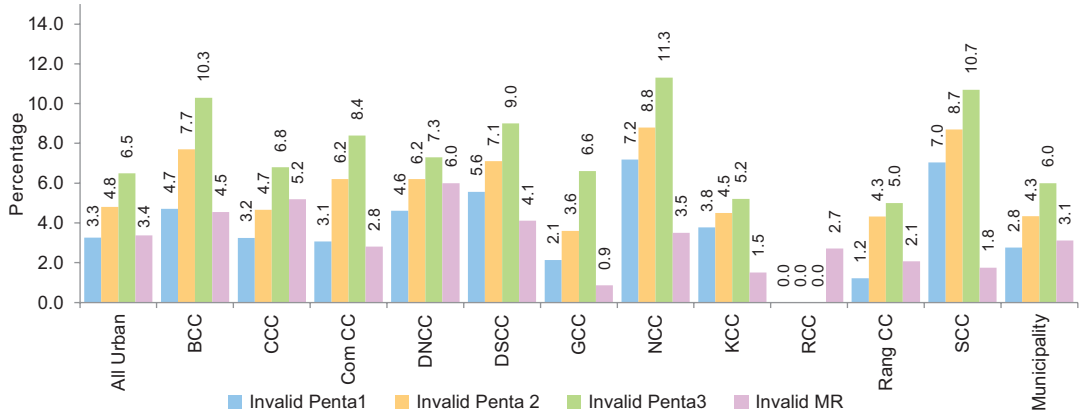
Figure 53: Incidence of Invalid Penta1, Penta2, Penta3 and MR in Rural Areas by Division in 2015



By antigen, as shown in Figure 54, the highest percentage of invalid doses was in NCC, with the highest rate being for invalid Penta3 (11.3 percent), and the next highest Penta3 dropping to 10.7 percent in SCC. There was a wide range of percentages of invalid incidents, with the lowest rate being in RCC (0.0 percent).

According to the EPI-recommended childhood vaccination schedule, MR should be received after 270 days of age, but not later than 365 days. In DNCC, 6.0 percent of children received a MR vaccination outside of that range, the highest percentage. The lowest percentage was 0.9 percent in GCC (see Figure 54).

Figure 54: Incidence of Invalid Penta1, Penta2, Penta3 and MR in Urban Areas by City Corporation and Municipality in 2015

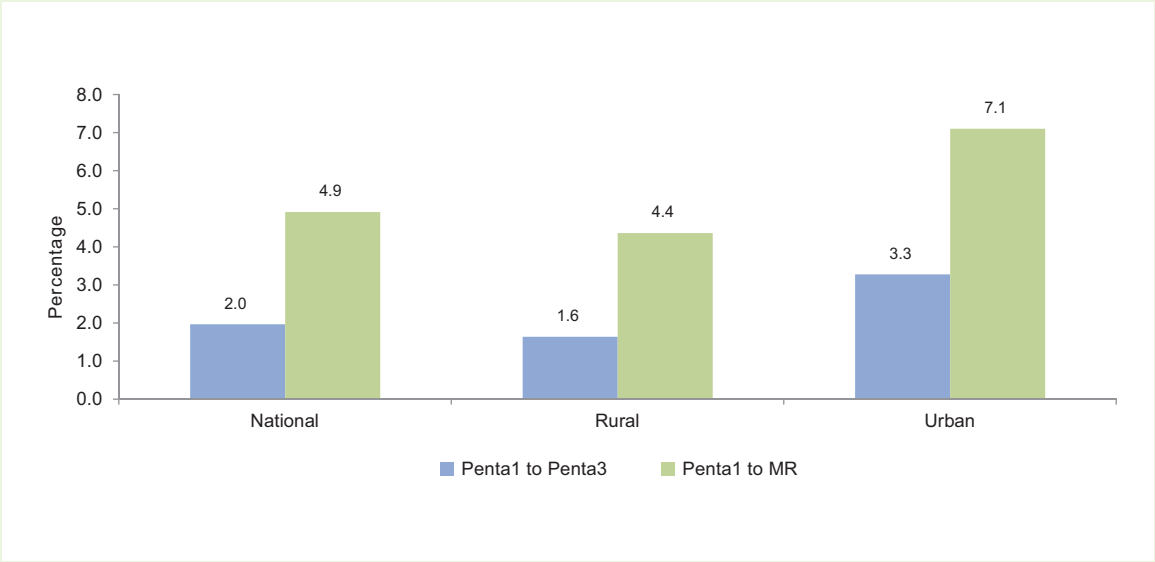


3.4.3 Vaccination Drop-out Rates

Vaccination drop-out rate is crucial to achieving the desired coverage target. To be fully vaccinated, children should receive all the antigens as per the EPI-recommended vaccination schedule before their first birthday. When a child fails to receive a subsequent dose of any one of the same or different recommended vaccines (one dose of BCG, three doses each of Penta and OPV, and one dose of MR vaccine), it is interpreted as a drop-out case. In CES 2015, the drop-out rate from Penta1-Penta3 was defined as the proportion of children who received Penta1, but failed to receive Penta3. Similarly, the drop-out rate from Penta1-MR was defined as the proportion of children who received Penta1 but failed to receive MR.

Figure 55 presents the drop-out rates from Penta1-Penta3 and Penta1-MR. Nationally, the Penta1-Penta3 drop-out rate was 2.0 percent, with the rate was slightly lower in rural areas (1.6 percent) than in urban areas (3.3 percent). In comparison, the Penta1-MR drop-out rate was 4.9 percent as a whole, and 2.7 percentage points higher in urban areas (7.1 percent) than rural (4.4 percent).

Figure 55: Vaccination Drop-out Rates from Penta1-Penta3 and Penta1-MR by National Rural and Urban Areas in 2015



By sex, the drop-out rate from Penta1-Penta3 was slightly higher among females than among males (2.4 percent vs. 1.6 percent). Nationally, a slightly higher proportion of males (4.3 percent) failed to receive MR, compared to their female counterparts (3.8 percent) (see Figures 55a and 55b).

Figure 55a: Vaccination Drop-out Rate from Penta1-Penta3 by Sex at National Level in 2015

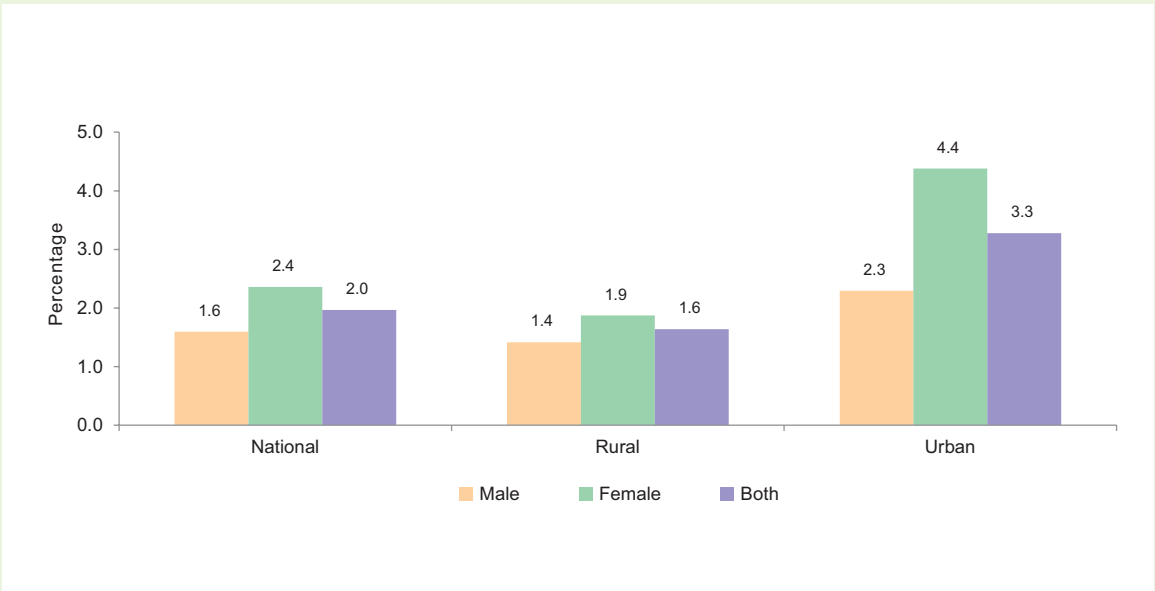


Figure 55b: Vaccination Drop-out Rate from Penta1-MR by Sex at National Level in 2015

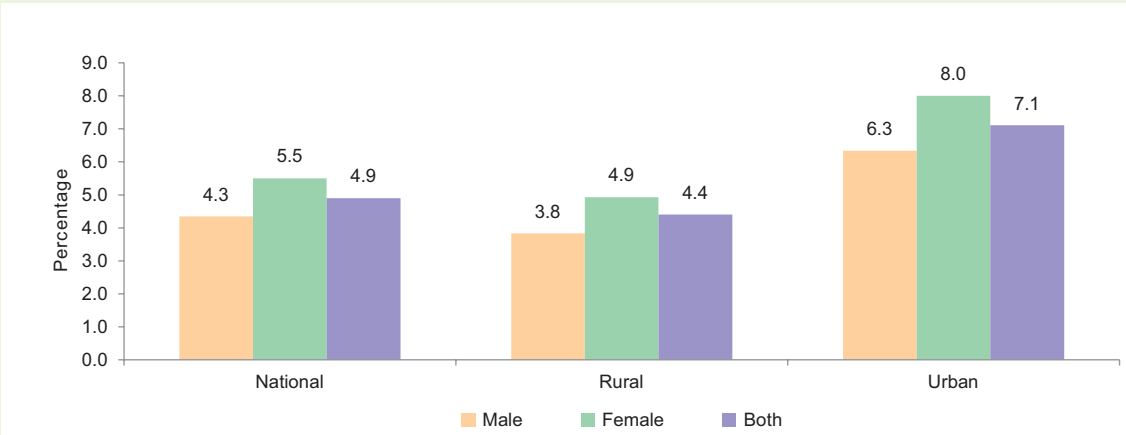


Figure 56 presents the drop-out rate by rural division. Among the seven divisions, the Penta1-Penta3 drop-out rate was highest in Sylhet division, at 2.4 percent, with the next highest considerably lower, at 2.2 percent, in Dhaka and the lowest being 0.7 percent in Barisal division. Similarly, Penta1-MR dropout rate was highest in both Sylhet and Dhaka division at 5.3 percent each and lowest in Barisal divisions (1.9 percent). The Penta1-MR drop-out rate ranged between 5.0 percent and 3.1 percent in other divisions.

Figure 56: Vaccination Drop-out Rates from Penta1-Penta3 and Penta1-MR in Rural Areas by Division in 2015

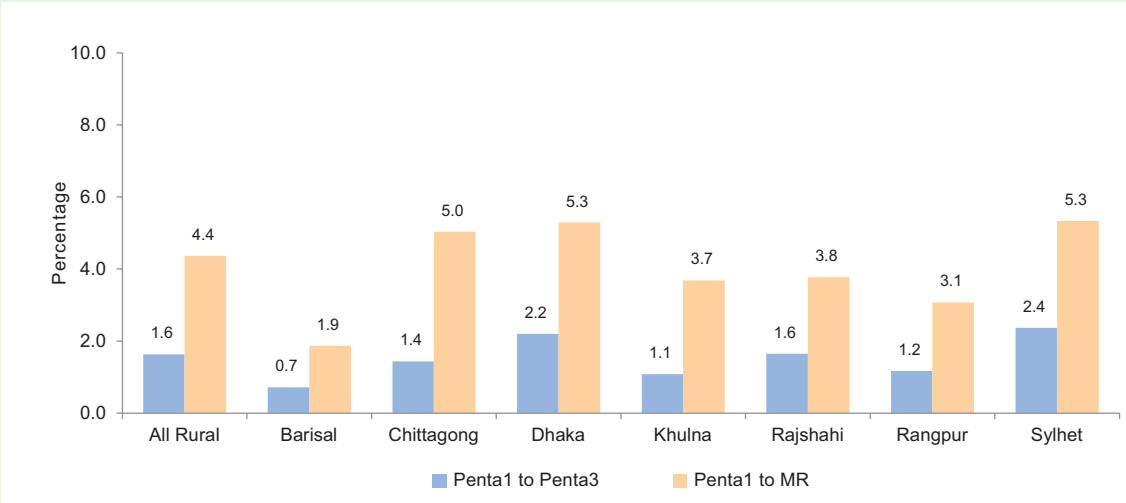
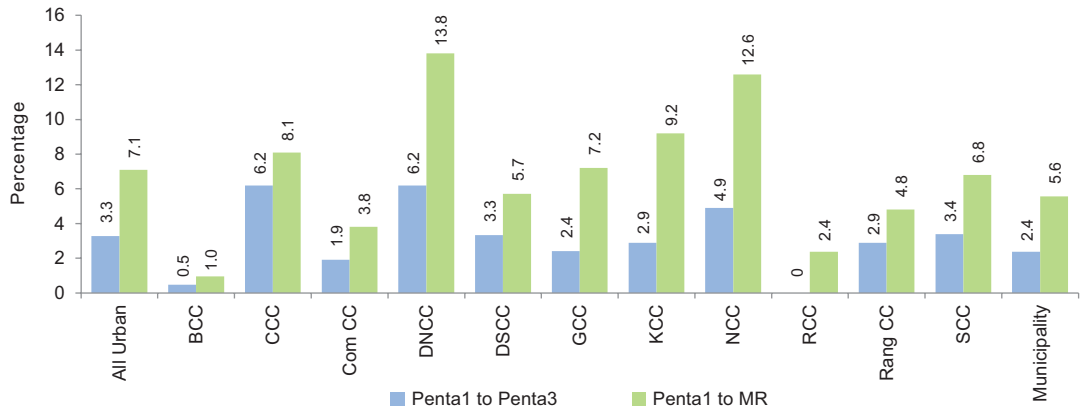


Figure 57 illustrates the drop-out rate in the urban context by citycorporation. Among the city corporations, the highest Penta1-Penta3 drop-out rate ranged from 6.2 percent in CCC and DNCC to 0.5 percent in BCC, with no drop-out rate observed in RCC. Similarly, the Penta1-MR drop-out rate was again highest in DNCC (13.8 percent) and the lowest in BCC (1.0 percent). In other city corporations, the Penta1-MR dropout rate was between 3.8 percent and 12.6 percent.

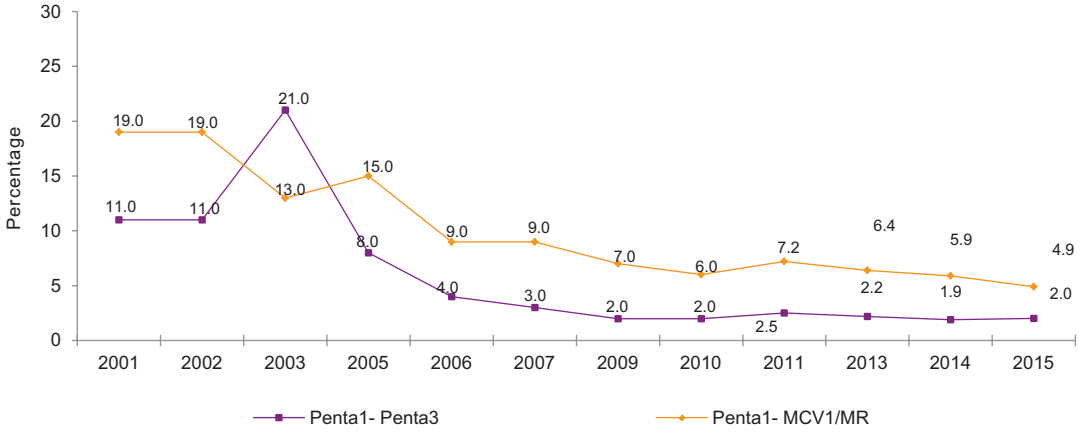
Figure 57: Vaccination Drop-out Rates from Penta1-Penta3 and Penta1-MR in Urban Areas by City Corporation and Municipality in 2015



3.4.3.1 Trend in National Drop-out Rates

In analysis of the trend in national drop-out rates, considerable improvement can be seen in the rates of over a decade ago. The drop-out rate for Penta1-Penta3 vaccinations fluctuated from 2001 to 2005, when it rose from 11.0 percent to 21.0 percent (see Figure 58). After the high of 2003, it again dropped to 8.0 percent in 2005, and decreased down to 2.0 percent in 2009. Since then, it has ranged around 2.0 percent, including in 2015, when it was exactly at 2.0 percent.

Figure 58: Annual Trend in National Vaccination Drop-out Rates for Penta1-Penta3 and Penta1-MCV1/MR from 2001-2015



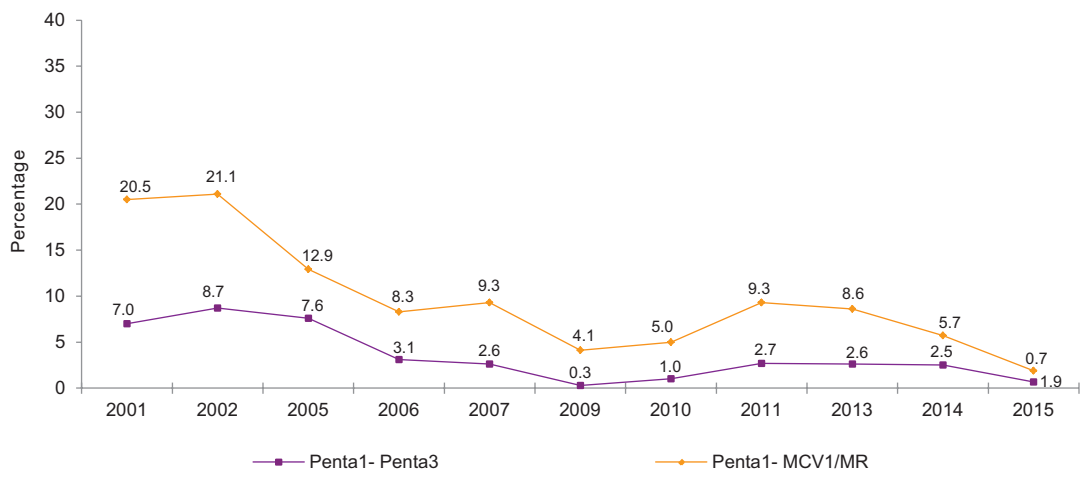
The declining trend was also observed for Penta1-MCV1/MR drop-out rate. Penta1-MCV1/MR drop-out rate decreased by 4 percentage points- from 19.0 percent in 2001 to 15.0 percent in 2005, when it, too, began a sharp decline by 10 percentage points to 4.9 percent in 2015. While not as stable as the Penta1-Penta3 rate, it has ranged between 7.0 percent and 5.0 percent since 2009.

3.4.3.2 Trend in the Divisional Drop-out Rates

Figures 59-64 show the trend in the divisional drop-out rate from Penta1-Penta3 and Penta1-MCV1/MR (Rangpur divisions' figures are included in the Rajshahi divisions' figures before 2010, the year Rangpur became its own division). The figures suggest that the trend of both Penta1-Penta3 and Penta1-MCV1/MR drop-out rates are on a declining trend since 2005, but fluctuations remain in some divisions Barisal division reaching 0.7 percent in 2015, the lowest level of all the divisions. The second lowest drop out r.ate was observed in Khulna division at 1.5 percent.

During the 2001 to 2015 period, the Penta1-MCV1/MR drop-out rate decreased at an even more rapid pace than Penta1-Penta3 for all divisions. After highs in the 2001 that ranged from 11.1 percent in Khulna to 45.7 percent in Sylhet, most divisions experienced a very steep decline through the next decade. By 2010, Sylhet's rate was 37 percentage points lower, at 9.0 percent and Barisal had declined 16 percentage points to 5.0 percent, a trend that the other divisions shared. By 2010, the divisions had reached rates of 3.0 percent in Rajshahi to 9.0 percent in Sylhet. Since then, most experienced an increase in 2011, but have again either stabilized or declined with the exception of 2014 where Khulna division had increased drop out rates from 4.0 percent in 2010 to 6.1 percent in 2014. As of the CES 2015, the lowest Penta1-MCV1/MR dropout rate is in Barisal at 1.9 percent, and the highest is in Dhaka, at 6.2 percent.

Figure 59: Annual Trend in Vaccination Drop-out Rates for Penta1-Penta3 and Penta1-MCV1/MR in Barisal Division from 2001 to 2015



The trend analysis also suggests that compared to CES 2014, both Penta1-Penta3 rates have decreased in all divisions except Chittagong, Dhaka and Rajshahi where penta 1- penta 3 drop out rate increased from 1.7 percent to 1.9 percent in Chittagong, 2.2 percent to 2.6 percent in Dhaka and 1.0 percent to 1.9 percent in Rajshahi division. Similarly, penta 1- MCV1/MR drop out rate decrease in all the division except Rajshhai division. Penta1- MCV1/MR dropout rate increased from 2.8 percent to 4.2 percent.

Figure 60: Annual Trend in Vaccination Drop-out Rates for Penta1-Penta3 and Penta1-MCV1 / MR in Chittagong Division from 2001 to 2015

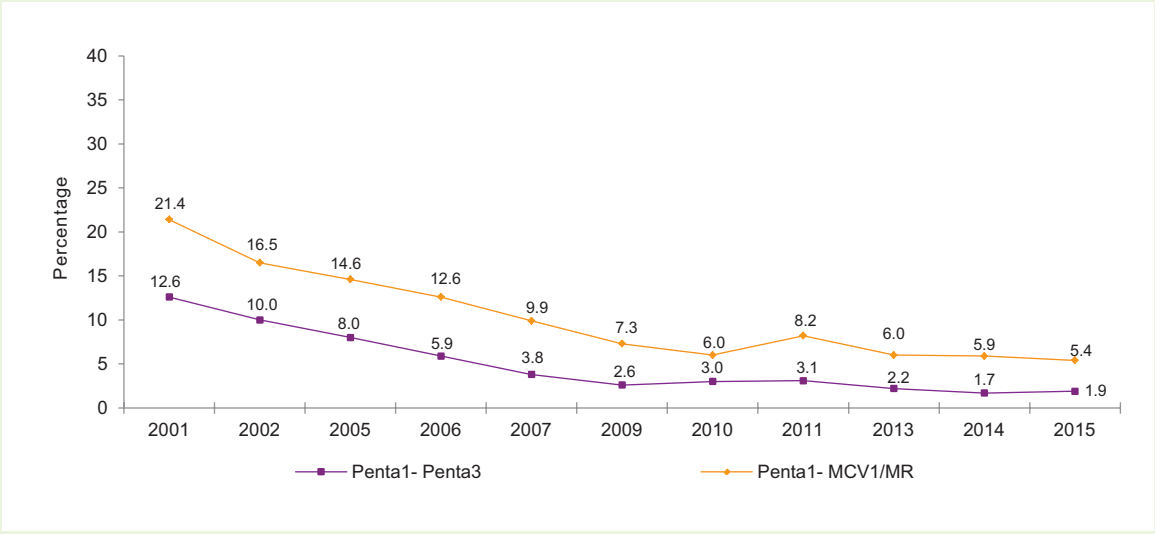


Figure 61: Annual Trend in Vaccination Drop-out Rates for Penta1-Penta 3 and Penta1-MCV1/ MR in Dhaka Division from 2001 to 2015

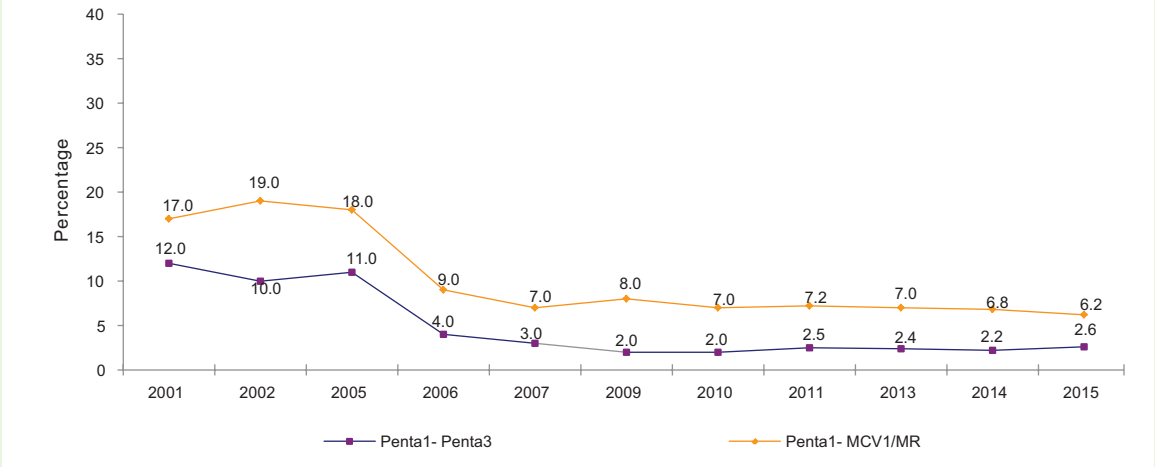


Figure 62: Annual Trend in Vaccination Drop-out Rates for Penta1-Penta3 and Penta1-MCV1/ MR in Khulna Division from 2001 to 2015

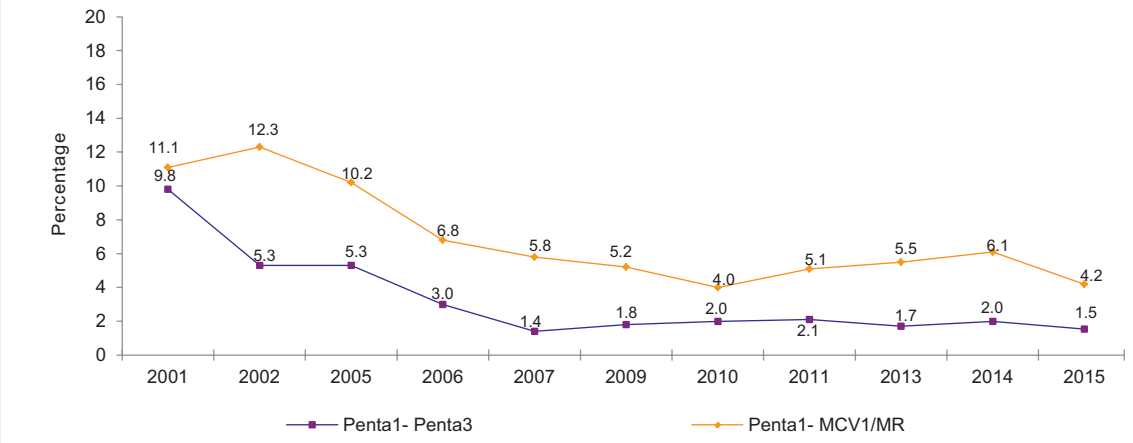
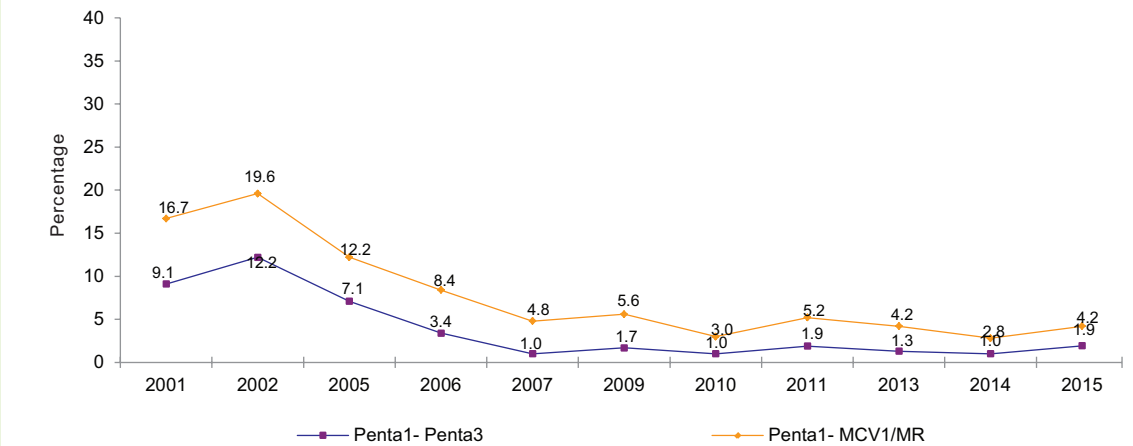
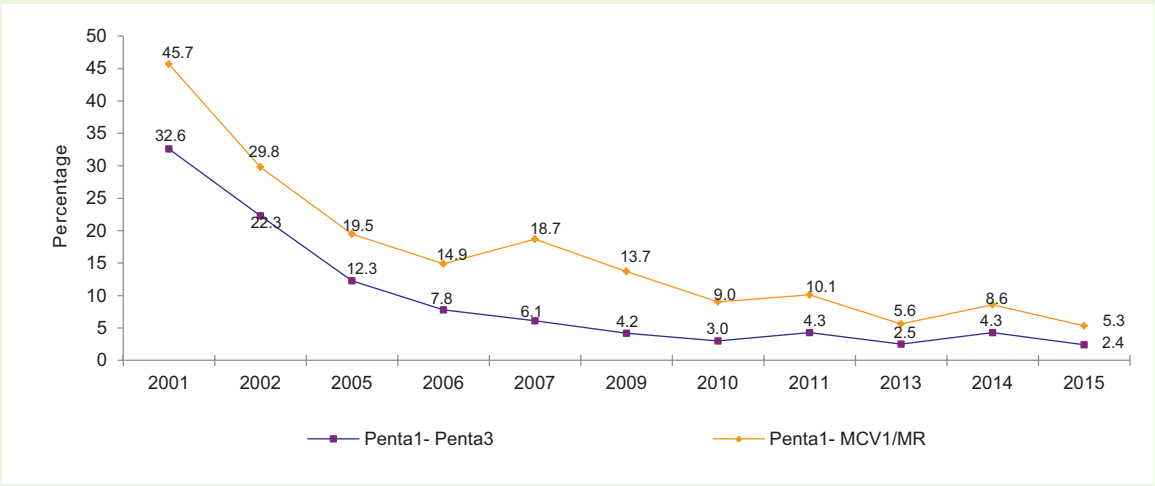


Figure 63: Annual Trend in Vaccination Drop-out Rates for Penata1-Penta3 and Penta1-MCV1/ MR in Rajshahi Division* from 2001 to 2015



* Before 2010 Rangpur division included in Rajshahi division

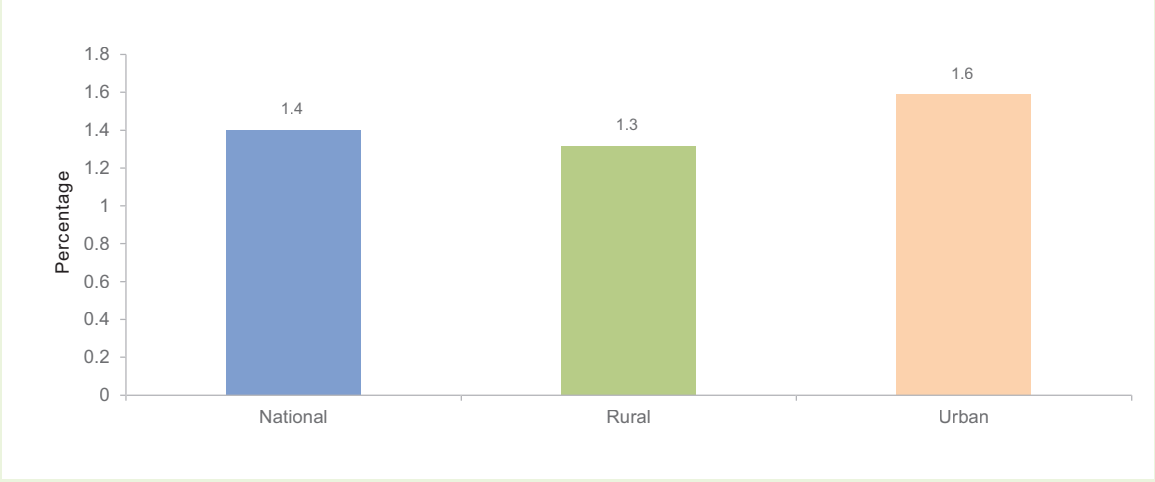
Figure 64: Annual Trend in Vaccination Drop-out Rates for Penta1-Penta3 and Penta1-MCV1/ MR in Sylhet Division from 2001 to 2015



3.4.4 Adverse Events Following the Immunization

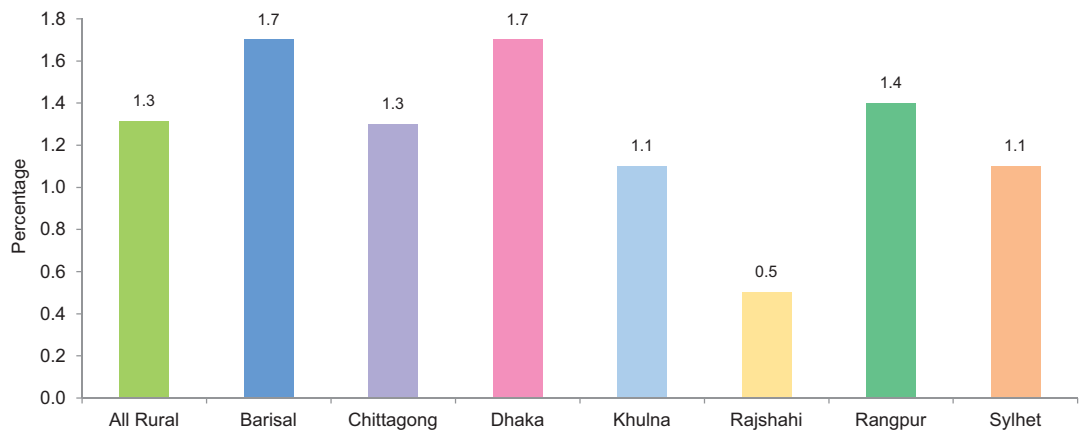
In rare cases, adverse events may occur following vaccination. In CES 2015, mothers/caregivers at Penta or MR vaccinations were asked about adverse events. Nationally, 1.4 percent of the mothers/caregivers of vaccinated children reported that their children developed abscesses as a form of AEFI after receiving Penta or MR vaccines, with very little difference between children in urban (1.6 percent) and rural (1.3 percent) areas (see Figure 65).

Figure 65: Incidence of Abscess Following Pentavalent or MR Vaccination in National, Rural and Urban Areas in 2015



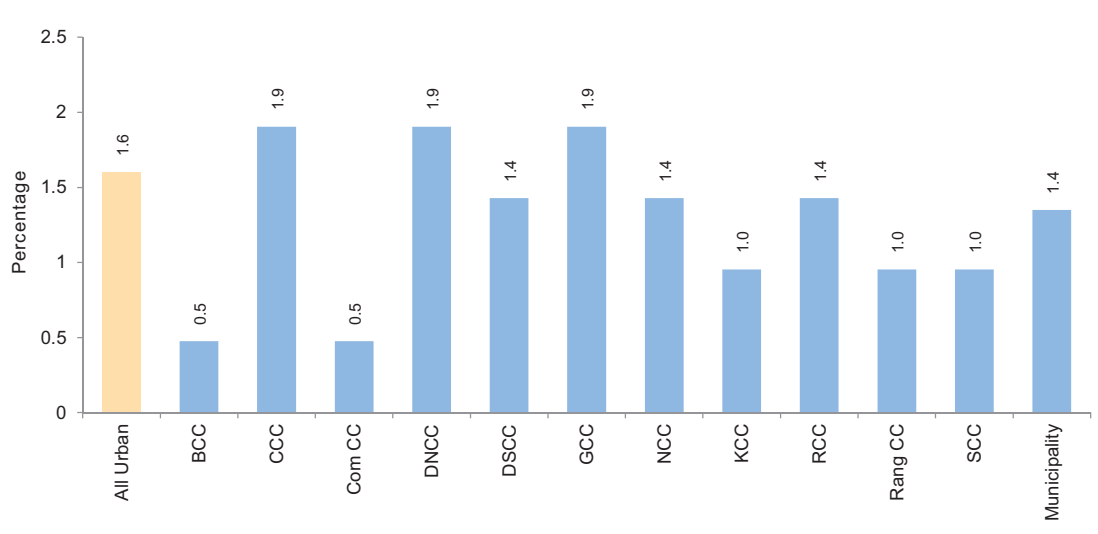
In rural areas, the division with the highest proportion of children who experienced abscesses was Dhaka (1.7 percent) and the lowest proportion was in Rajshhai division (0.5 percent). In the other divisions, the rate ranged between 1.7 percent and 1.1 percent.

Figure 66: Incidence of Abscess Following Pentavalent or MR Vaccination in Rural Areas by Division in 2015



Among the city corporations, the incidence of adverse events was highest in DNCC, GCC and CCC (1.9 percent), followed by DSCC, NCC and RCC (1.4 percent), KCC, Rang CC and SCC (1.0 percent) and the lowest in BCC and Com CC (.05 percent).

Figure 67: Incidence of Abscess Following Pentavalent or MR Vaccine in Urban Areas by City Corporation and Municipality in 2015



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3.4.5 Knowledge about the Common Side-Effects of Vaccination

Vaccinations can cause minimal side-effects, such as fevers or local reactions at the injection site. CES 2015 assessed the knowledge of mothers/caregivers regarding the minor side-effects caused by vaccination. Overall, fever was the most reported known side-effect. Nationally, by 92.6 percent of the mothers/caregivers and by 88.6 percent in urban areas and 93.5 percent in rural (see Figure 68). Among rural divisions, more than 95.0 percent of the mothers/caregivers from Rangpur, Rajshahi, and Barisal reported knowing that fever can be a side effect (see Figure 69).

Figure 68: Knowledge on Adverse Events Following Vaccination by National, Rural and Urban Areas in 2015

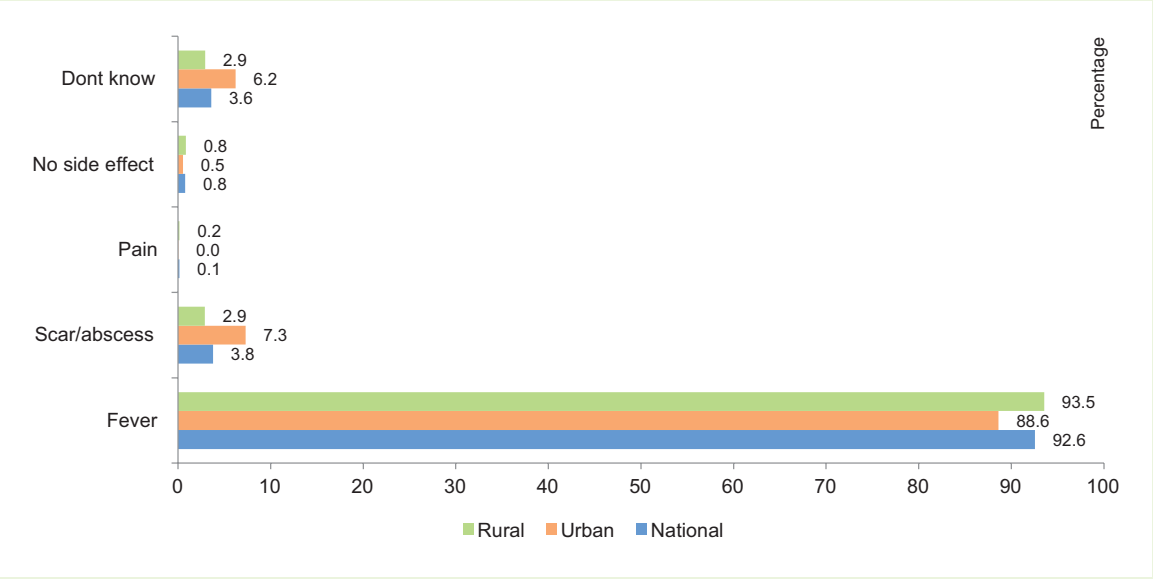
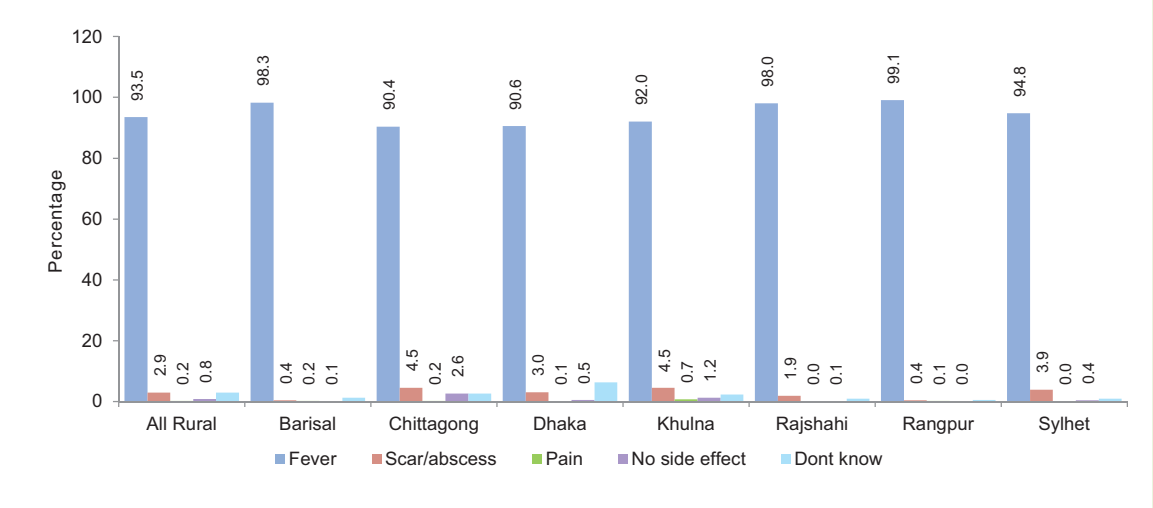
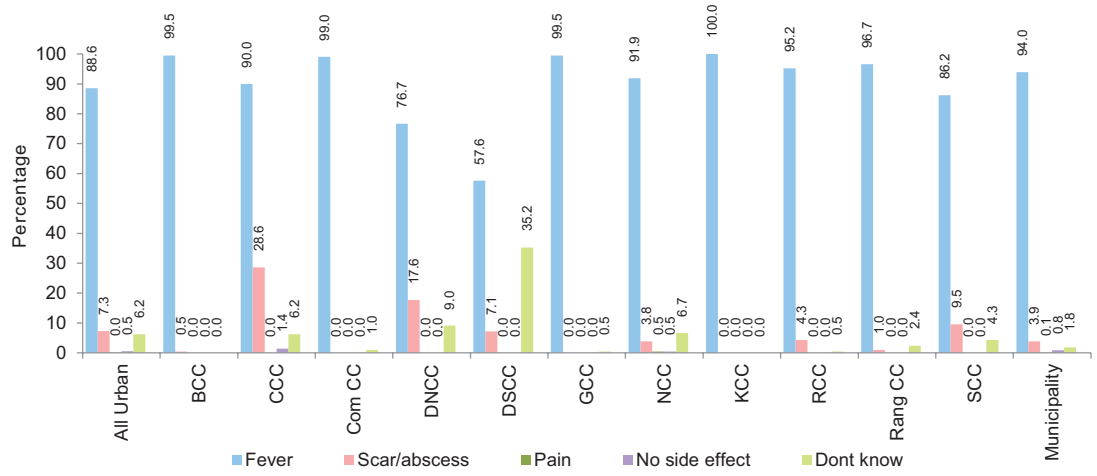


Figure 69: Knowledge on Adverse Events Following Vaccination in Rural Areas by Division in 2015



Ninety two percent of the mothers/caregivers from Khulna division reported it, followed by Dhaka (90.6 percent) and Chittagong divisions (90.4 percent) (see Figure 69). Likewise, more than 90.0 percent of the mothers/ caregivers from Rang CC, RCC, KCC, NCC, BCC, GCC, and Com CC reported knowing about the possibility of fever. In the other city corporations, the proportion of the mothers/caregivers who reported knowing fever is a common side-effect ranged from 57.6 percent to 90.0 percent (see Figure 70).

Figure 70: Knowledge on Adverse Events Following Vaccination in Urban Areas by City Corporation and Municipality in 2015



3.5 REASONS FOR NEVER VACCINATION OR PARTIAL VACCINATION

Left-outs, those who never received a vaccination and drop-outs from subsequent doses result in low crude and valid vaccination coverage. CES 2015 addressed reasons for not receiving the vaccine. The findings are presented below.

3.5.1 Reasons for Never Vaccination

Among the surveyed children, less than 1 percent did not receive any vaccine. Table 5 presents reasons for never vaccinating children, with the reasons mentioned by the mothers/caregivers. The figure shows that about one-third (32.3.percent) of the mothers scared of side effect. By residence, rural were more scared of side effect compared to their urban counter parts (35.4 percent vs. 19 percent). Sixteen percent of the mothers/caregivers reported that they were busy with household's cores. Fifteen percent of them were unaware of vaccination service. More than one in ten mothers/ caregivers reported that they don't believe in vaccination followed by unaware of schedule of subsequent doses (7.7 percent); and due to illness of child (6.3 percent).

Reasons for never vaccination by rural divisions and city corporations are presented in Table 6 and Table 7.

Table 5: Reasons for Never Vaccination by National, Rural and Urban Areas in 2015

Reasons	National	Rural	Urban
Didn't know that my child should be given vaccine	15.4	16.9	9.1
Didn't know when to go for the second/third dose	3.4	4.3	0.0
Didn't know when to go for vaccine of MR	4.3	5.3	0.0
Didn't know where to go for vaccine	0.7	0.3	2.5
Fearing side effects	32.3	35.4	19
Rumor	1.9	2.4	0.0
Don't believe in vaccination	13.8	11.8	22.2
Was busy and so couldn't give vaccine to child	15.6	15.6	15.3
There was no vaccine in the center	1.2	1.5	0.0
Vaccine centre was too far	1.4	1.5	1.1
The child was sick, so was not taken to the vaccination cent	6.3	3.9	16.5
The child was sick, so the vaccinator didn't give vaccine	2.5	1.3	7.5
Mother was sick	1.3	0.0	6.8
Total	100	80	20

Table 6: Reasons for Never Vaccination in Rural Areas by Division in 2015

Reasons	All Rural	Barisal	Chittagong	Dhaka	Khulna	Rajshahi	Rangpur	Sylhet
Didn't know that child should be given vaccine	16.9	0.0	31.3	6.1	29.5	0.0	0.0	10.9
Didn't know when to go for the second/ third dose	4.3	0.0	9.7	0.0	13.1	0.0	0.0	0.0
Didn't know when to go for vaccine of MR	5.3	0.0	9.7	0.0	0.0	28.3	0.0	0.0
Didn't know where to go for vaccine	0.3	0.0	0.7	0.0	0.0	0.0	0.0	0.0
Fearing side effects	35.4	0	29.5	32.5	8.2	28.3	44.3	55.7
Rumor	2.4	0.0	1.1	3.1	0.0	0.0	0.0	5.2
Don't believe in vaccination	11.8	0.0	2.6	15.3	0.0	28.3	55.7	13.4
Was busy and so couldn't give vaccine to child	15.6	0.0	10.8	33.8	15.8	15.1		6.7
There was no vaccine in the center	1.5	0.0	0.0	6.1	0.0	0.0	0.0	0.0
Vaccine centre was too far	1.5	0.0	4.4	0.0	0.0	0.0	0.0	0.0
The child was sick, so was not taken to the vaccination cent	3.9	0.0	0.0	3.2	15.8	0.0	0.0	8.0
The child was sick, so the vaccinator didn't give vaccine	1.3	0.0	0.0	0.0	17.7	0.0	0.0	0.0
Total	**80**	**0**	**27**	**19**	**6**	**6**	**3**	**19**

Table 7: Reasons for Never Vaccination by City Corporation and Municipality in 2015

Reasons	All Urban	BCC	CCC	Com CC	DNCC	DSCC	G CC	KCC	NCC	RCC	Rang CC	SCC	Municipality
Didn't know that my child should be given vaccine	9.1	0.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	7.3
Didn't know where to go for vaccine	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.5
Fearing side effects	19.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	50.0	22.4
Rumor	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Don't believe in vaccination	22.2	0.0	0.0	0.0	0.0	0.0	0.0	25.0	0.0	0.0	0.0	0.0	28.5
Was busy and so couldn't give vaccine to child	15.3	0.0	0.0	0.0	0.0	0.0	0.0	25.0	50.0	0.0	0.0	50.0	14.5
Vaccine centre was too far	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5
The child was sick, so was not taken to the vaccination cent	16.5	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	100.0	0.0	11.8
The child was sick, so the vaccinator didn't give vaccine	7.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.6
Mother was sick	6.8	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	20	0	0	0	0	0	3	1	1		0	1	14

3.5.2 Reasons for Partial Vaccination

About ten percent of the surveyed children received partial vaccinations. Thirty percent of the mothers/caregivers reported that they were busy with household's cores. About one-third of the mothers/caregivers residing in rural areas reported involvement with household chores for partial vaccination of their children, as compared to 26.4 percent in urban areas. Nationally, lack of awareness about schedule of MR doses was reported by 10.9 percent of the mothers/caregivers as a reason for partial vaccination, 9.5 percent in rural areas and 14.4 percent in urban areas. Another, 9.4 percent of the mothers reported about unawareness of 2nd or 3rd dose Penta/OPV as a reason for partial vaccination, 8.4 percent in rural areas and 11.9 percent in urban areas. A detail description of reasons for partial vaccination by rural divisions and city corporations are presented in the Table 8, 9 and Table 10.

Table 8: Reasons for Partial Vaccination by National, Rural and Urban Areas in 2015

Reasons	National	Rural	Urban
Did not t know that my child should be given vaccine	5.8	6.6	3.6
Did not know when to go for the second/third dose	9.4	8.4	11.9
Did not know when to go for vaccine of measles	10.9	9.5	14.4
Did not know where to go for vaccine	1.1	0.3	3.3
Fearing side effects	6.9	7.7	4.6
Rumor	1.1	1.4	0.3
Do not believe in vaccination	1.2	1.7	
Was busy and so could not give vaccine to child	29.9	31.3	26.4
Will give vaccine in future	1.5	0.6	3.5
There was a long queue in the vaccination centre	0.1	0.1	
Don't remember	7.2	6.1	10.0
There was no vaccine in the center	0.5	0.6	0.3
There was no vaccinator in the center	2.1	2.7	0.6
Vaccine centre was too far	0.6	0.9	
Injection was too painful for the child	1.3	1.0	2.0
Was abscess at the place of vaccine	0.1		0.4
Faced difficulty after receiving vaccine	1.3	1.1	1.9
Vaccinator was not friendly	0.3	0.4	
The child was sick, so was not taken to the vaccination cent	8.7	9.3	7.1
The child was sick, so the vaccinator didn't give vaccine	3.9	3.5	5.0
Mother was sick	0.8	0.3	2.3
I thought the vaccinator would come home	0.7	1.0	0.1
They charge money to take vaccine	1.0	0.5	2.1
The session time was inconvenient	0.5	0.7	
Vaccinator did not give	0.2	0.3	0.1
Not at home	2.1	2.9	
Card was not available	0.8	1.1	
Total	760	544	216

T.able 9: Reasons for Partial Vaccination in Rural Areas by Division in 2015

Reasons	All Rural	Barisal	Chittagong	Dhaka	Khulna	Rajshahi	Rangpur	Sylhet
Didn't know that my child should be given vaccine	6.6		8.8	3.1	10.8	16.8	2.7	2.1
Didn't know when to go for the second/third dose	8.4	4.2	11.9	4.9	12.9	9.1	13.3	4.3
Didn't know when to go for vaccine of measles	9.5	5.8	15.1	9.2	10.9	2.5	3.9	11.0
Didn't know where to go for vaccine	0.3	5.8	0.3		0.9			
Fearing side effects	7.7	11.0	2.4	4.1	9.5	13.6	8.2	25.6
Rumor	1.4	12.6	1.7	1.6	0.7			
Don't believe in vaccination	1.7		3.2	0.6	1.9	2.5		2.8
Was busy and so couldn't give vaccine to child	31.3	24.3	24.2	36.1	25.4	26.8	53.5	24.2
Will give vaccine in future	0.6	0.0	2.8	0.0	0.0	0.0	0.0	0.0
There was a long queue in the vaccination centre	0.1	0.0		0.0	0.0	0.0	0.0	0.0
Don't remember	6.1	13.5	3.6	5.5	6.3	12.2	10.6	
There was no vaccine in the center	0.6	0.0	0.9	0.6	0.0	1.3	0.0	0.0
There was no vaccinator in the center	2.7	0.0	2.4	5.9	0.0		0.0	0.0
Vaccine centre was too far	0.9	0.0	0.3	1.6	2.6		0.0	0.0
Injection was too painful for the child	1.0	0.0	0.0	0.9	0.6	2.8		3.3
Was abscess at the place of vaccine		0.0	0.0		0.0	0.0	0.0	
Faced difficulty after receiving vaccine	1.1	0.0	2.5	0.7	0.0	0.0	0.0	2.8
Vaccinator was not friendly	0.4	0.0	0.3	0.3	0.0	2.1	0.0	
The child was sick, so was not taken to the vaccination cent	9.3	15.9	5.6	13.9	10.5	4.6	5.1	7.6
The child was sick, so the vaccinator didn't give vaccine	3.5	0.0	3.1	4.9	3.4	0.0	0.0	8.3
Mother was sick	0.3	0.0	0.3	0.6		0.0	0.0	0.0
I thought the vaccinator would come home	1.0	0.0	2.9	0.6	0.6	0.0	0.0	0.0
They charge money to take vaccine	0.5	0.0	0.3	1.4	0.0	0.0	0.0	0.0
The session time was inconvenient	0.7	6.8	0.0	0.5	0.0	2.8	0.0	0.0
V.accinator did not give	0.3	0.0	1.1		0.0	0.0	0.0	0.0
Not at home	2.9	0.0	4.2	3.0	2.4	2.1	0.0	4.7
Card was not available	1.1	0.0	2.3		0.6	0.0	2.7	3.3
Total	544	14	124	193	55	64	46	47

Table 10: Reasons for Partial Vaccination by City Corporation and Municipality in 2015

Reasons	All Urban	BCC	CCC	Com CC	DNCC	DSCC	GCC	NCC	KCC	RCC	Rang CC	SCC	Municipality
Didn't know that my child should be given vaccine	3.6		5.9	0.0	0.0	0.0	7.1	7.7	0.0	0.0	0.0	0.0	5.8
Didn't know when to go for the second/third dose	11.9		23.5	62.5	13.8	33.3		7.7	15.8	0.0	0.0	0.0	6.5
Didn't know when to go for vaccine of measles	14.4		5.9		13.8	25.0	7.1	23.1	15.8	0.0	0.0	25.0	15.4
Didn't know where to go for vaccine	3.3		11.8		3.4	8.3				0.0	0.0		1.8
Fearing side effects	4.6			12.5	3.4			3.8	21.1	0.0	0.0	6.3	7.3
Rumor	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.3	0.0	0.0		0.5
Don't believe in vaccination		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Was busy and so couldn't give vaccine to child	26.4	100.0	11.8	25.0	31.0	8.3	14.3	34.6	36.8	25.0	50.0	6.3	31.5
Will give vaccine in future	3.5	0.0	0.0	0.0	13.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
There was a long queue in the vaccination centre		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Don't remember	10.0		5.9		6.9	16.7	28.6	15.4		0.0	0.0	62.5	5.7
There was no vaccine in the center	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8
There was no vaccinator in the center	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Injection was too painful for the child	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.3
Was abscess at the place of vaccine	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.0	0.0	0.0	0.8
Faced difficulty after receiving vaccine	1.9	0.0	11.8	0.0	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
The child was sick, so was not taken to the vaccination cent	7.1	0.0	5.9	0.0	3.4	8.3	7.1	7.7	5.3	50.0	30.0	0.0	8.9
The child was sick, so the vaccinator didn't give vaccine	5.0	0.0		0.0	3.4	0.0	14.3	0.0	0.0	0.0	0.0	0.0	7.9
Mother was sick	2.3	0.0	17.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8
I thought the vaccinator would come home	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0	0.0	0.0
They charge money to take vaccine	2.1	0.0		0.0	3.4		14.3	0.0	0.0	0.0		0.0	0.0
Vaccinator did not give	0.1	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0	0.0	0.0
Total	216	0	19	1	55	17	18	10	7	1	3	4	81

3.6 KNOWLEDGE ABOUT THE NUMBER OF VISITS REQUIRED FOR COMPLETE VACCINATION

Mother/caregiver should make at least five visits to a vaccination centre to complete all the scheduled doses of vaccines for her or his children, CES 2015 appraised the knowledge of mothers/caregivers about the minimum number of visits required for full vaccination. More than half of the mothers/ caregivers (65.0 percent) reported they knew about the required 5 visits to vaccination center for full vaccination, with almost similar level of knowledge both in rural (65.2 percent) and urban (64.6 percent) areas (see Figure 71). Among the rural divisions, knowledge about the five visits was highest in Rangpur division (75.7 percent) and lowest in Sylhet divisions (54.4 percent) (see Figure 72). In the urban context, the proportion of the mothers/caregivers from who had knowledge of the five required visits varied widely, from 98.1 percent to 43.3 percent (see Figure 73).

Figure 71: Knowledge of Number of Visits Required to Have Child Fully Vaccinated by National, Rural and Urban Areas in 2015

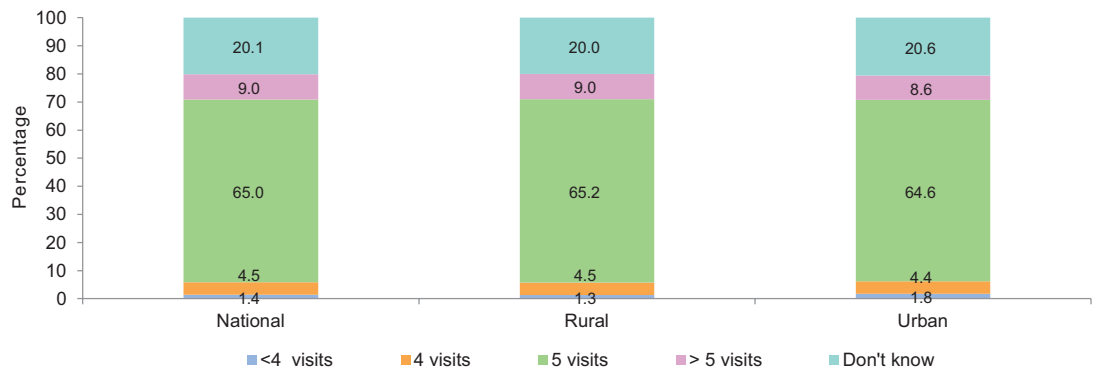


Figure 72: Knowledge on Number of Visits Required to Have a Child Fully Vaccinated in Rural Areas by Division in 2015

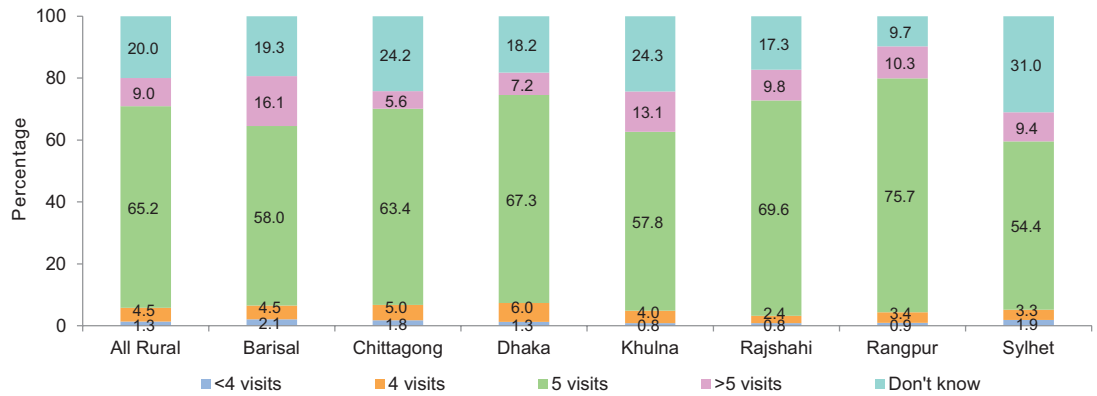
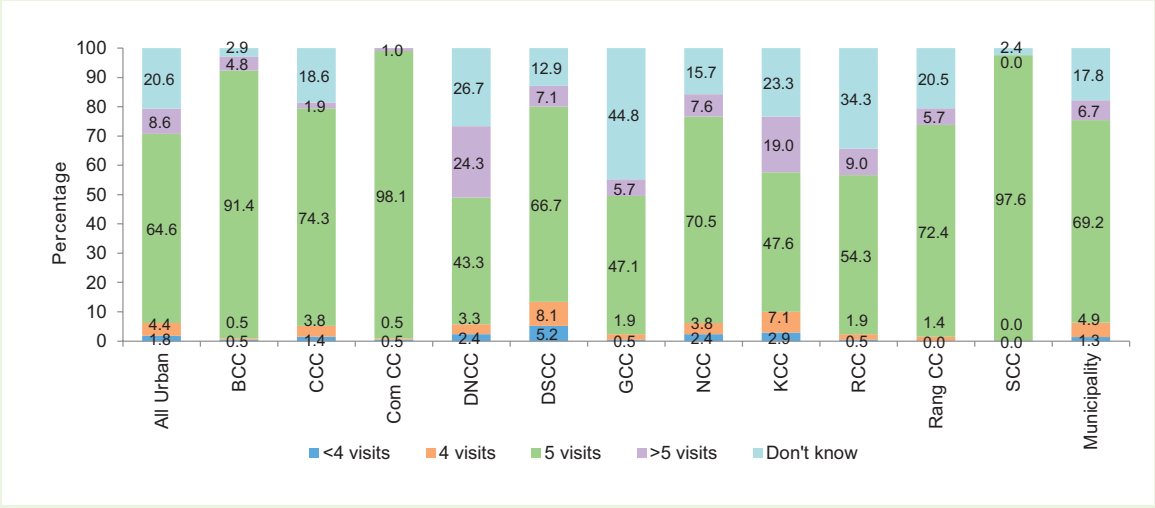


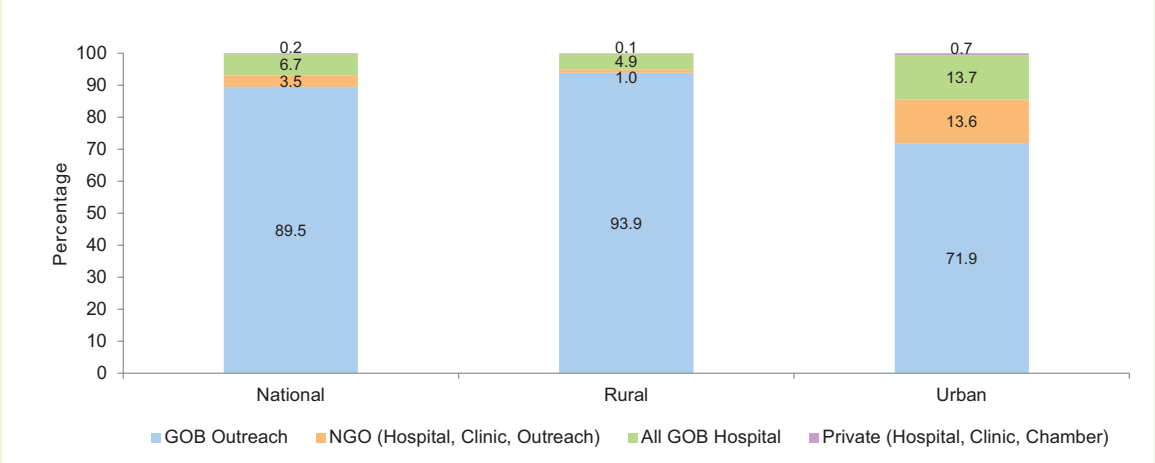
Figure 73: Knowledge on Number of Visits Required to Have a Child Fully Vaccinated in Urban Areas by City Corporation and Municipality in 2015



3.7 SOURCES OF CHILDHOOD VACCINATION

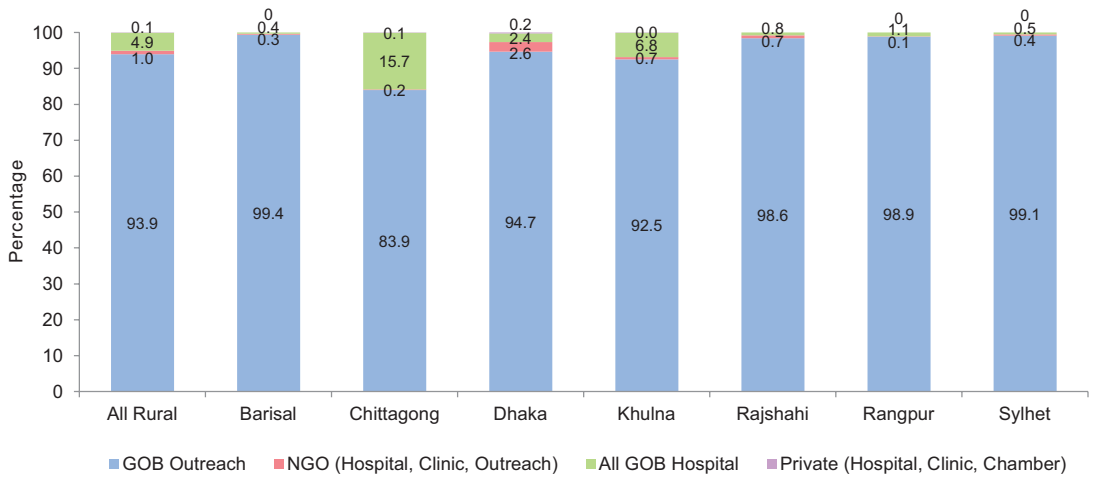
Children can receive vaccinations from a number of sources: GoB outreach centres or hospitals; NGO hospitals, clinics or outreach centres; or private hospitals, or clinics. These options for sources of Penta1 vaccine are presented in Figures 74 -76. Overall, 89.5 percent of the children received Penta1 vaccine from the GoB outreach centers, in rural areas 93.9 percent of cases and in urban areas 71.9 percent of cases. Nationally, the other sources included GoB hospitals (6.7 percent) and NGO or private hospitals (3.7 percent) (see Figure 74).

Figure 74: Source of Penta1 Vaccination by National, Rural and Urban Areas in 2015



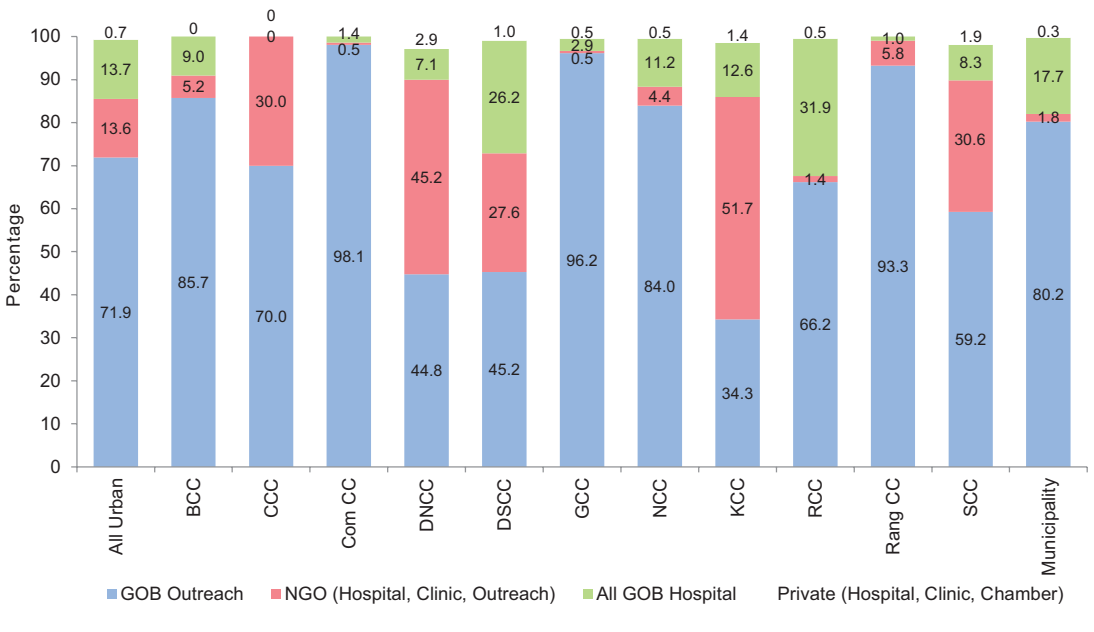
By rural divisions, the highest proportion of vaccine recipients who received Penta1 from GoB outreach centres ranged from 99.4 percent in Barisal division to 83.9 percent in Chittagong. In rural divisions, private and NGO hospitals and clinics were the source of Penta1 vaccine in less than 2.0 percent of cases (see Figure 75).

Figure 75: Source of Penta1 Vaccination in Rural Areas by Division in 2015



In city corporations, government facilities were again the prime source of Penta1 vaccination, except in DNCC where 45.2 percent received Penta1 from NGO clinics or hospitals. In other city corporations, the proportion of children who received Penta1 from NGO clinics or hospitals ranged between 31.9 percent and 1.4 percent. As for private sources, the highest proportion of the children who received Penta1 from private facilities was in DNCC (2.9 percent), while in BCC, RCC and CCC, no child received Penta1 from private clinics or h.ospitals (see Figure 76).

Figure 76: Source of Penta1 Vaccination in Urban Areas by City Corporation and Municipality in 2015



3.8 DATE OF BCG VACCINATION AND SOURCE OF BCG VACCINATION

Table 11 shows the gap between the date of child birth and the date of receiving BCG by the source of BCG vaccination. It shows that overall, 3.2% of the children received BCG within 7 days of birth. Among them less than 1 percent GoB and NGO hospital/clinic. The analysis shows that the 38 percent children received BCG within 42 days of birth and among them higher number is received from GoB outreach and hospitals.

Table 11: Source of BCG Vaccination after the Child Born

Gap of Vaccination from the date of Child born	Source of BCG in Percentage				Private (Hospital, Clinic, Outreach)
	National	GoB Outreach	NGO (Hospital, Clinic, Outreach)	All GoB Hospital	
Upto 7 days	3.2	2.8	0.1	0.3	0.0
8-42 days	34.8	31.6	1.0	2.2	0.1
More than 42 days	62.0	55.9	1.7	4.3	0.1
Total	12,843	11,594	363	865	21

3.9 AVAILABILITY OF BIRTH CERTIFICATE AMONG SURVEYED CHILDREN

Nationally, 11.0 percent of children had their birth certificates available, with urban children are more likely to have the certificates as compared to their rural counter parts (15.4 percent vs. 10.6 percent) (see Figure 77). Among the rural divisions, the availability of birth certificate was highest in Sylhet (18.9 percent) and lowest in Rajshahi (5.6 percent) division (see Figure78). Among the city corporations, the availability of birth certificate was highest in RCC (35.2 percent) and the lowest in Com CC (5.5 percent). Moreover, 15.2 percent of children residing in municipality areas had birth certificate (see Figure 79).

Figure 77: Percentage Distribution of Children by Availability of Birth Certificate by National, Rural and Urban Areas in 2015

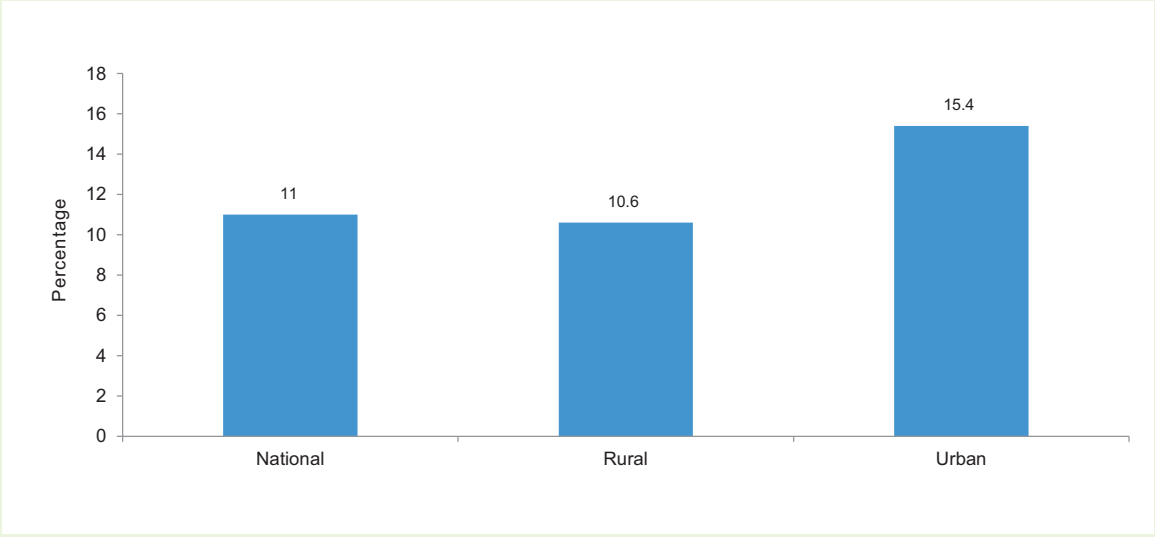


Figure 78: Percentage Distribution of Children by Availability of Birth Certificate in Rural Areas by Division in 2015

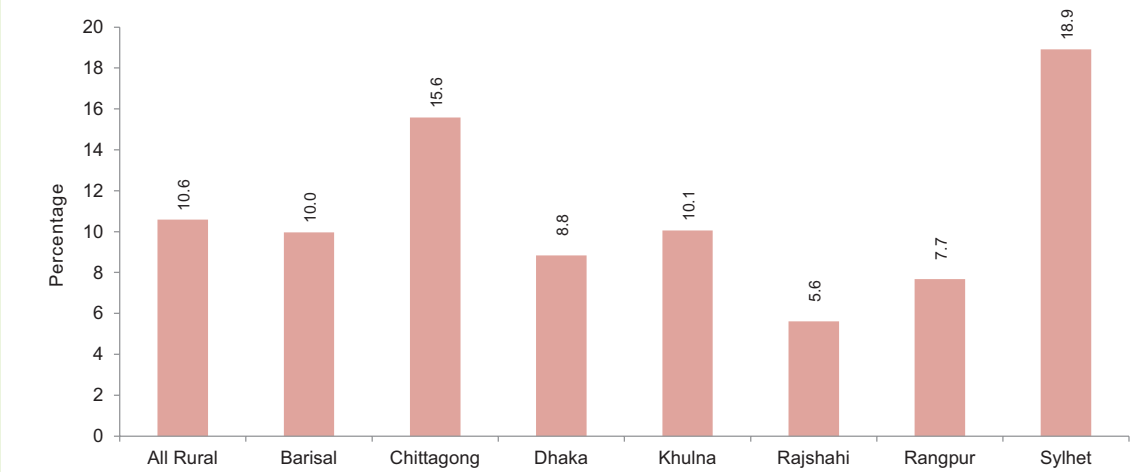
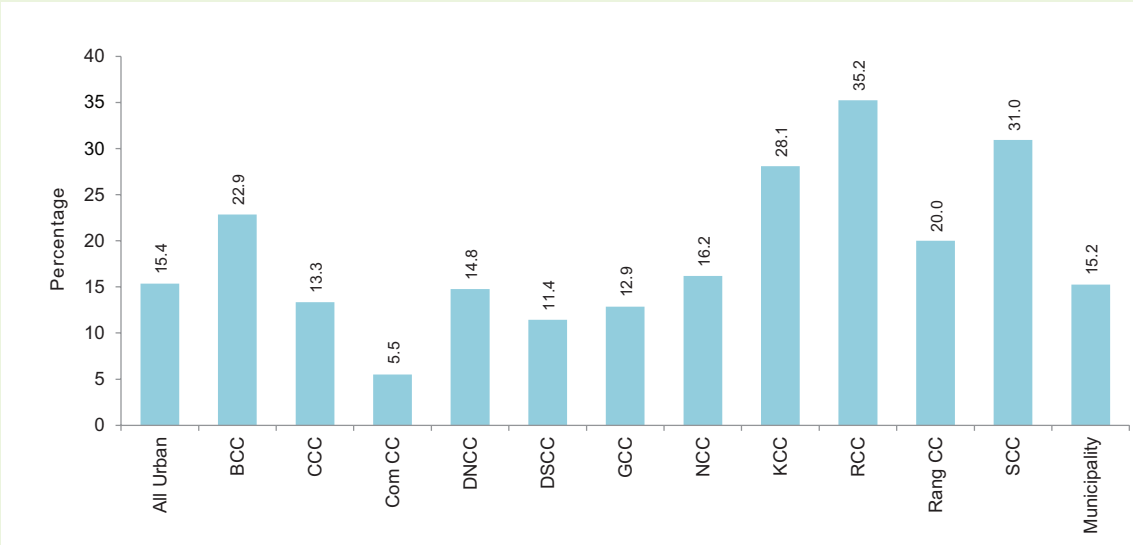


Figure 79: Percentage Distribution of Children by Availability of Birth Certificate in Urban Areas by City Corporation and Municipality by in 2015



CHAPTER 4

MEASLES SECOND DOSE COVERAGE

MEASLES SECOND DOSE COVERAGE

This section details the facts and findings of Measles Second Dose (MSD) vaccination coverage. In Bangladesh, this component was included for the second time in EPI Coverage Evaluation Survey (CES) 2015 after initiation in 2014 while the Government of Bangladesh has introduced MSD in the routine childhood vaccination schedule under EPI in September 2012. As such, MR is scheduled for the children 9 months old and MSD is scheduled for children 15 months old children.

4.1 OBJECTIVES OF MSD SURVEY

The MSD survey was carried out as a part of CES 2015 with a view to achieving the following

- To assess the MSD coverage
- To assess the drop-out rate from MR to MSD

4.2 SAMPLE SELECTION

The MSD survey was carried out among 18-29 months-old children drawn from the cluster samples of CES 2015 as applied in the other survey components. Interviewers listed all the eligible children (aged between 18-29 months) in every household of each cluster at the time of household visits in order to make the sampling frame. Afterwards, seven children were selected randomly from the sampling frame to administer the questionnaires.

4.3 SECOND DOSE OF MEASLES VACCINE

Measles remains one of the leading causes of death of the young children. 164,000 children died of measles worldwide in 2008. Ninety-five percent of all measles-related deaths occurred in low-income countries with weak health infrastructures.[1] In accordance with the Global and Regional strategy to reduce measles mortality to 2000 estimates, the national EPI prepared a national plan for the reduction of measles mortality in Bangladesh for 2004-2010. In the light with this plan and to ensure a second opportunity for receiving the measles vaccines, a measles catch-up campaign was held in 2005-2006, targeting more than 35 million children aged between 9 months and 10 years. Subsequently, another measles follow-up campaign was carried out in 2010 to vaccinate the children aged between 9 month and 5 years. The vaccination coverage was quite encouraging in both campaigns. It is expected that more than 80 percent of the death related to measles were averted through these supplementary activities.

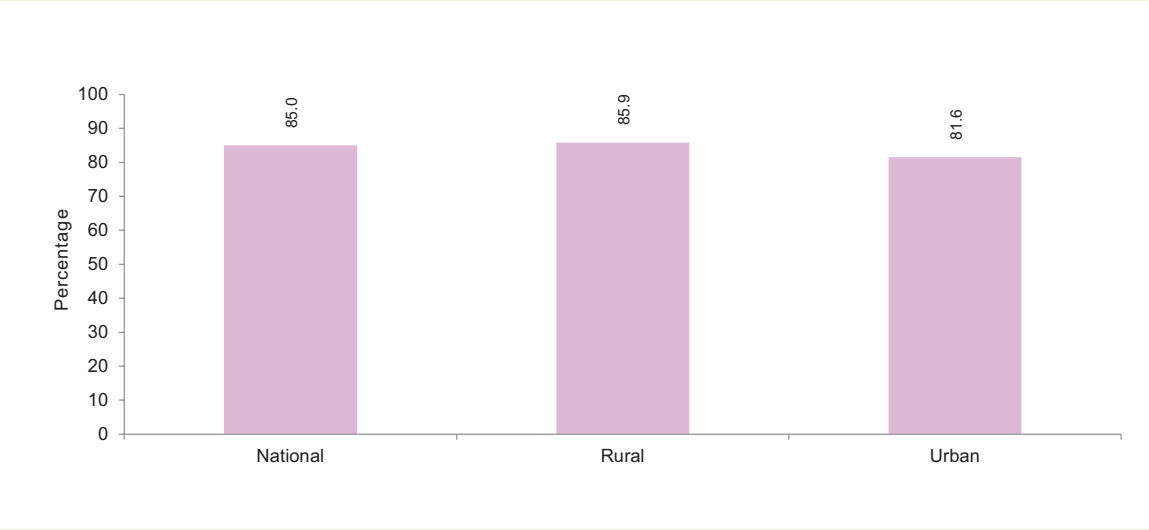
Additionally, the national EPI supported the recommendation of SEARO (South East Asian Regional Office of WHO) to eliminate measles by 2020. The National Committee on Immunization Practices in a meeting in 2009 also supported the national EPI proposal to eliminate measles in Bangladesh by 2018. However, as per recommendation of SEARO at present EPI targeted to eliminate measles by 2020.

1 Koehlmoss, Tracey Perez, Jasim Uddin and Haribondu Sarma. “Imapct of Measles Eradication Activities on Routine Immunization Services and Health Systems in Bangladesh” in Journal of Infectious Diseases (2011) 204 (suppl 1): s90-s97.

4.4 CRUDE MSD VACCINATION COVERAGE

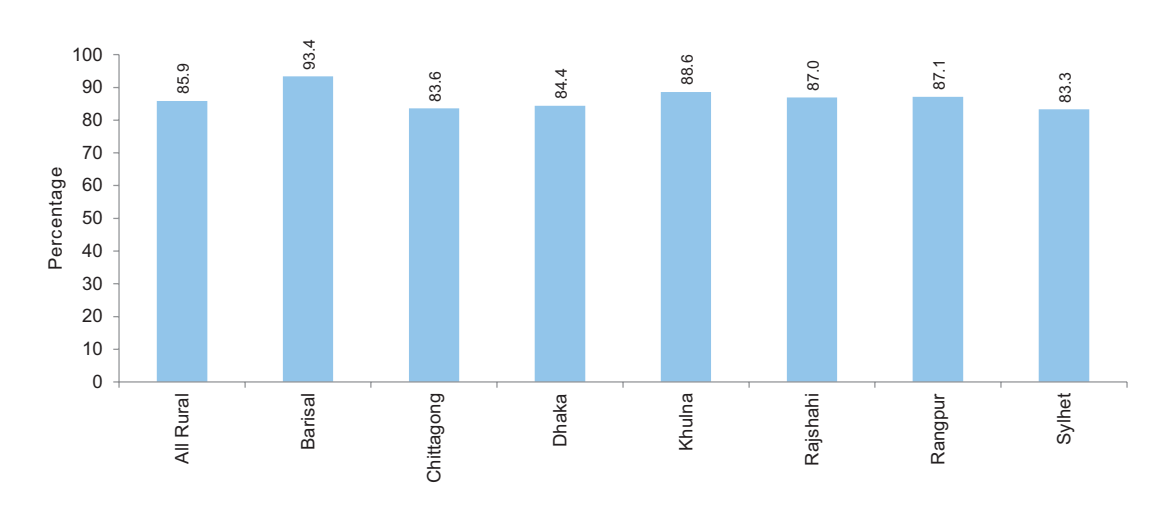
Figure 80 presents the crude MSD coverage. Overall, 85.0 percent of the children received MSD. There was no significant difference between Rural and Urban coverage of MSD (85.9 percent vs.81.6 percent).

Figure 80: Crude MSD Coverage by National, Rural and Urban Areas in 2015



Among the rural areas by division, as shown in Figure 81, MSD coverage was rather evenly spaced from the second highest at 88.6 percent in Khulna to the lowest at 83.3 percent in Sylhet division. While Barisal division had the highest coverage of MSD at 93.4 percent indicates 10.1 percentage points difference from the MSD coverage of Sylhet division.

Figure 81: Crude MSD Coverage in Rural Areas by Division in 2015



For the city corporations, the crude MSD coverage had a wide range, from BCC at 97.6 percent to KCC at 63.3 percent. (see Figure 82).

Figure 82: Crude MSD Coverage in Urban Areas by City Corporation and Municipality in 2015

4.5 VALID MSD VACCINATION COVERAGE BY THE AGE OF 23 MONTHS

Figure 83a provides valid MSD coverage by the age of 23 months. It shows that 80.5 percent of the children received valid doses of MSD across the country, with children from rural areas more likely to receive the valid dose of MSD than those from urban areas (81.5 percent vs. 76.4 percent). No significant variation was observed between male and female at national level.

Figure 83a: Valid MSD Coverage by Age of 23 Months by National, Rural and Urban Areas in 2015

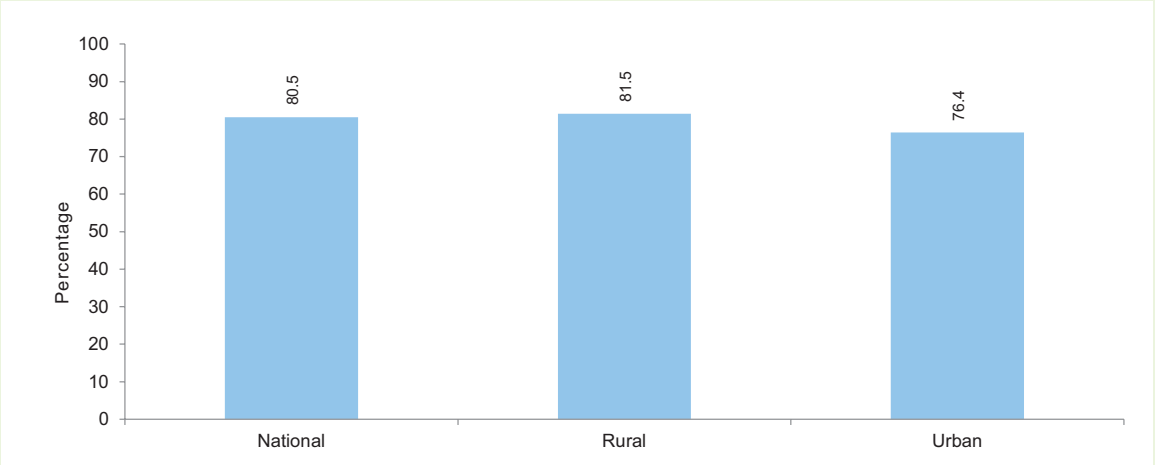


Figure 84a show the valid MSD coverage by division. It depicts that the valid MSD coverage was highest in Barisal (88.5 percent) and the lowest in Sylhet divisions (76.6 percent). The valid MSD coverage for the other divisions was in an intermediary level that ranged between 84.3 percent in Rangpur and 78.4 percent in Chittagong division.

Figure 83b: Valid MSD Coverage by Age of 23 Months by Sex at National level in 2015

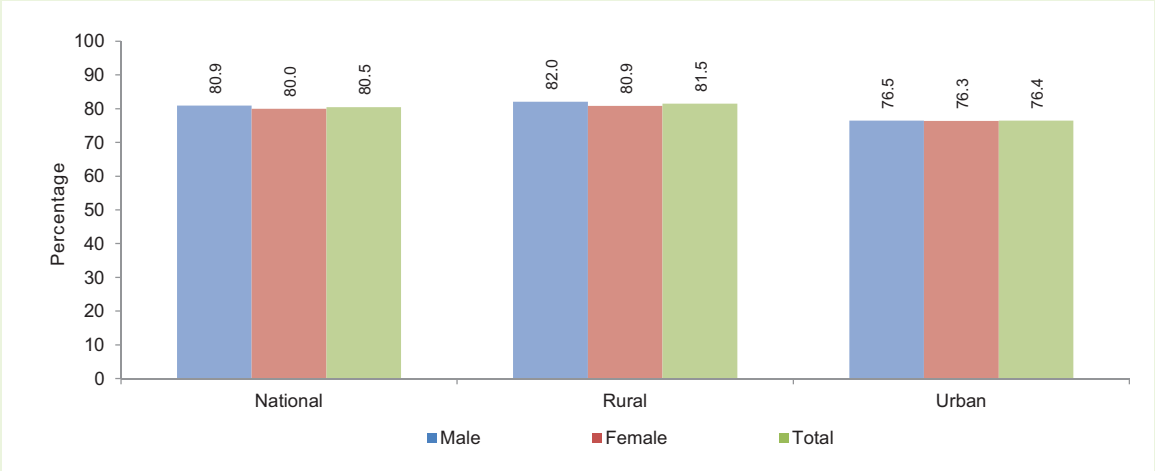


Figure 84a: Valid MSD Coverage in Rural Areas by Division in 2015

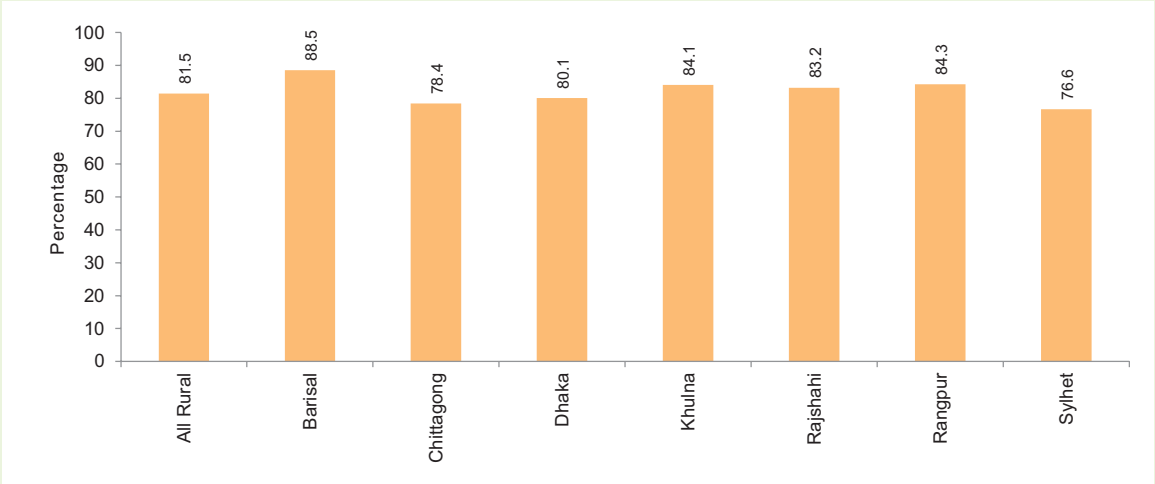
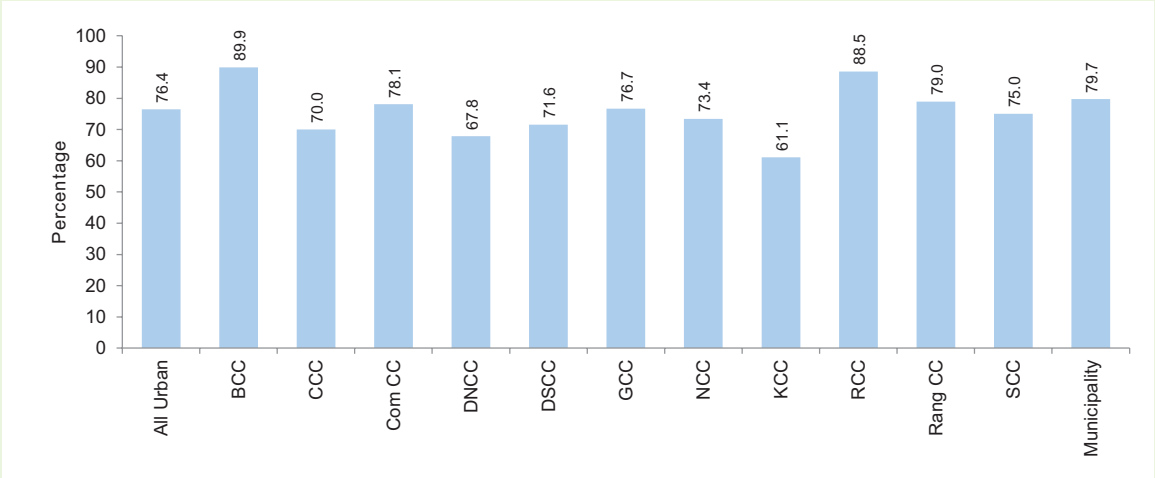


Figure 84b: Valid MSD Coverage in Urban Areas by City Corporation and Municipality in 2015



Across the city corporations, valid MSD coverage was the highest in BCC (89.9 percent). There was 1.4 percentage points difference between BCC and the next highest of 88.5 percent, in RCC. Other than RCC, the others ranged within 17.9 percentage point's difference at 79.0 percent in Rang CC, with the lowest being KCC at 61.1 percent (see Figure 84b).

4.6 VALID MSD VACCINATION COVERAGE BY THE AGE OF 18 MONTHS

Figure 85a provides valid MSD coverage by the age of 18 months. It shows that 75.3 percent of the children received valid doses of MSD across the country, with children from rural areas more likely to receive the valid dose of MSD than those from urban areas (76.4 percent vs. 70.2 percent). By gender, 2 percentage points difference was observed between male and female at national level.

Figure 85a: Valid MSD Coverage by Age of 18 Months by National, Rural and Urban Areas in 2015

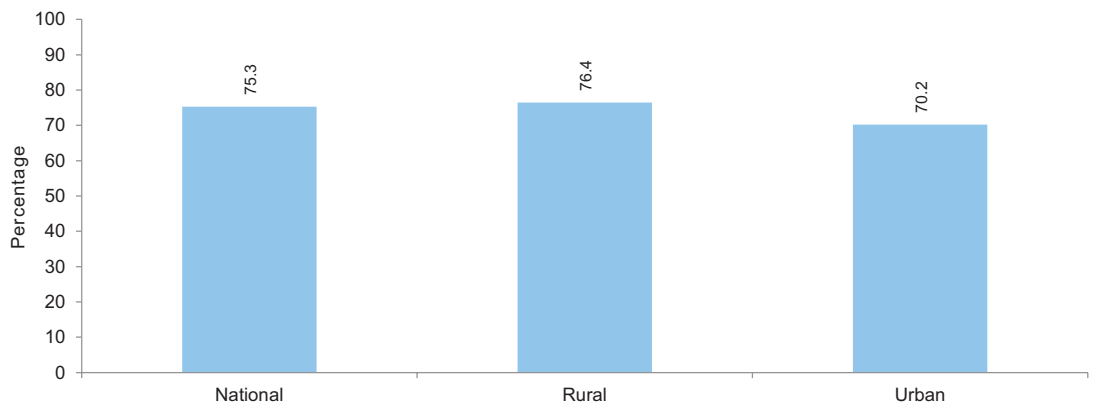


Figure 85b: Valid MSD Coverage by Age of 18 Months by Sex at National Level in 2015

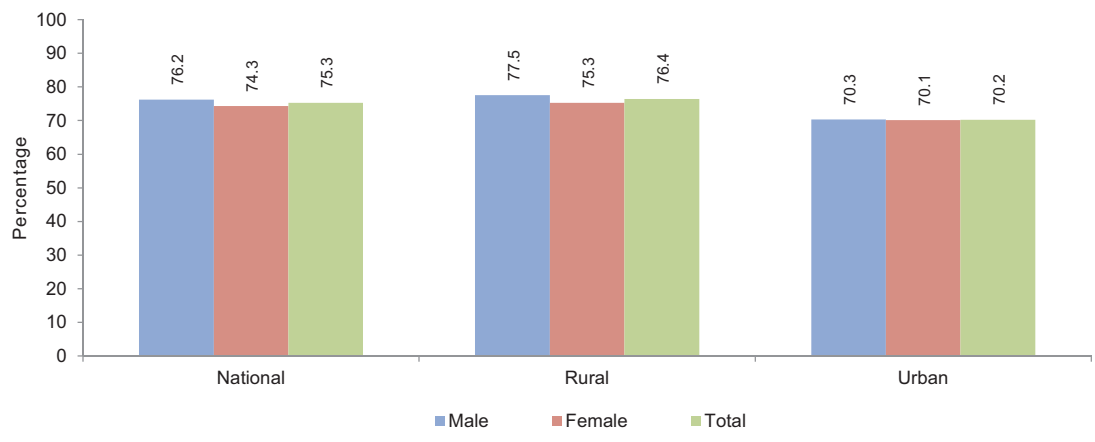
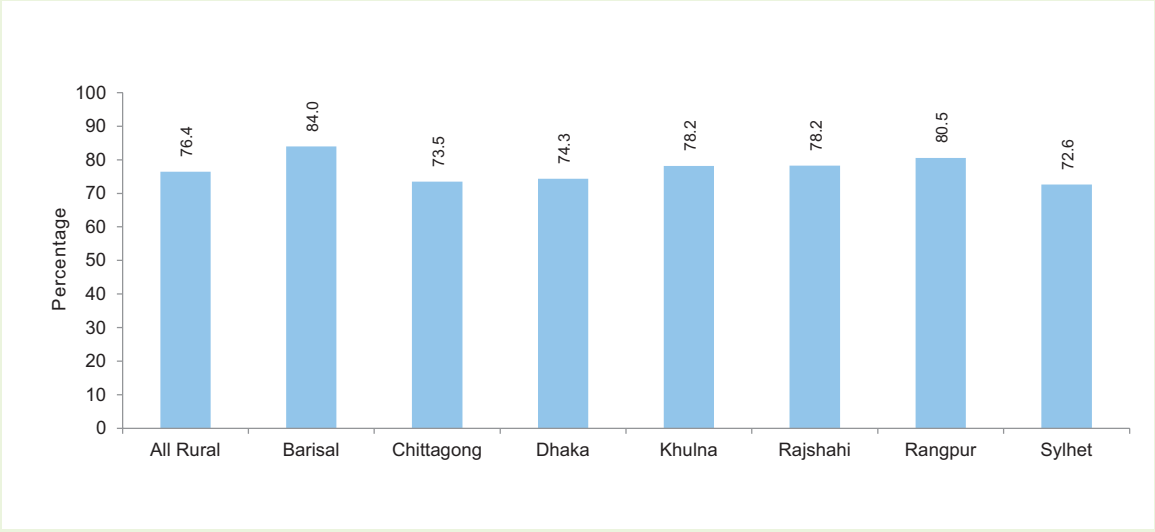


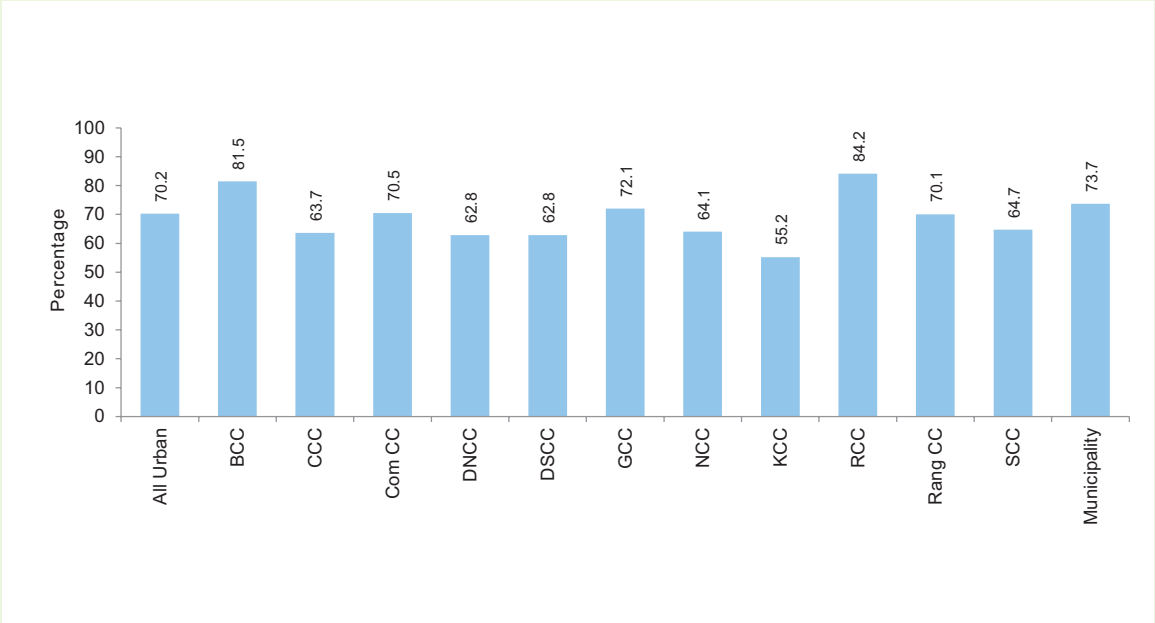
Figure 85c presents the valid MSD coverage by division. It shows that the valid MSD coverage was highest in Barisal (84.0 percent) and the lowest in Sylhet divisions (72.6 percent). The valid MSD coverage for the other divisions was in an intermediary level that ranged between 80.5 percent to 73.5 percent.

Figure 85c: Valid MSD Coverage in Rural Areas by Division in 2015

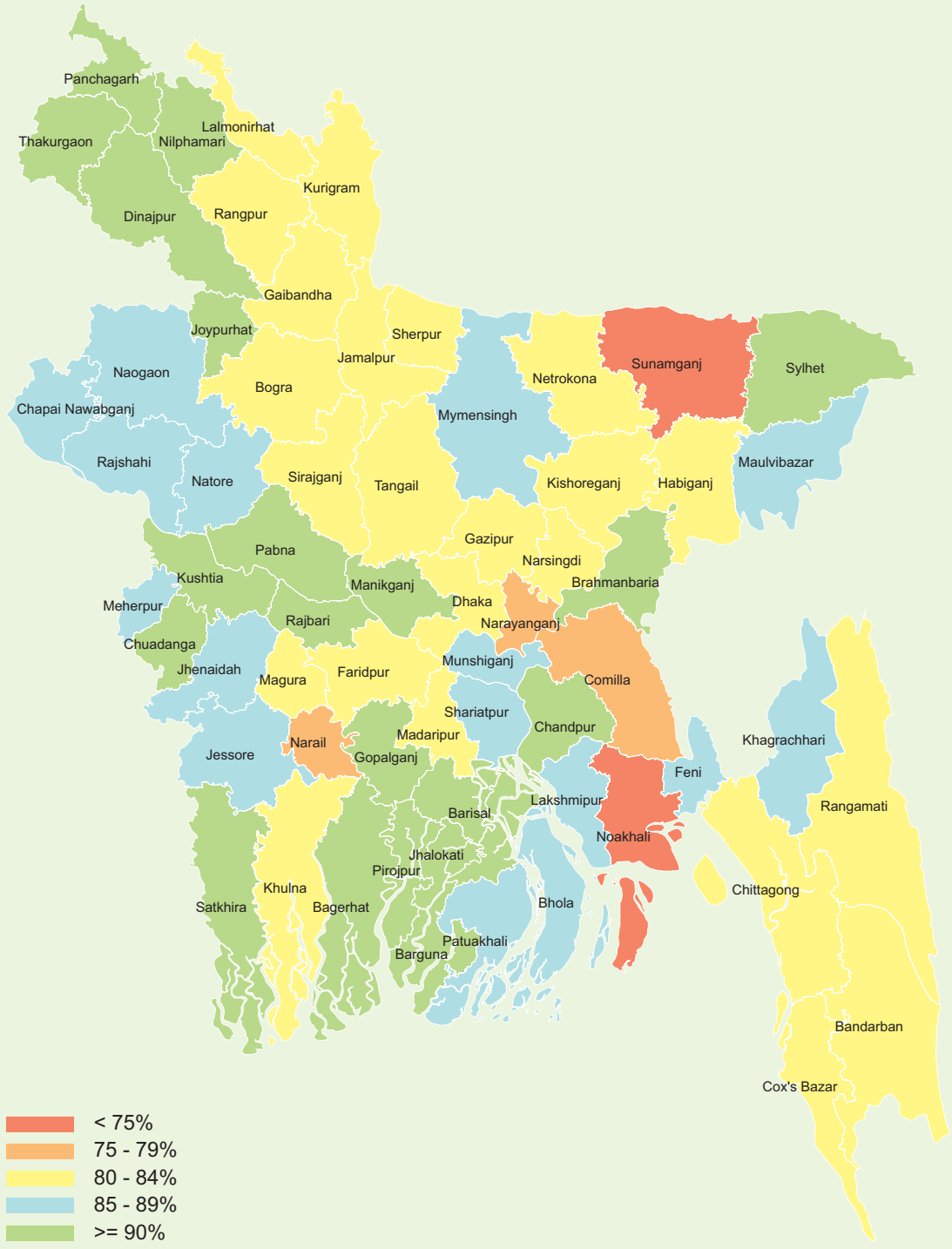


Across the city corporations, valid MSD coverage was the highest in RCC (84.2 percent). The seond highest is BCC (81.5), was 2.7 percentage points difference from RCC. Other CC, are ranged within 16.9 percentage points difference at 72.1 percent in GCC, with the lowest being KCC at 55.2 percent (see Figure 85d).

Figure 85d: Valid MSD Coverage in Urban Areas by City Corporation and Municipality in 2015



Map 9: Crude MSD Coverage by District



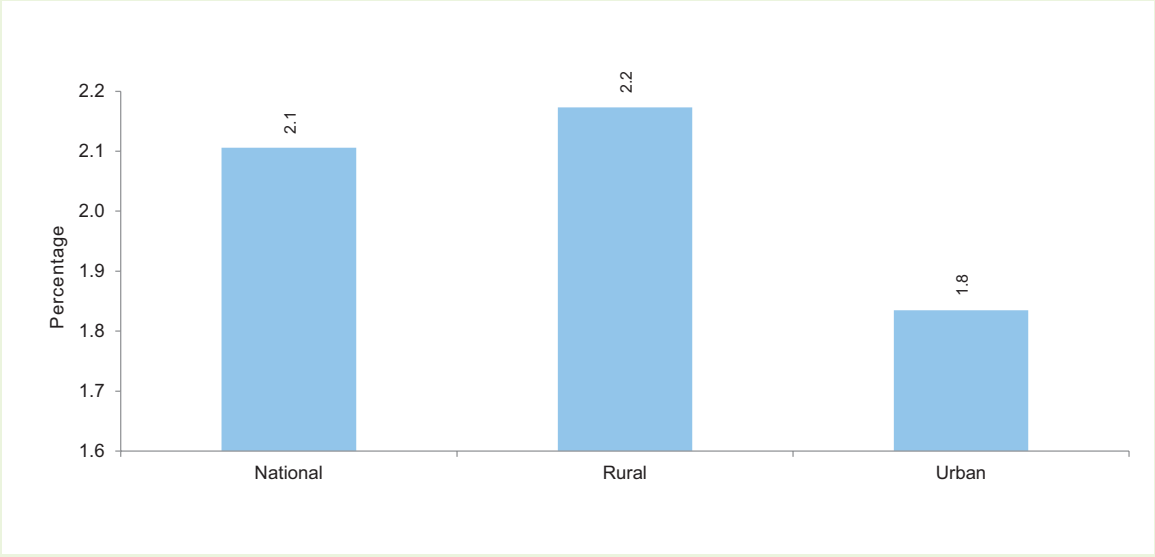
Map 10: Valid MSD Coverage by Age of 23 Months

Map 11: Valid MSD Coverage by Age of 18 Months

4.7 IINCIDENCE OF INVALID MSD

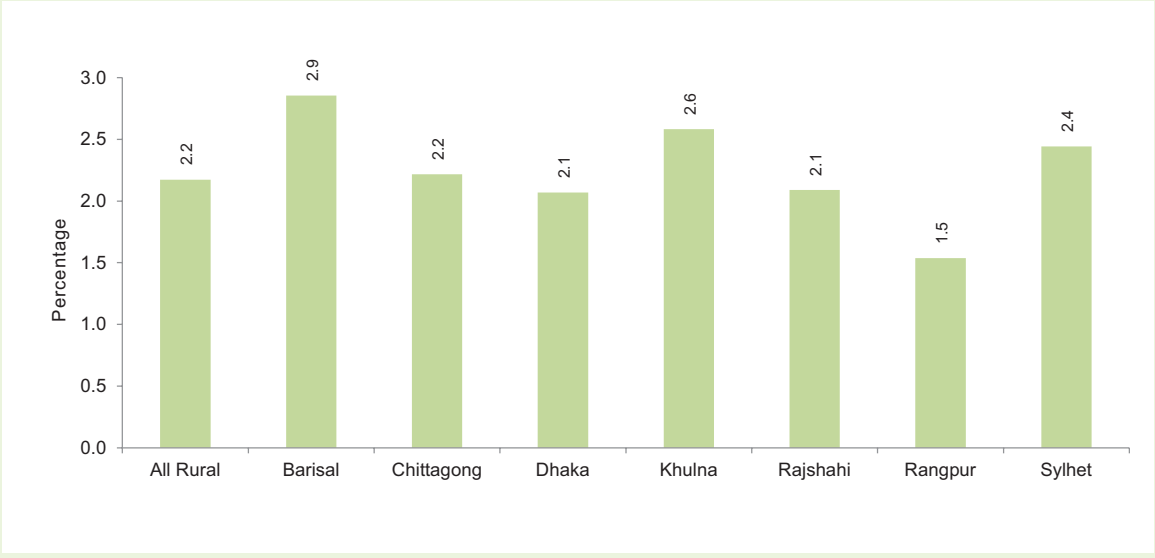
According to EPI vaccination schedule, a child should receive MSD between 15-18 months of age. Therefore, children who received MSD before the age of 15 months were considered recipients of invalid doses in CES 2015. Nationally, 2.1 percent of the children received invalid MSD. There was a little variation in invalid MSD rate between rural and urban inhabitants' (see Figure 86).

Figure 86: Incidence of Invalid MSD by National, Rural and Urban Areas in 2015



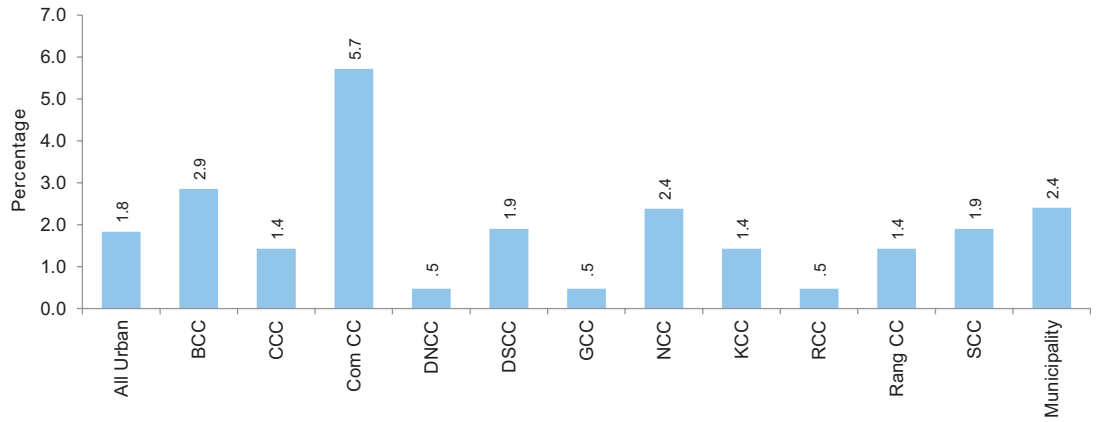
Within the divisions, invalid doses were found to be the highest in Barisal (2.9 percent) and the lowest in Rangpuf divisions (1.5 percent). In other divisions, it was between 2.6 percent and 2.1 percent (see Figure 87).

Figure 87: Incidence of Invalid MSD in Rural Areas by Division in 2015



Among the city corporations, the highest invalid MSD coverage was found to be administered in Com CC (5.7 percent) and the lowest in DNCC, GCC and RCC (0.5 percent). The second highest invalid dose was noticed in BCC (2.9 percent). In other city corporations, it ranged between 2.4 percent in NCC and 1.4 percent in KCC, CCC and Rang CC (see Figure 88).

Figure 88: Incidence of Invalid MSD in Urban Areas by City Corporation and Municipality in 2015



4.8 DROP-OUT RATE FROM MR TO MSD

Drop-outs from subsequent dose(s) of the same antigen or different antigen is the most notable obstacle to achieving the desired coverage target. A child was considered as a drop-out from MSD, if s/he failed to receive MSD after receiving MR. Nationally, the MR-MSD drop-out rate was 9.8 percent, with the lower rate in rural areas (9.1 percent) than urban areas (12.5 percent) (see Figure 89). By sex, little variation was observed in the MR-MSD drop-out rate across the country (see Figure 89).

Figure 89: Vaccination Drop-out Rate from MR-MSD by Sex at National Level in 2015

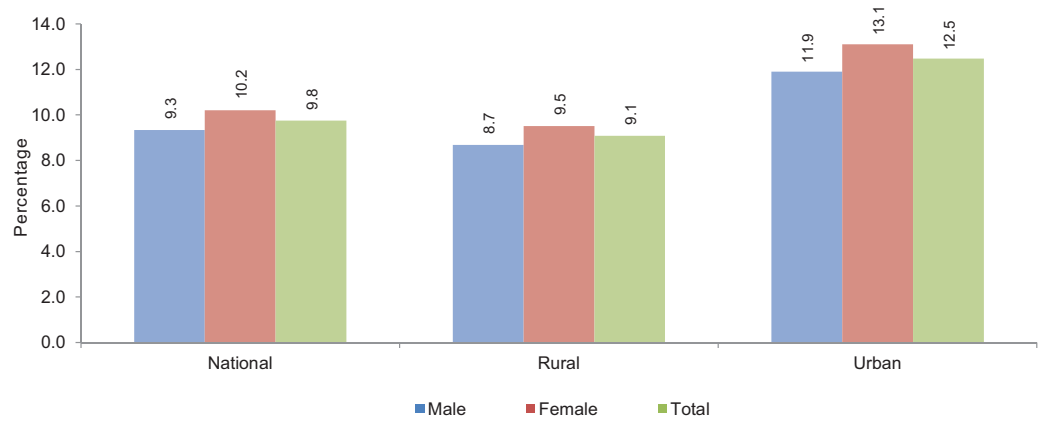


Figure 90 depicts the drop-out rate by rural division. Among the seven divisions, the MR-MSD drop-out rate was the highest in Chittagong (11.2 percent) and the lowest in Barisal (4.6 percent) divisions. The rates for the other divisions were in between 10.0 percent and 7.5 percent.

Figure 90: Drop-out Rate from MR to MSD in Rural Areas by Division in 2015

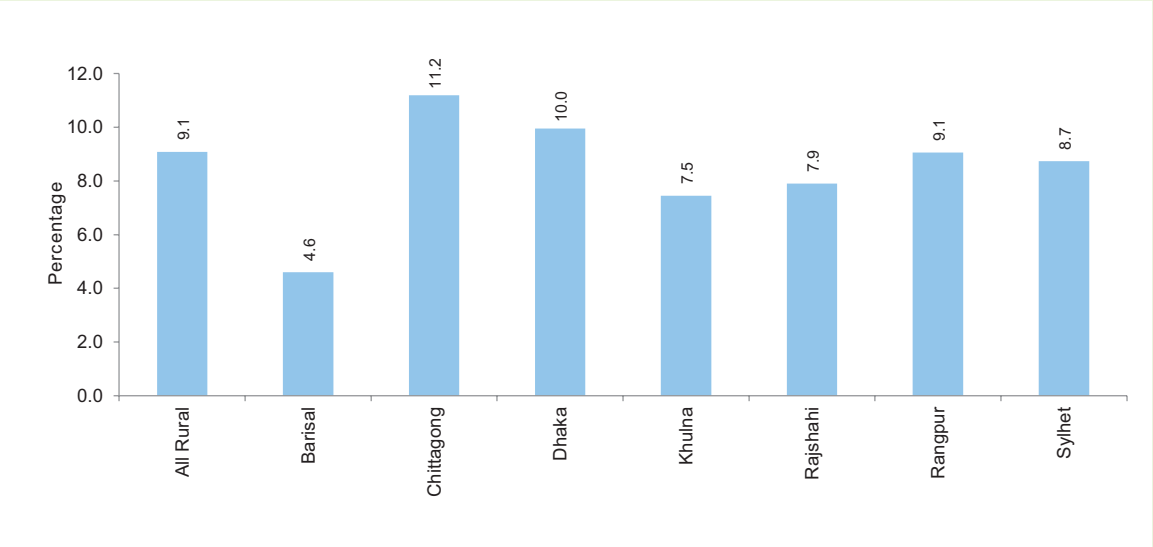
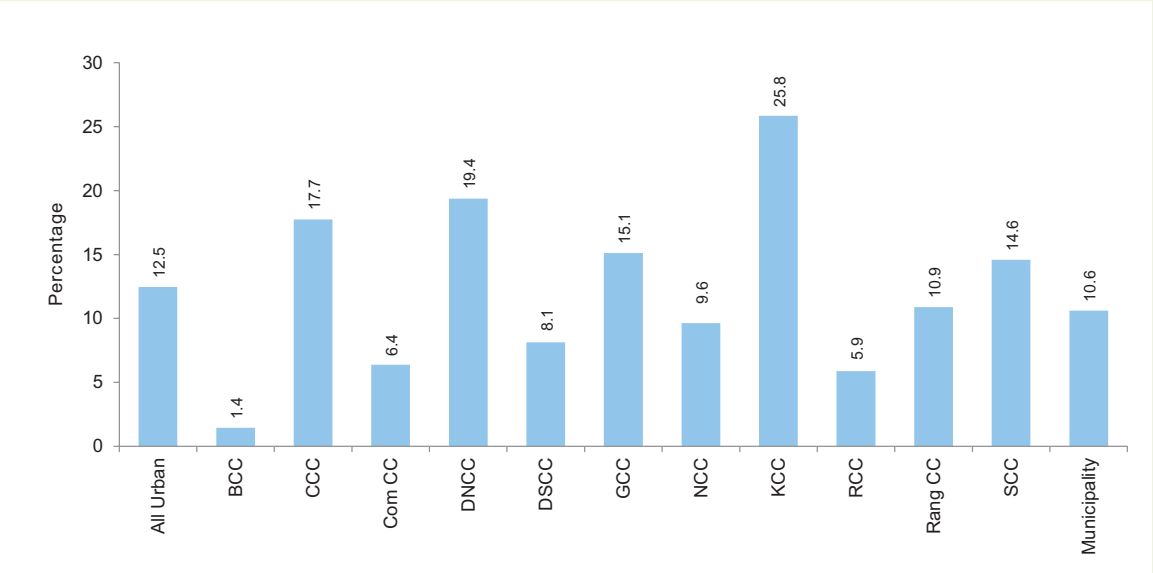


Figure 91 shows the drop-out rate by City Corporation, which had a wider variation than the rural divisions did. Among the city corporations, the highest drop-out rate was observed in KCC (25.8 percent) and the lowest in BCC (1.4 percent). In other city corporations, it ranged between 19.4 percent in DNCC and 5.9 percent in RCC.

Figure 91: Drop-out Rate from MR to MSD in Urban Areas by City Corporation and Municipality in 2015



CHAPTER 5

TT VACCINATION COVERAGE AMONG THE MOTHERS WITH CHILDREN 0-11 MONTHS

TT VACCINATION COVERAGE AMONG MOTHERS WITH CHILDREN 0-11 MONTHS

Neonatal Tetanus (NT) remains a public health problem in countries with low immunization coverage and unclean practices at childbirth. In Bangladesh, about 60 percent of the deliveries take place at home, often in poor hygienic conditions - placing the lives of both mother and child at risk. Despite this risk factor for infection with "Clostridium tetani", Bangladesh achieved neonatal tetanus elimination status in 2008 by administering five doses of TT vaccine to women of childbearing age (15-49 years). UNICEF and WHO provided extensive financial and technical support to EPI to achieve this status. In order to maintain this NT elimination status, EPI in Bangladesh, in strong partnership with UNICEF and WHO, is continuing to strengthen its monitoring and supervision system. Although NT is included in the EPI disease surveillance system, it is important to identify the critical areas where the programme needs to be given special attention or monitor the status of TT during the birth of the latest child. In this context, CES is an important avenue to provide strategic direction to the programme personnel. CES 2015 gathered information and provided an estimate of the children who were protected at birth (PAB) against NT. All the relevant information is presented in this chapter. Therefore, along with TT vaccination coverage status, this chapter provides information about the quality of programme, card retention rate, and invalid doses, as well as PAB of newborn.

5.1 OBJECTIVE OF TT SURVEY

The following survey objectives were set under the TT coverage survey among the mothers having 0-11 month's children:

- to estimate TT vaccination coverage
- to estimate TT card retention
- to estimate the incidence of invalid TT doses
- to know the sources of TT vaccination
- to estimate the proportion of the newborn babies who were protected at birth against neonatal tetanus
- to estimate post-partum Vitamin A coverage among the mothers having 0-11 months children (results of this last point covered in Chapter 8)

5.2 SELECTION OF SAMPLES

In this survey component, mothers who delivered children between 01-07-2014 and 30-06-2015 were targeted for selecting the samples. The aforesaid samples were selected from the same clusters where the samples for other survey components in CES 2015 were selected. First, a list was made after identifying the mothers who delivered children between 01-07-2014 and 30-06-2015 while visiting every household of the selected cluster. After that, a sampling frame was constructed by including all the eligible mothers from the list. From all the eligible mothers, seven mothers were randomly selected for interviews to gather the required information through the survey tool, which in this case was a questionnaire.

5.3 TT VACCINATION

With an aim to achieving its maternal and neonatal tetanus elimination objective, the Government of Bangladesh has provided TT vaccination services through its Expanded Programme on Immunization under the Directorate General of Health Services (DGHS) since 1979. The vaccine is given to women of child-bearing age (15-49 years) to protect them from tetanus and their newborn babies from neonatal tetanus during their whole reproductive period. A woman needs a total of five TT doses to provide protection through her whole reproductive period. These should be administered by following the TT vaccination schedule recommended by WHO: TT1- the first dose- as soon as she reaches the age of 15 years; TT2- four weeks after TT1 is given; TT3- six months after TT2; TT4- one year after TT3; and TT5- one year after TT4. Since only one TT dose does not offer any protection, TT2 must be administered after TT1, providing a woman of reproductive age protection for a period of three years that begins after the administration of TT2. With the TT3 dose, the protection period is for five years after the administration of TT3 and with TT4 for 10 years after the administration of TT4. With TT5, the woman is protected for the rest of her reproductive period. Table 12 below shows the EPI-recommended TT vaccination schedule in Bangladesh.

Table 12: TT Vaccination Schedule

TT Doses	Minimum Interval between Doses	Years Protected
TT1	At 15 years age	No protection
TT2	4 weeks after TT1	3 years after the administration of TT2
TT3	6 months after TT2	5 years after the administration of TT3
TT4	1 year after TT3	10 years after the administration of TT4
TT5	1 year after TT4	Reproductive period

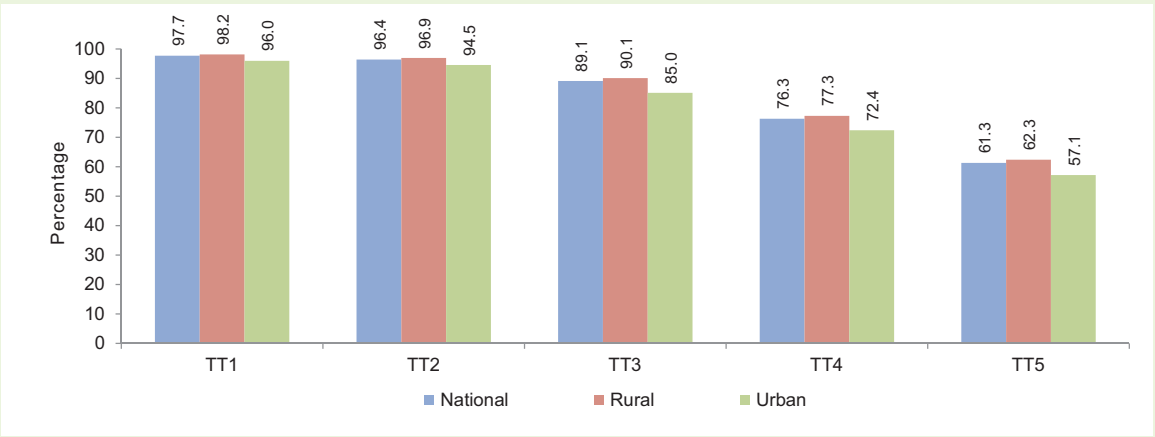
5.4 TT VACCINATION COVERAGE (CARD+ HISTORY)

Like the childhood vaccination coverage, TT vaccination coverage was assessed as crude and valid coverages. The valid TT coverage was assessed in terms of the valid doses that a woman received. And, the crude TT coverage was assessed in terms of all TT doses - both valid and invalid - that a woman received. A TT dose administered before the recommended interval was considered invalid. Thus, a TT3 dose given earlier than the recommended 6-month interval after a valid TT2 was enumerated as an invalid TT3 dose. The information of TT vaccination was obtained from a woman's TT card (if available). If it was not available, the information was collected from the woman's vaccination history reported by her.

5.4.1 Levels of the Crude TT Vaccination Coverage

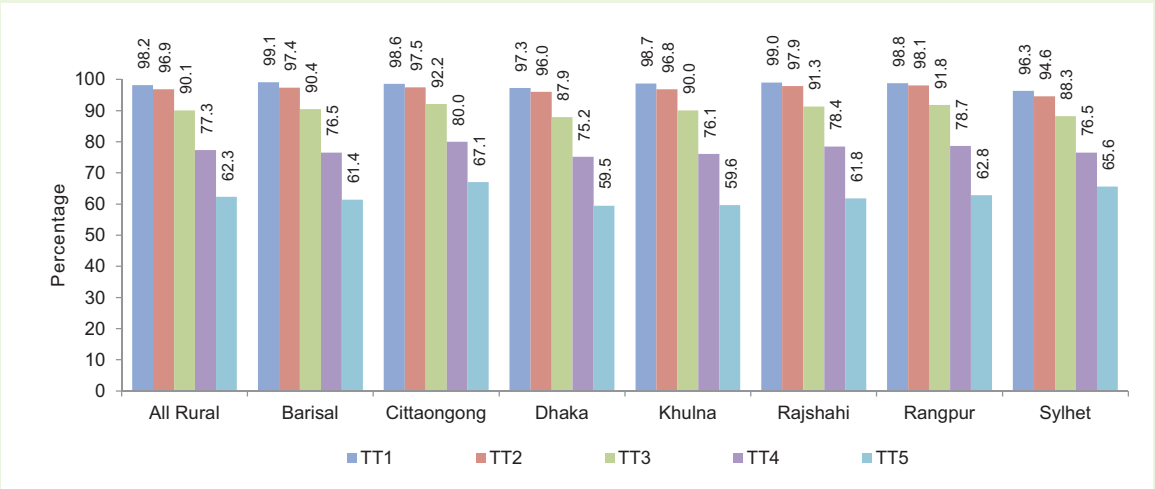
The distribution of crude TT vaccination coverage is presented in Figure 92 and Map 12. It shows that TT1 and TT2 vaccination coverage were 97.7 percent and 96.4 percent respectively. Both TT1 and TT2 coverage were slightly higher among the rural mothers than their urban counterparts. However, TT3, TT4, and TT5 coverages were comparatively lower than TT1 and TT2 across the country. The coverages of TT3, TT4, and TT5 were 89.1 percent, 76.3 percent and 61.3 percent, respectively. By residence, 5 percentage points difference was noticed in TT3, TT4, and TT5 coverage between rural and urban areas.

Figure 92: Crude TT Vaccination Covearge by National Rural and Urban Areas in 2015



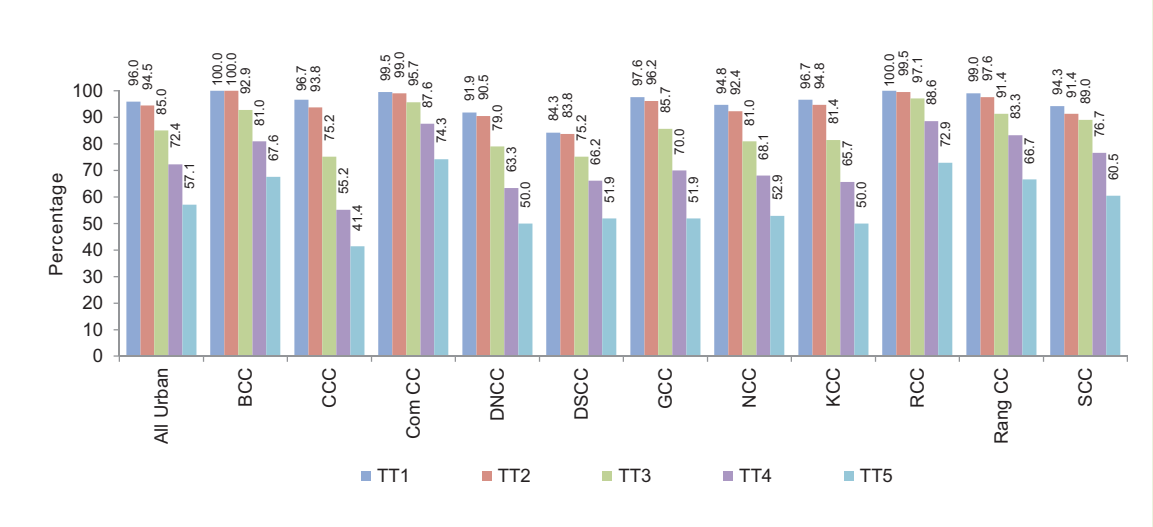
Among the divisions, no marked variation was noticed in crude TT1 and TT2 coverage, except in Sylhet division where both TT1 and TT2 coverage was almost 3 percent age points lower than the highest performing division. However, crude TT3 coverage was highest in Chittagong (92.2 percent) and the lowest in Dhaka division (87.9 percent), which again being considerably less than the highest. By TT4 coverage the gap between the highest, 80.0 percent in Chittagong and the lowest, 75.2 percent in Dhaka had five percentage points difference, and the coverage gap was more wider by TT5, ranging from 67.1 percent in Chittagong to 59.5 percent in Dhaka (see Figure 93).

Figure 93: Crude TT Vaccination coverage in Rural Areas by Division in 2015



Among the city corporations, crude TT1 and TT2 coverage was at or above 80 percent for all, where both TT1 and TT2 coverage was universal in BCC and lowest in DSCC (84.3 percent for TT1 and 83.8 percent for TT2). For TT3 coverage, the gap was 20 percentage points from the highest, Com CC (95.7 percent) to the lowest, CCC and DSCC (75.2 percent). By TT4 coverage, the gap had widened substantially, with the highest in BCC (81.0 percent) and the lowest in CCC (55.2 percent). Regarding crude TT5, three-quarters of the women in Com CC (74.3 percent) received it. Most of the other city corporations ranged from 67.7 percent to 50.0 percent. The exception on the significantly lower side was CCC at 41.4 percent (see Figure 94).

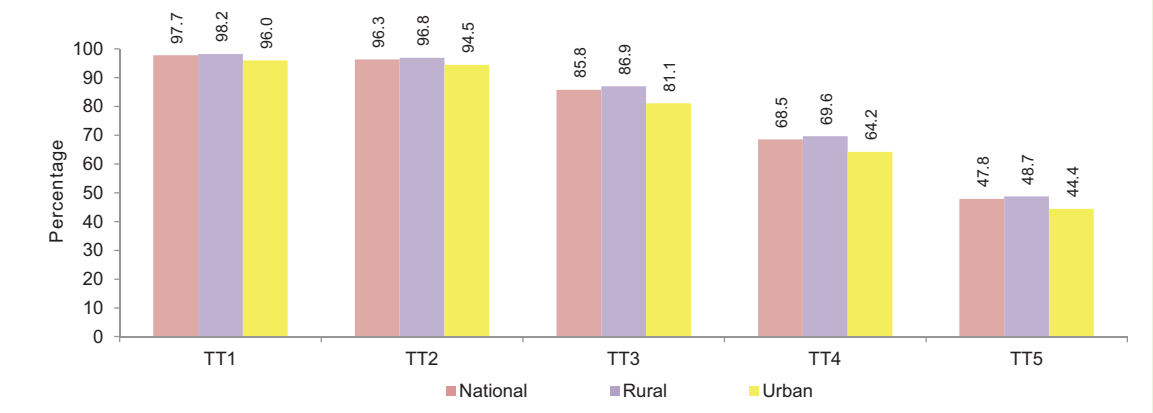
Figure 94: Crude TT Vaccination Coverage in Urban Areas by City Corporation and Municipality in 2015



5.4.2 Levels of Valid TT Vaccination Coverage

Valid TT coverage was defined as the coverage a woman received when the EPI-recommended TT vaccination schedule was followed. Nationally, valid TT2 vaccination coverage was 96.3 percent. However, the valid coverage rate was found to drop to 85.8 percent for TT3, 68.5 percent for TT4, and 47.8 percent for TT5. Urban-rural analysis shows that valid doses of TT2 to TT5 coverage were higher in rural areas than that in urban areas (see Figure 95 and Map 13).

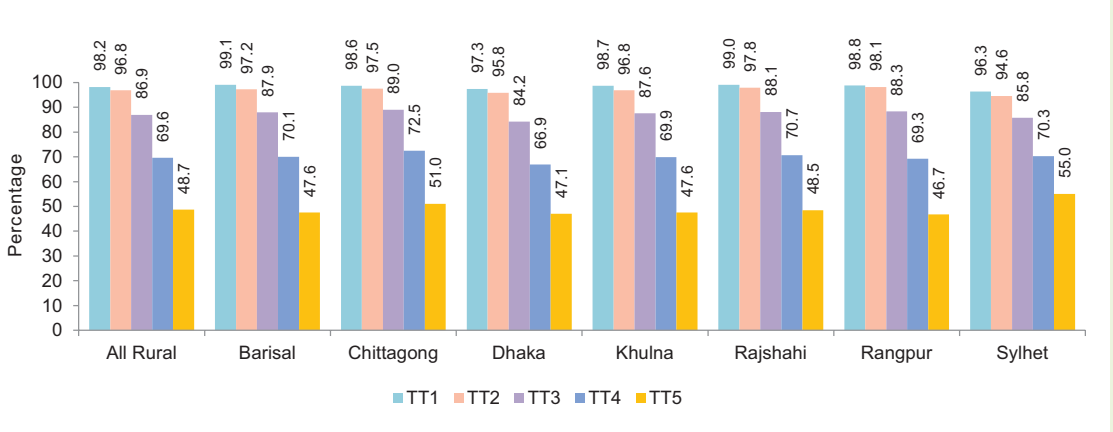
Figure 95: Valid TT Vaccination Covearge by National Rural and Urban Areas in 2015



Among the divisions, more than 96.0 percent of women received two doses of valid TT vaccine in all the divisions, except Dhaka and Sylhet. Valid TT2 coverage was highest in Rangpur (98.1 percent) while for TT3 it was highest in Chittagong (89.0 percent). The lowest coverage for TT 2 and TT3 was observed in Sylhet (94.6 percent) and for TT3 it was Dhaka (84.2 percent) respectively. As regards valid TT3, the rate ranged between 85.8 percent and 88.3 percent in other divisions. For TT4 and TT5, the gap between the highest and lowest narrowed, although Chittagong have the

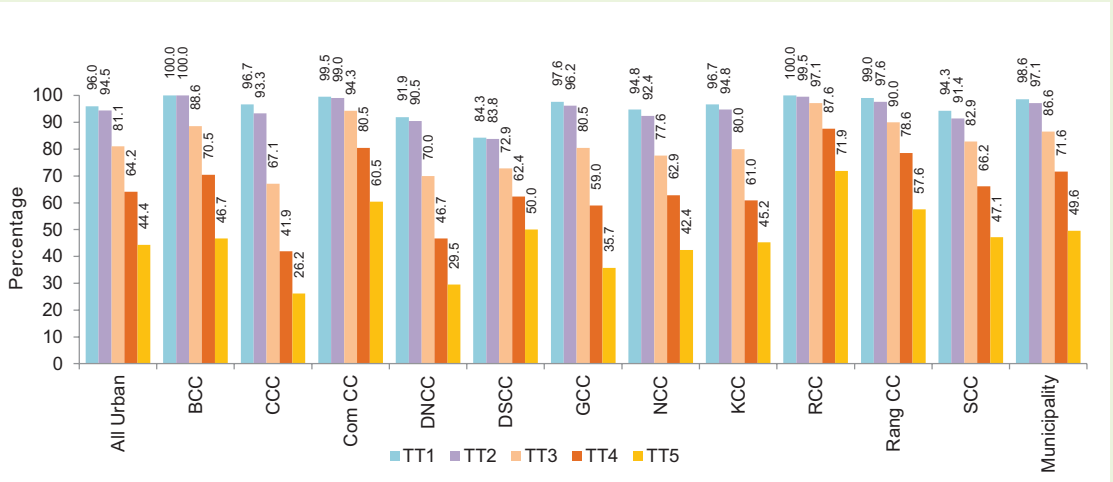
highest rate (72.5 percent and 51.0 percent, respectively) and the lowest in Dhaka (66.9 percent) for TT4 and in Rangpur for TT5 (46.7 percent). Consequently, Sylhet was the only division where over half the women had protection against tetanus throughout their reproductive lives (see Figure 96). Five doses of valid TT vaccine give protection to a woman against tetanus throughout her reproductive life. The finding suggests that more than half of the women in Sylhet division (55.0 percent) received 5 doses of valid TT vaccine. The proportion of women receiving 5 doses of valid TT vaccine in Chittagong and Rangpur, Khulna, Barisal, and Dhaka was 51.0 percent, 46.7 percent, 47.6 percent, 47.6 percent, and 47.1 percent, respectively.

Figure 96: Valid TT Vaccination Coverage in Rural Areas by Division in 2015



By City Corporation, 90 percent or more of women in all the city corporations received valid TT2 vaccine except DSCC. However, again, there was significant divergence for valid TT3 coverage, with the highest rate in RCC (97.1 percent) and the lowest in CCC (67.1 percent). It ranged from 70.0 percent to 94.3 percent in other CCs. In terms of valid TT4, it was found to be highest in RCC (87.6 percent) and lowest in CCC (41.9 percent). By valid TT5 coverage, the spread between highest and lowest was substantial, with RCC at 71.9 percent and CCC at a quarter that at 26.2 percent (see Figure 97).

Figure 97: Valid TT Vaccination Coverage in Urban Areas by City Corporation and Municipality in 2015



Map 12: Crude TT5 Vaccination Coverage among Mothers of 0-11 Months Old Children by District

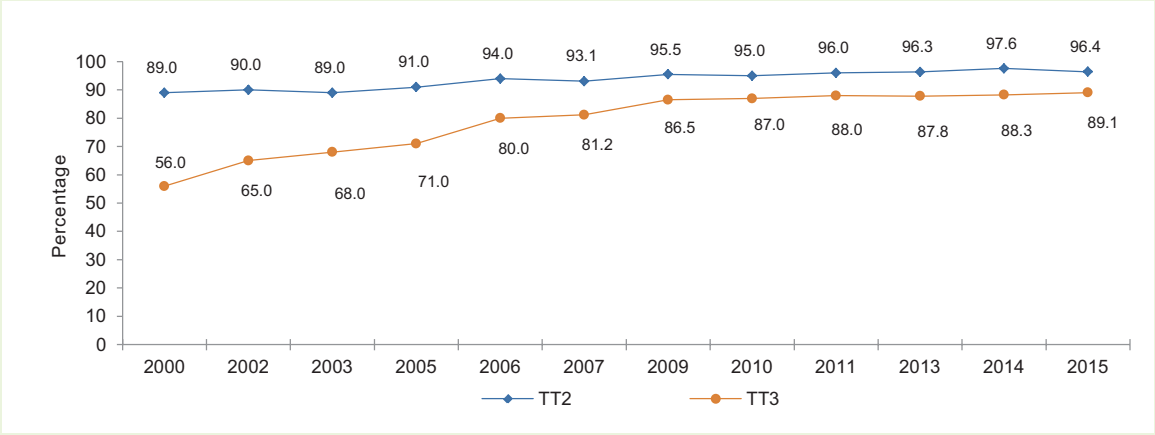
Map 13: Valid TT2 Vaccination Coverage among Mothers of 0-11 Month-Old by Children by District

5.5 TRENDS IN THE CRUDE TT2 AND TT3 COVERAGE

Figure 98 shows the national trend of crude TT2 and TT3 vaccination coverage from 2000 to 2015. It indicates that crude TT3 coverage gradually increased from 56.0 percent in 2000 to 89.1 percent in 2015.

In contrast, TT2 coverage started higher and increased at a slower pace, with fluctuations, since 2003. Between 2003 and 2015, it increased by 7.4 percentage points to 96.4 percent in 2015.

Figure 98: Annual Trend in Crude TT2 and TT3 Vaccination Coverage at National Level from 2000 to 2015 (Card +History)



The trends of crude TT2 vaccination coverage by division is presented in Figures 99 to 105. While some, such as Sylhet and Chittagong started at lower levels in 2000 (77.0 percent and 81.0 percent, respectively), all the divisions now reach coverage levels 97 percent and above with exception is Dhaka, Khulna and Sylhet (Figure 101-102 and 105). Improvement in TT2 coverage of Sylhet division is noteworthy, which began even lower in 2000 (77.0 percent), did reach 94.3 percent in 2015.

Barisal division's crude TT vaccination coverage has generally increased since 2000 with fluctuation. Barisal's crude TT2 coverage has experienced a continuous slow pace of improvement since then, increasing by 9 percentage points to 97.1 percent in 2015 (see Figure 99).

In Chittagong division, crude TT2 coverage has increased with frequent fluctuations between 2000 and 2015. It increased from 81.0 percent in 2000 to 95.0 percent in 2011, and again increased to 99.2 percent in 2013. It again fluctuated the other way, with a 2.3 percentage points decrease in 2014 and 0.5 percentage point increase in 2015 (96.9 in 2014 and 97.4 percent in 2015) (see Figure 100).

In Dhaka division, crude TT2 coverage fluctuated considerably during the years 2000 to 2005 and was then almost static in 2006 to 2011, ranging between 95.0 percent and 96.0 percent. After a decrease to 89.7 percent in 2013, the rate further increased to 97.6 percent In 2014 and again decreased to 94.9 *percent in 2015* (see Figure 101).

In Khulna division, crude TT2 coverage began higher, at 90.0 percent in 2000, and, except for 2007, has steadily increased, with some slight fluctuations. By 2015, the rate was 96.7 percent, having increased by 1.4 percentage points over 2013 (see Figure 102).

Rajshahi division, like Barisal, has experienced slow, steady growth in the last decade, with crude TT2 coverage increasing by 4 percentage points from 2005 to 98.0 percent in 2015. Almost static coverage was observed in the division during the last 5 years (97.0 percent-99.0 percent) (see Figure 103).

The crude TT2 coverage in Rangpur division was 97.0 percent in 2011 and 99.3 percent in 2013. However, it decreased down to 97.9 percent in 2015 (see Figure 104). It is to be noted here that before 2011 Rangpur division was a part of Rajshahi division. Therefore, the earlier findings for Rangpur division were presented under Rajshahi division.

In Sylhet division, a fluctuating but upward trend was observed in crude TT2 coverage. Crude TT2 coverage increased from 85.0 percent in 2005 to 94.3 percent in 2015. Conversely, it decreased by 7.9 percentage points in the past two surveys, from 98.9 percent in 2013 to 91.0 percent in 2014 (see Figure 105).And, again increased by 3.3 percenatge points between CES 2014 and 2015.

Figure 99: Crude TT2 Vaccination Coverage in Barisal Division from 2000 to 2015

Figure 100: Crude TT2 Vaccination Coverage in Chittagong Division from 2000 to 2015

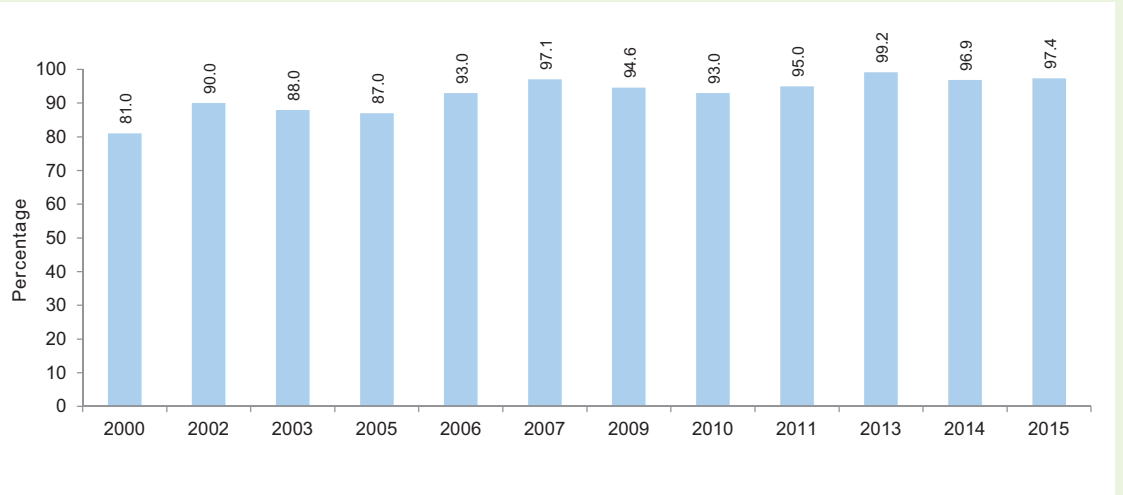


Figure 101: Crude TT2 Vaccination Coverage in Dhaka Division from 2000 to 2015

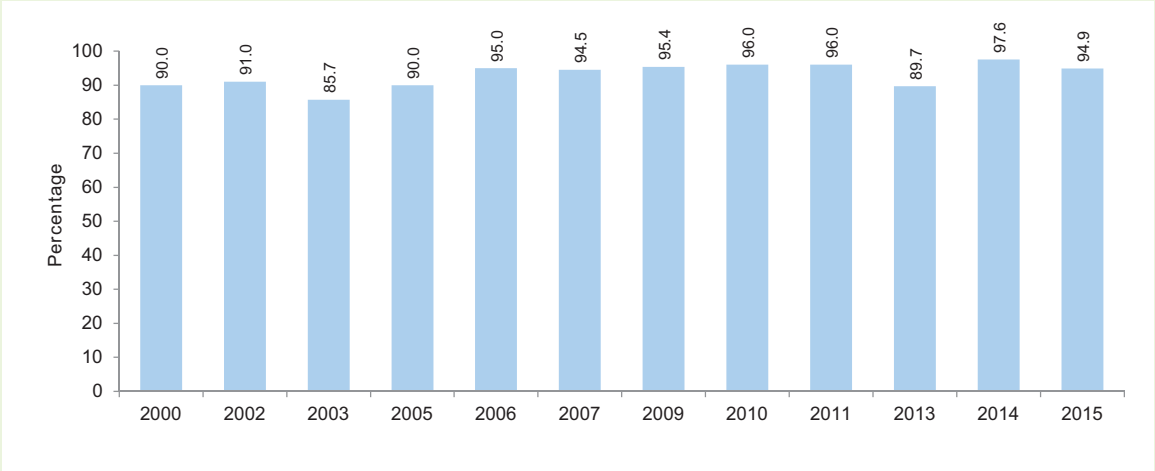


Figure 102: Crude TT2 Vaccination Coverage in Khulna Division from 2000 to 2015

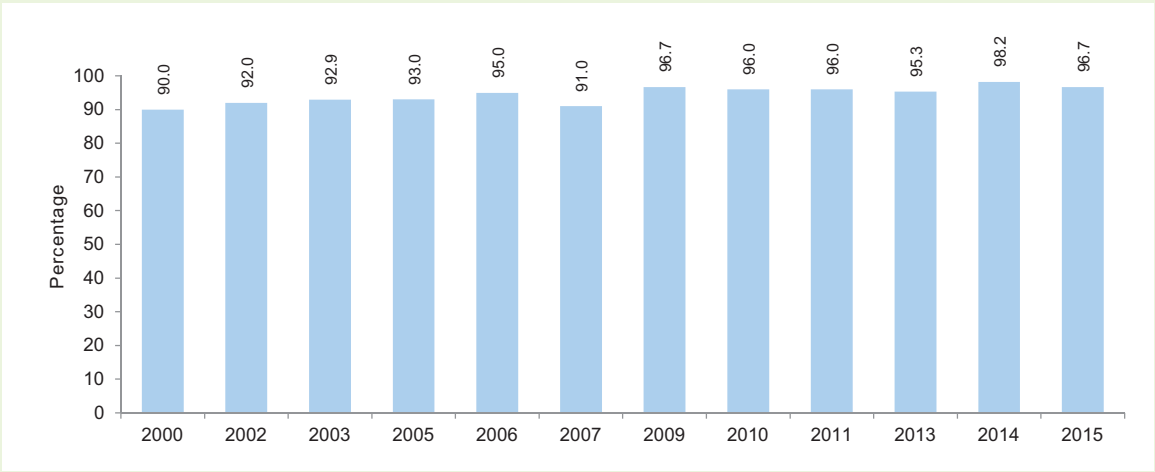


Figure 103: Crude TT2 Vaccination Coverage in Rajshahi Division from 2000 to 2015

Figure 104: Crude TT2 Vaccination Coverage in Rangpur Division from 2011 to 2015

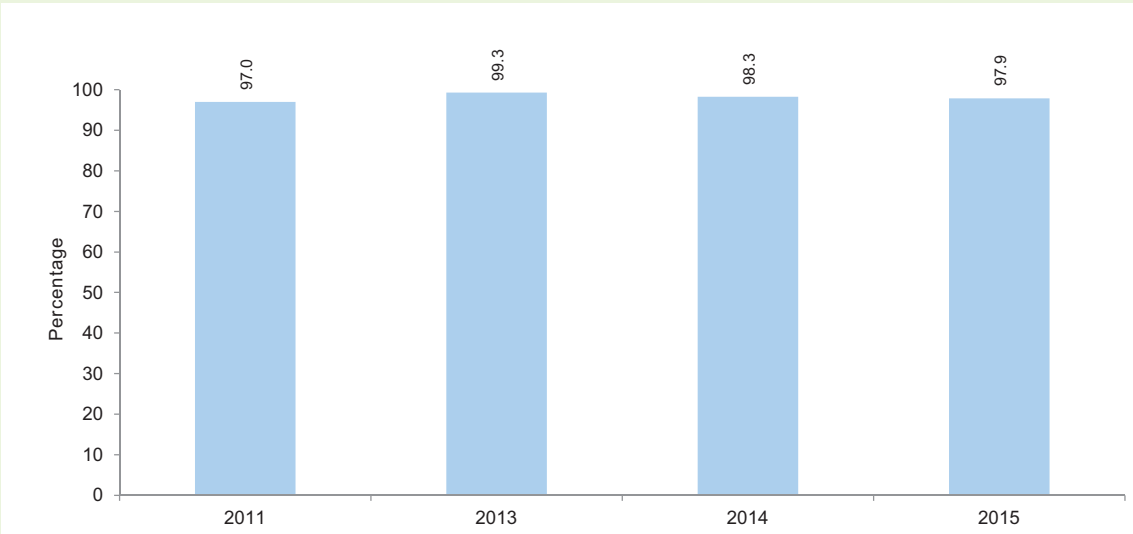
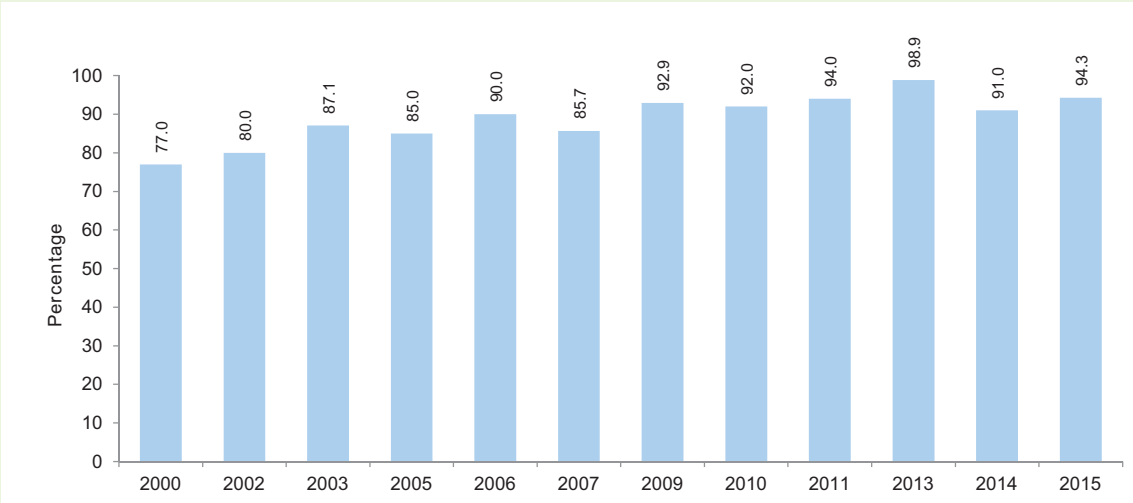


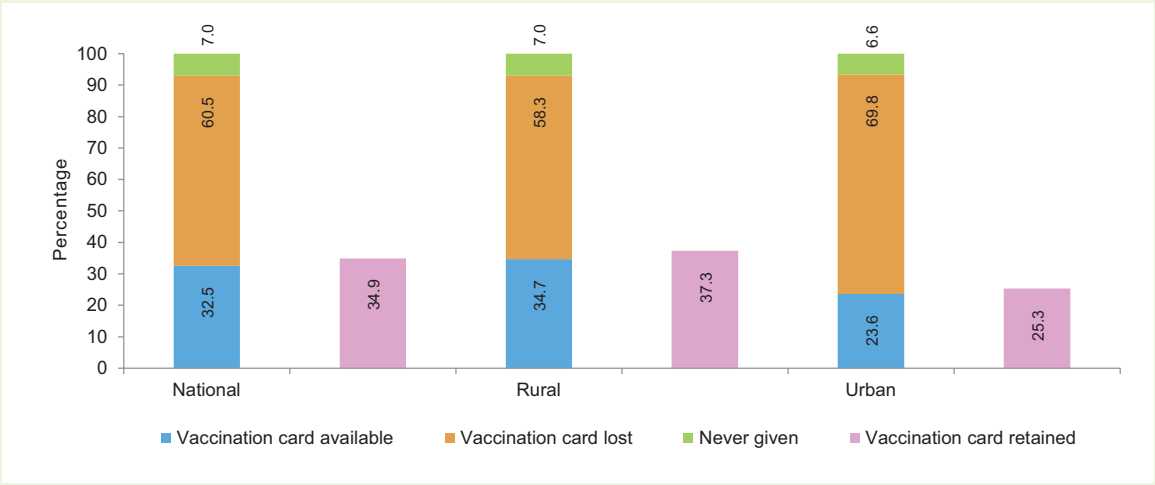
Figure 105: Crude TT2 Vaccination Coverage in Sylhet Division from 2000 to 2015



5.6 TT CARD STATUS AMONG MOTHERS

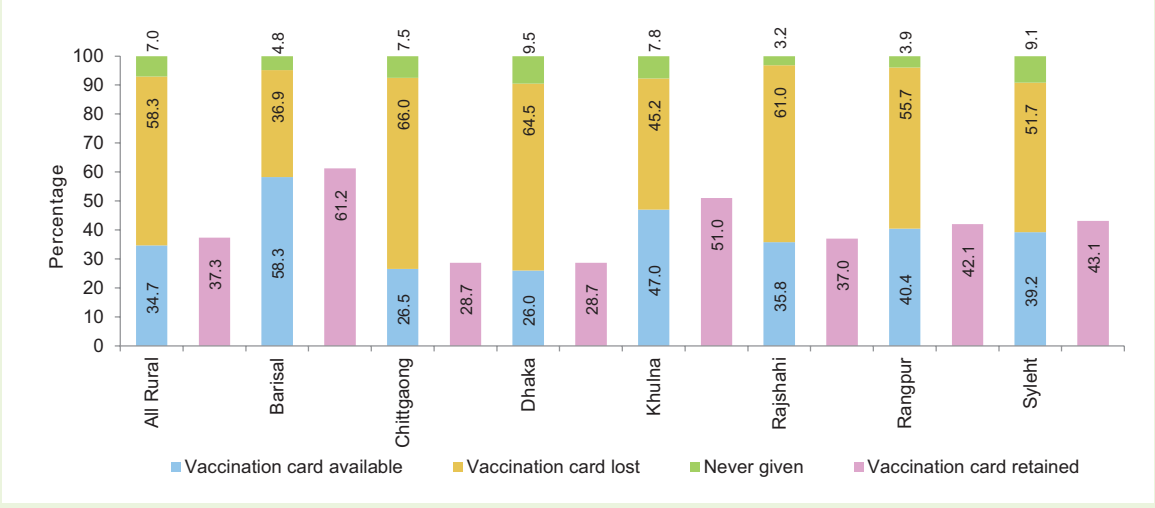
Nationally, 32.5 percent cards were available during the time of data collection and 60.5 percent appeared to be lost. In 93.0 percent cases, cards were issued at the time of vaccination and that the cards were not given to the rest 7.0 percent vaccine recipients. TT vaccination cards were found to be retained (percentage of cards available at the time of the survey against the total number available and lost, but not those never given) in 34.9 percent cases nationally (see Figure 106). Rural mothers were more likely to retain TT vaccination cards (37.3 percent) compared to their urban counterparts (25.3 percent).

Figure 106: TT Vaccination Card Status by National, Rural and Urban Areas in 2015



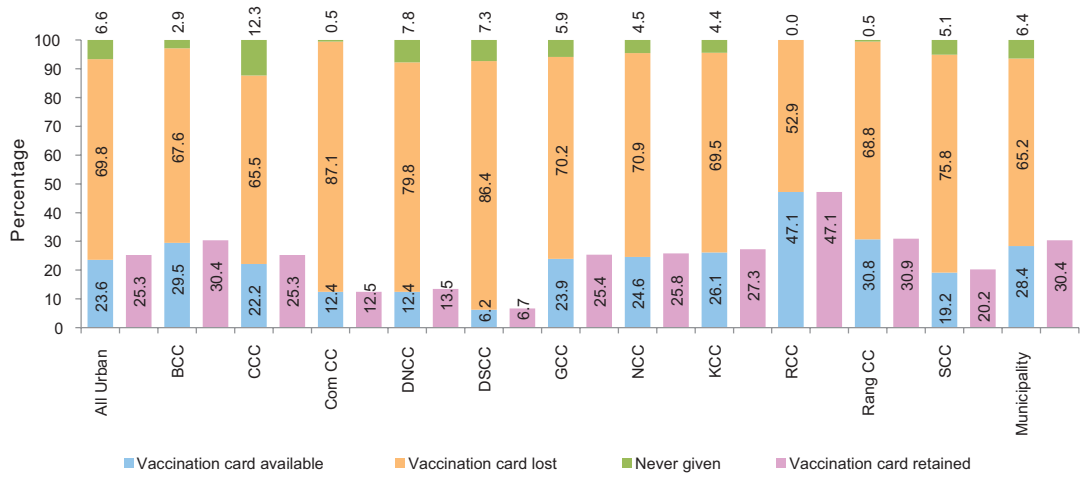
Among the rural divisions, the availability of TT vaccination cards during the period of data collection was found to be highest in Barisal division (58.0 percent) and lowest in Dhaka division (26.0 percent), which is the same pattern for the card retention rate (61.2 percent and 28.7 percent, respectively) although the card retention rate was lowest in Chittagong division and Dhaka divisions (28.7 percent each) . The highest proportion of vaccination cards reported to be lost was the inverse, with Chittagong division the highest (66.0 percent) and Barisal division the lowest (36.9 percent) (see Figure 107).

Figure 107: TT Vaccination Card Status in Rural Areas by Division in 2015



The TT vaccination card status by City Corporation found that 47.1 percent cards were available, and retained, during the time of data collection by mothers residing in RCC. The lowest percentage of available and retained card was in DSCC, at 6.2 percent and 6.7 percent respectively. While the lowest number of lost cards was in RCC (52.9 percent), the highest number was in ComCC (87.1 percent). The lowest rate of vaccination cards found to be retained was in DSCC (6.7 percent), followed by ComCC (12.5 percent) (see Figure 108).

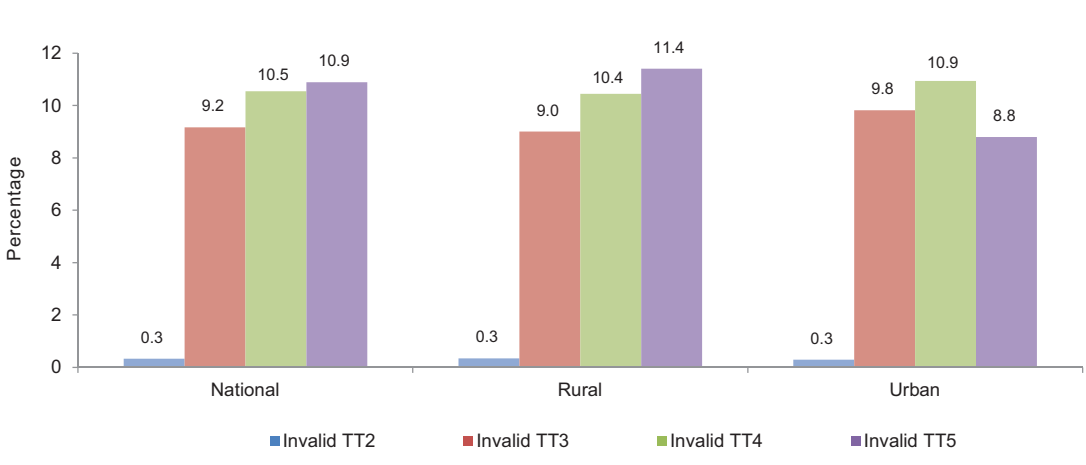
Figure 108: TT Vaccination Card Status in Urban Areas by City Corporation and Municipality in 2015



5.7 INCIDENCE OF INVALID DOSES

Nationally, the incidence of invalid doses was about one in ten for TT3, and about 11 percent for TT4 and TT5. By residence, the incidence of invalid TT3 and TT4 was slightly higher in urban areas than rural areas. In rural areas, the incidence of invalid TT3 was 9.0 percent, TT4 10.4 percent, and TT5 11.4 percent, while the corresponding figures in urban areas were 9.8 percent, 10.9 percent, and 8.8 percent (see Figure 109).

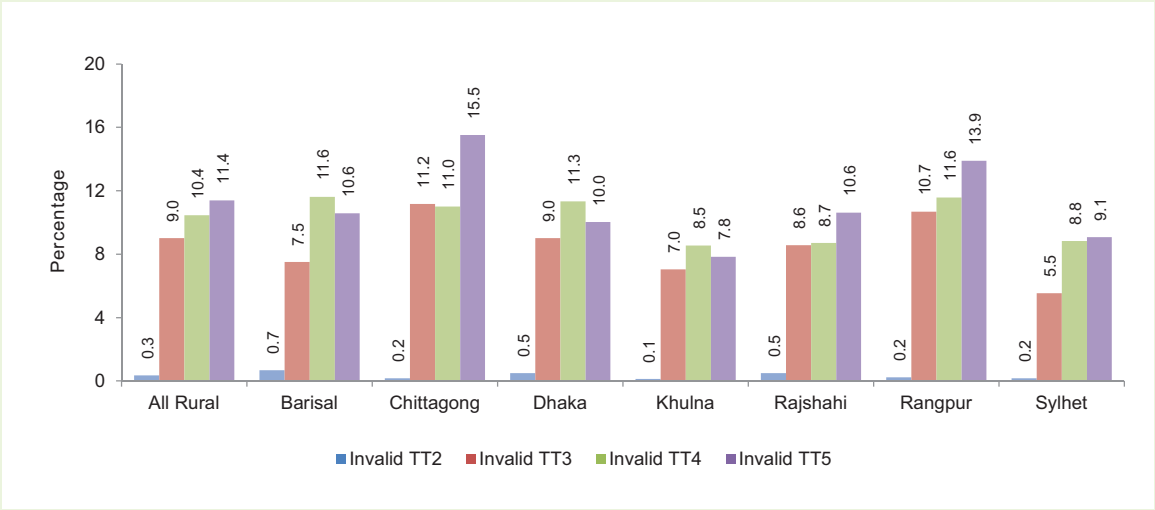
Figure 109: Incidence of Invalid TT Doses by National, Rural and Urban Areas in 2015



Incidence of invalid TT2 doses was 0.3 percent nationally with no difference between rural and urban areas. Among rural divisions, there were some variations within the invalid doses of TT3, TT4, and TT5 was noticed within divisions. Invalid TT3 ranged from 11.2 percent in Chittagong division to 5.5 percent in Sylhet division. Similarly, the incidence of invalid TT4 ranged from 11.6

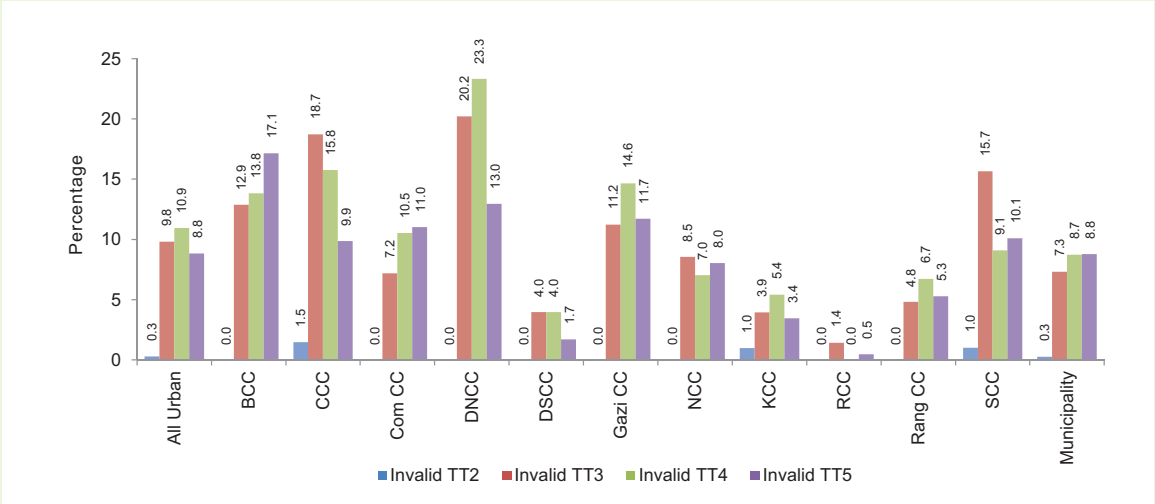
percent in Rangpur division to 8.5 percent in Khulna division. The highest incidence of invalid TT5 was in Chittagong (15.5 percent), but the lowest was in Khulna divisions (7.8 percent). The incidence of invalid TT5 ranged from 9.1 percent in Sylhet to 13.9 percent in Rangpur division (see Figure 110).

Figure 110: Incidence of Invalid TT Doses in Rural Areas by Division in 2015



Among the city corporations, the incidence of invalid TT2 was highest in CCC (1.5 percent) followed by KCC and SCC with 1.0 percent each. However, there was no invalid TT2 in other city corporations. The highest and lowest rates of invalid TT3 to TT4 doses varied greatly. For instance, the incidence of invalid TT3 dose was the highest in DNCC (20.2 percent) and the lowest in RCC (1.4 percent), while for invalid TT4, it was again highest in DNCC (23.3 percent) and lowest in DSCC (4 percent) although there was no invalid TT4 in RCC. However, invalid TT5 was the highest in BCC (17.1 percent) and the lowest in RCC (0.5 percent). Overall, DNCC had the highest incidence of TT3 to TT5 (see Figure 111).

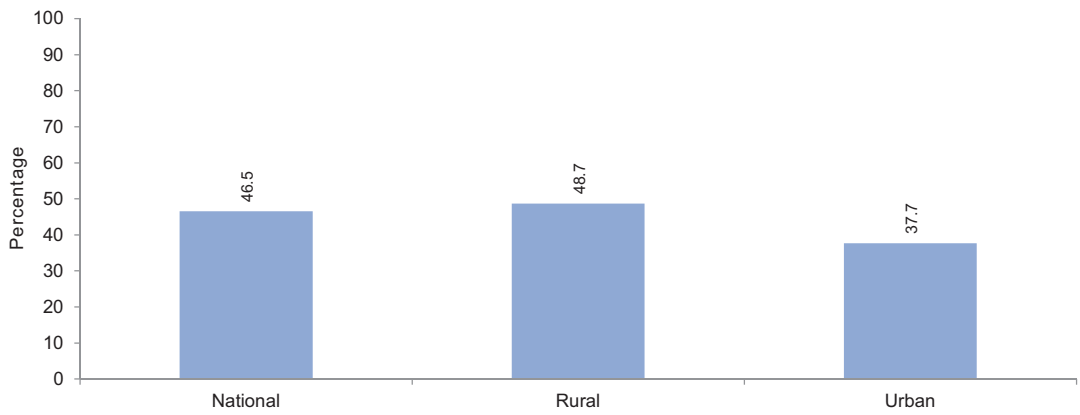
Figure 111: Incidence of Invalid TT Doses in Urban Areas by City Corporation and Municipality in 2015



5.8 SCREENING THE TT VACCINATION OF THE MOTHERS

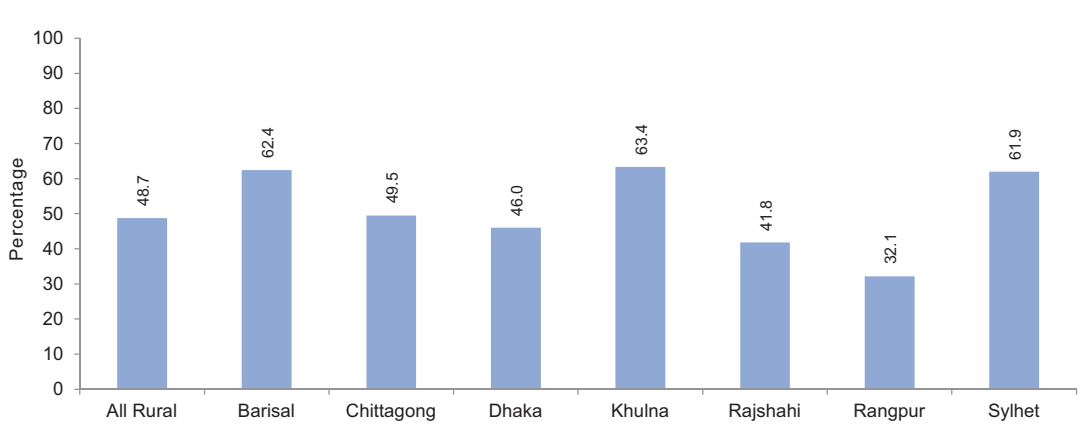
Screening the mothers' TT status is an important means to addressing the missed opportunity of subsequent TT doses. CES 2015 assessed the screening status by the vaccinator, and the results are presented in Figures 112 to Figure 114. Overall, 46.5 percent of the mothers across the country reported that their TT status was screened. Rural mothers (48.7 percent) were more likely to be screened, compared to those who resided in urban areas (37.7 percent) (see Figure 112).

Figure 112: Percentage Distribution of Mothers Screened for TT Status by National, Rural and Urban Areas in 2015



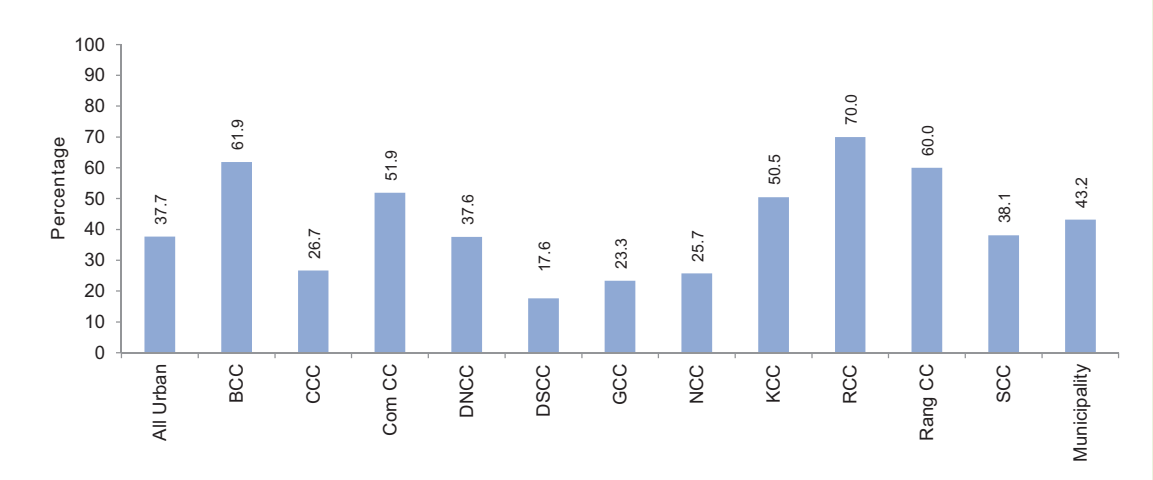
By rural divisions, the highest proportion of mothers who reported that their TT vaccination status was screened by the vaccinator (63.4 percent) were from Khulna division. The proportion of the screened mothers was the lowest in Rangpur division (32.1 percent). The others ranged between 41.8 percent and 62.4 percent in other divisions (see Figure 113).

Figure 113: Percentage Distribution of Mothers Screened for TT Status in Rural Areas by Division in 2015



Among the city corporations, the proportion of screened mothers was the highest by far in RCC (70.0 percent), followed next by BCC (61.9 percent), and with a steady decline in the other city corporations to the lowest, held by DSCC (17.6 percent) (see Figure114).

Figure 114: Percentage Distribution of Mothers Screened for TT Status in Urban Areas by City Corporation and Municipality in 2015



5.9 NEWBORN PROTECTION AT BIRTH (PAB) AGAINST TETANUS

The status of Protection at Birth against tetanus of the surveyed children is presented in Figures 115 to 117. Nationally 91.5 percent of the newborn were protected at their birth against tetanus, with rural children were a very slightly ahead of urban children in this context (91.7 percent vs.90.8 percent). Among the divisions, also shown on Map 14, PAB against tetanus was the highest in Barisal (96.1 percent), followed by Rajshahi (94.3 percent). The children living in Sylhet division were found comparatively less protected (87.8 percent) (see Figure 116).

Figure 115: Percentage Distribution of Newborn Protected at Birth against Tetanus by National, Rural and Urban Areas in 2015

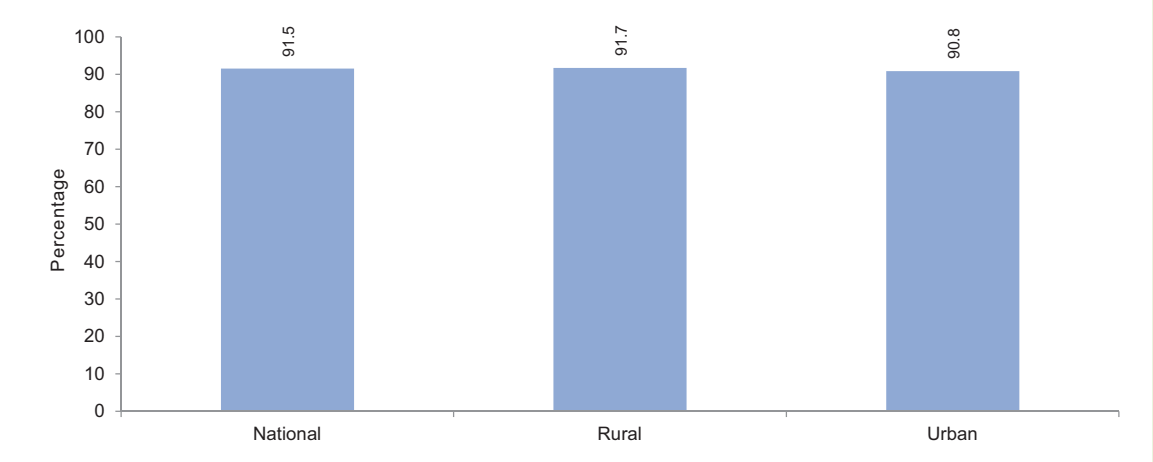


Figure 116: Percentage Distribution of Newborn Protected at Birth against Tetanus in Rural Areas by Division in 2015

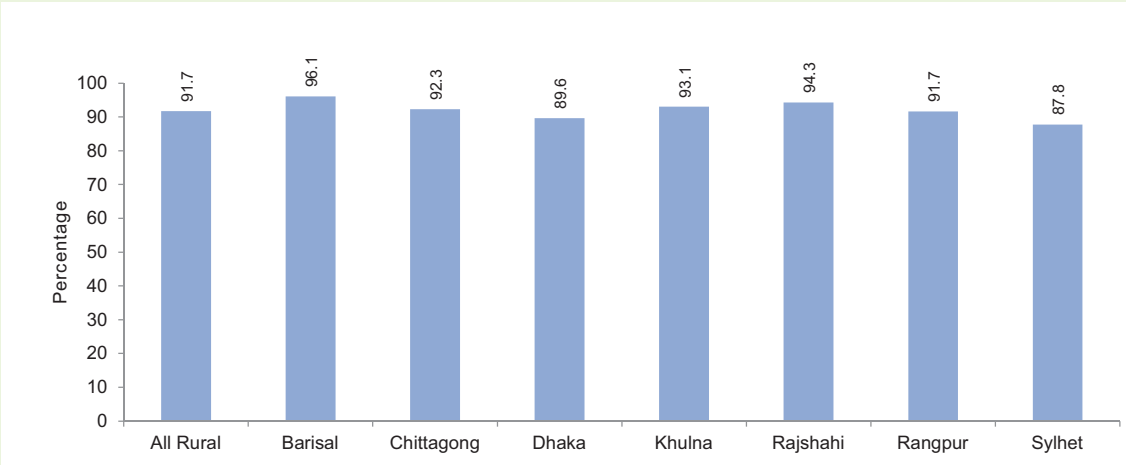
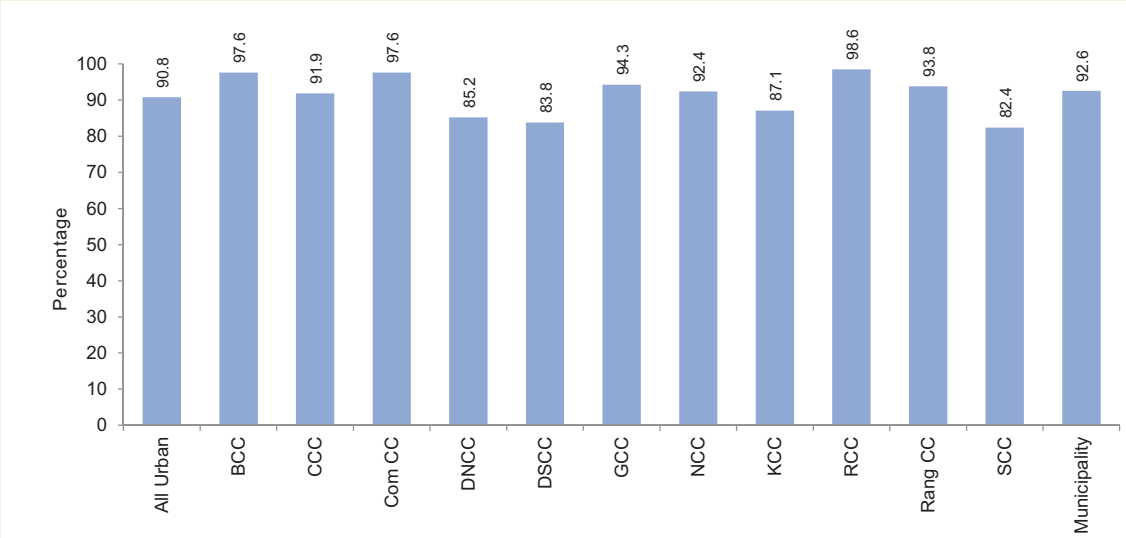


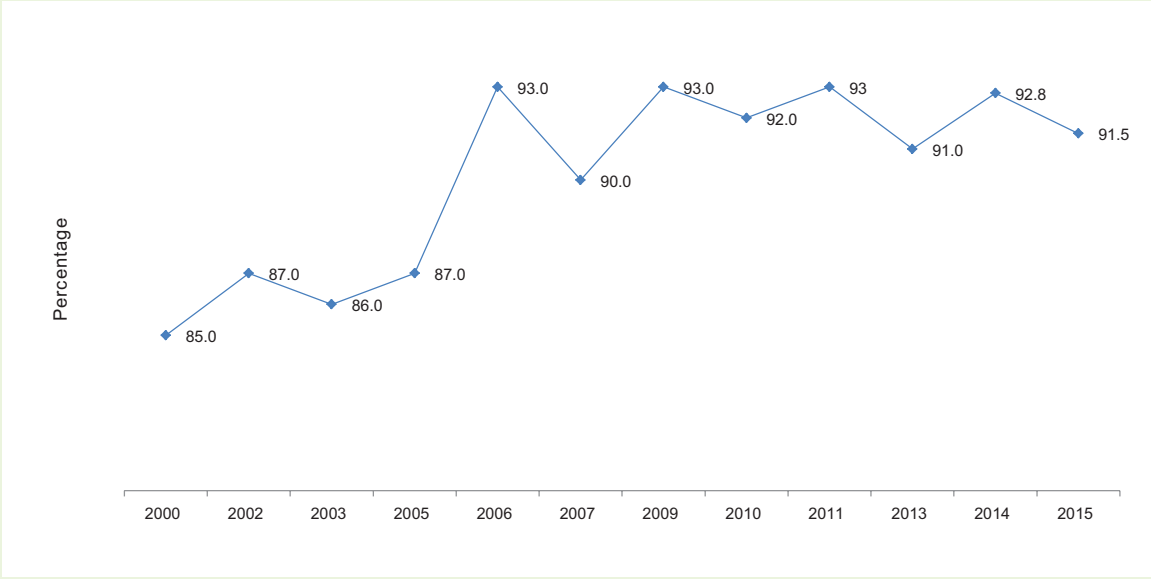
Figure 117: Percentage Distribution of Newborn Protected at Birth against Tetanus in Urban Areas by City Corporation and Municipality in 2015



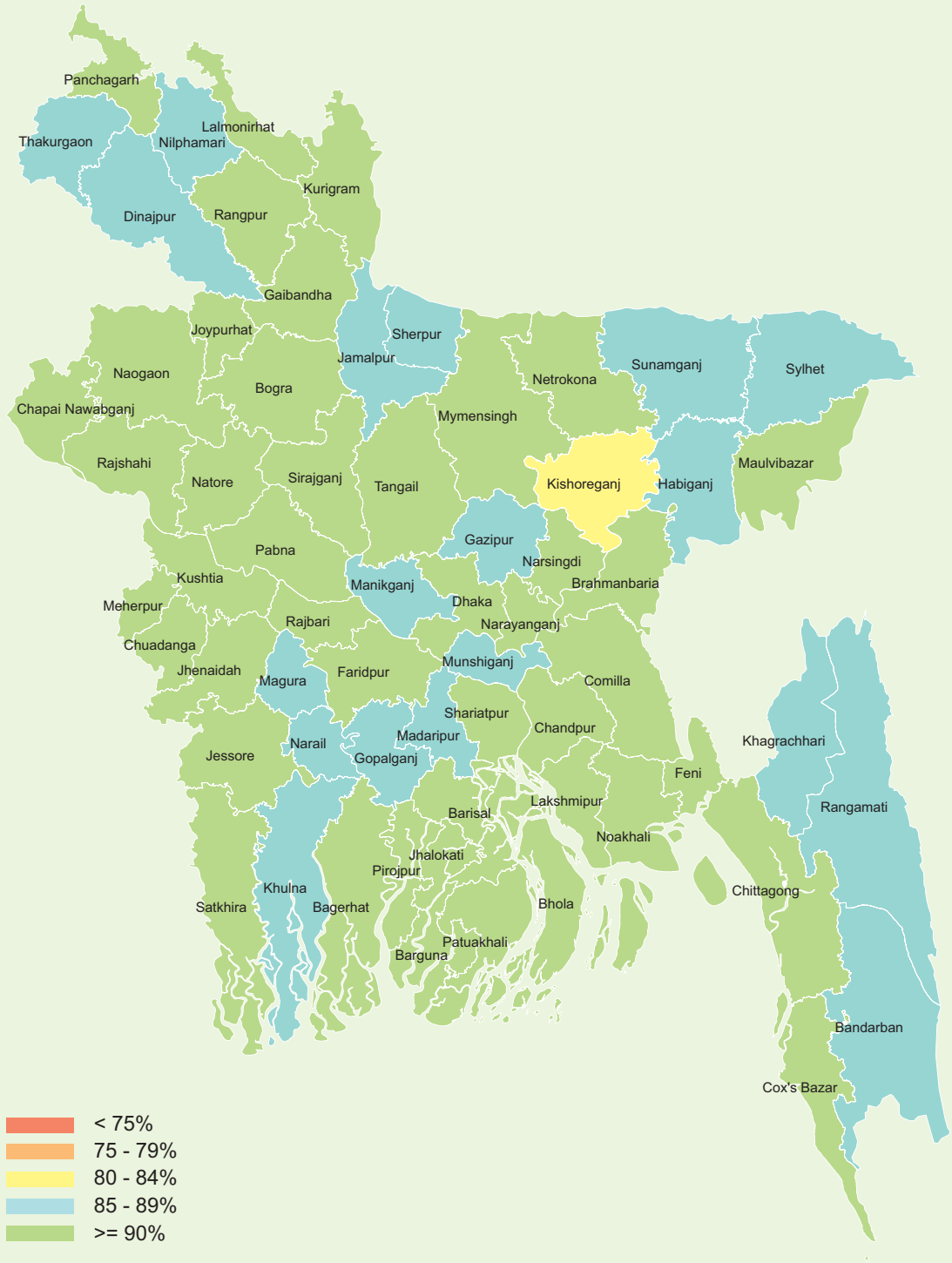
5.10 TRENDS IN PROTECTION OF NEWBORN AT BIRTH (PAB) AGAINST TETANUS

The trend of protection of newborn at birth from tetanus is shown in Figure 118. It shows a slow but gradual increase with minor fluctuations in PAB since 2000. PAB of newborn against tetanus increased by 7 percentage points – from 85 percent in 2000 to 92 percent in 2010. PAB was almost stagnant for the last one decade and varied with some fluctuations bewteen 93 and 91.5 percent. PAB was 91 percent in 2013 and increased to 92.8 percent in 2014. However, it again decreased to 91.5 percent in 2015.

Figure 118 . Percentage Distribution of Newborns Protected at Birth against Tetanus at National Level from 2000 to 2015



Map 14: Newborn Protected at Birth against Tetanus by District



5.11 TT2 COVERAGE AND PAB STATUS

Figure 119 presents TT2 coverage by mothers' age and the status of PAB of newborn babies. It shows that 91.5 percent of the newborn babies were protected at their birth, as against all (96.4 percent) TT2 coverage. By the age of mothers, the gap between TT2 coverage and PAB was the highest among the mothers aged 40 years and above (75.9 percentage points). For the other age groups the gap between TT2 coverage and PAB had also some variations. In urban areas, the gap between TT2 coverage and PAB among mothers who were 40 years of age and above was 10.5 percentage points (see Figure 121). The gap among rural mothers who were 40 years old and above was 17.3 percent which was about 7 percentage points higher than same age group of urban mothers (see Figure 120 and 121).

Figure 119: Percentage Distribution of Mothers Received TT2 and of Newborn Protected at Birth Against Tetanus by Age Group of Mothers at National Level in 2015

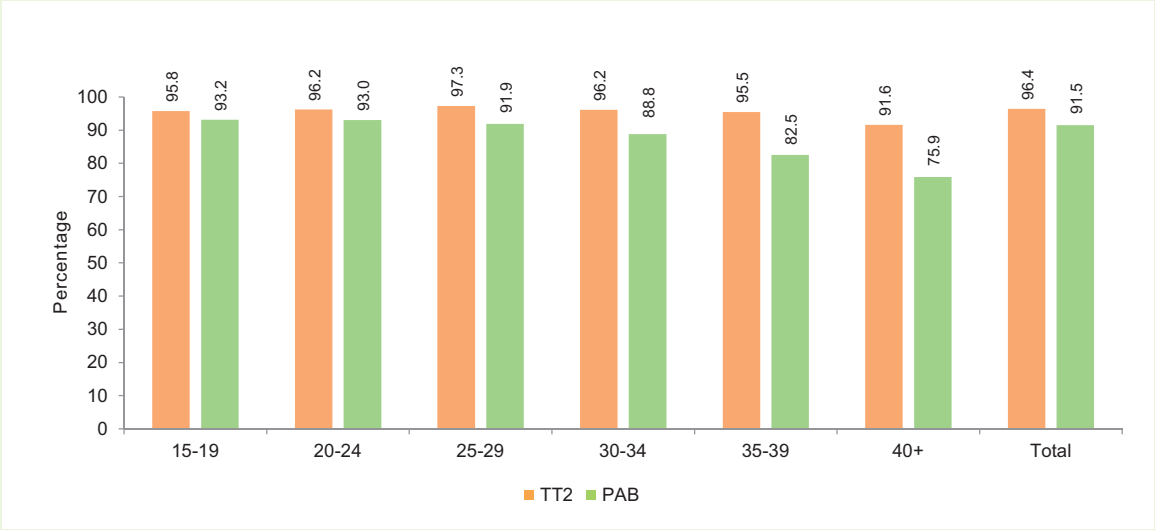
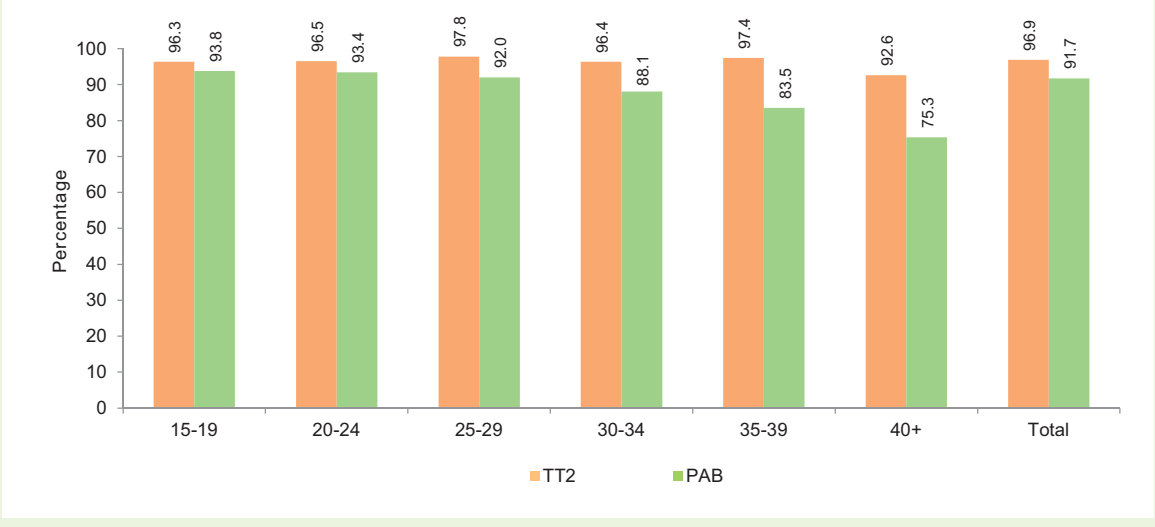
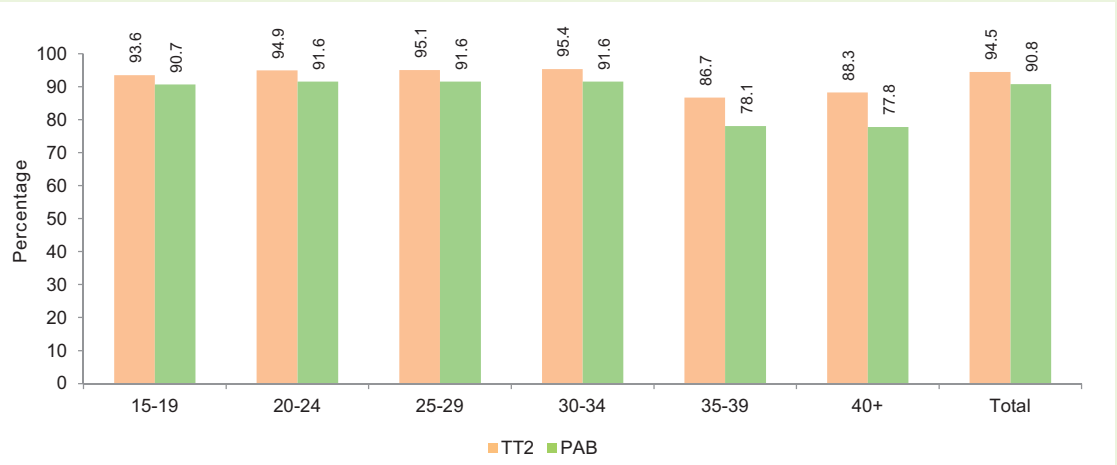


Figure 120: Percentage Distribution of Mothers Received TT2 and of Newborn Protected at Birth Against Tetanus by Age Group of Mothers by Rural Areas in 2015



The analysis of TT2 coverage and PAB indicates that TT2 coverage and PAB are not inter-related. In relation to TT2 coverage, PAB was not found same even nationally. This might be due to giving birth to the child after 3 years of receiving TT2.

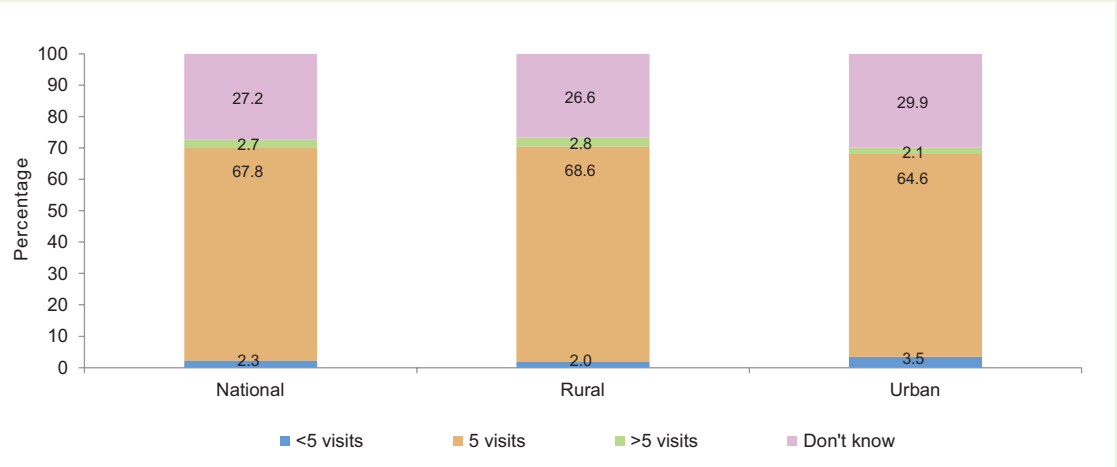
Figure 121: Percentage Distribution of Mothers Received TT2 and of Newborn Protected at Birth Against Tetanus by Age Group of Mothers by Urban Areas in 2015



5.12 MOTHERS' KNOWLEDGE ABOUT NUMBER OF TT DOSES

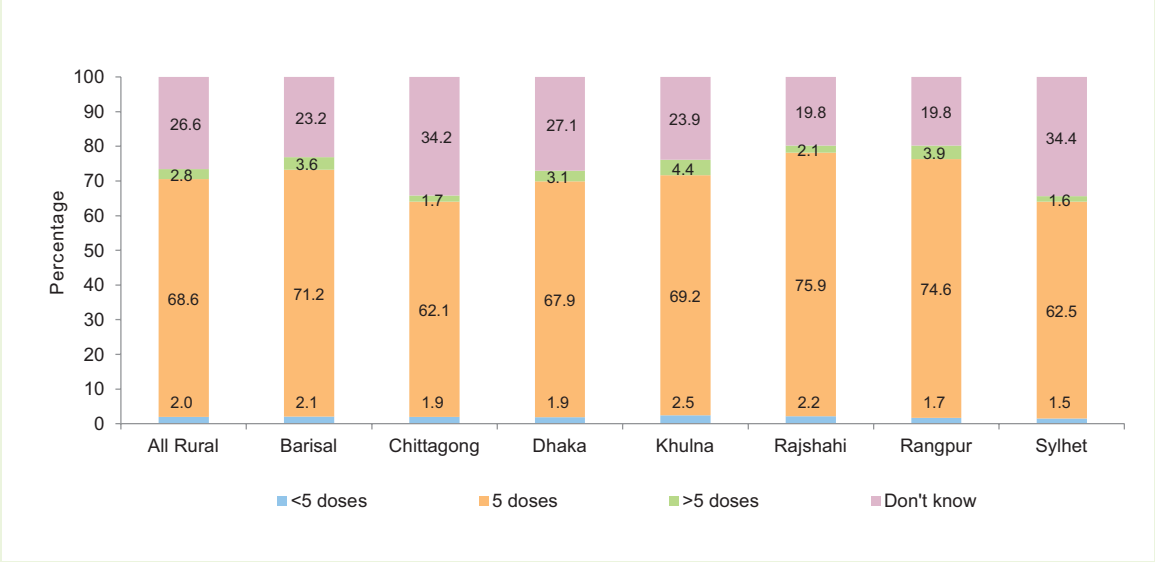
Figure 122 presents the mothers' knowledge of the number of TT doses required for their protection against tetanus through their reproductive age. Nationally, a little over two-thirds of the respondents (67.8 percent) reported knowing five doses of TT vaccine are required. The respondents living in rural areas had better knowledge than those living in urban areas (68.6 percent vs. 64.6 percent). Overall, 27.2 percent of the respondents reported that they did not know anything about the number of doses.

Figure 122: Knowledge about Number of TT Doses Required to Protect a Woman against Tetanus by National, Rural and Urban Areas in 2015



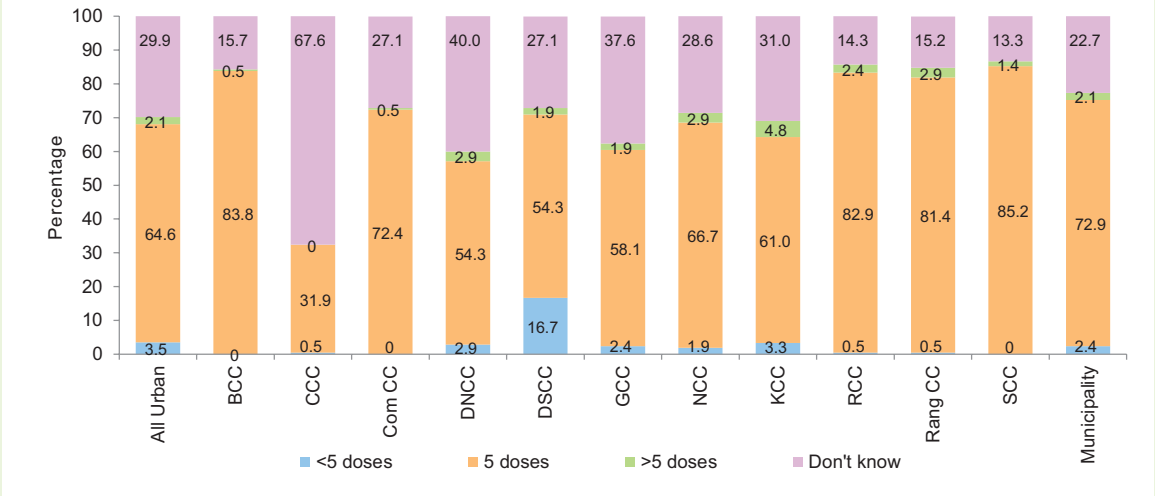
Among the divisions, awareness about the five required doses of TT vaccine was highest among mothers in Rajshahi division (75.9 percent); the mothers in Chittagong divisions (62.1 percent) had the least awareness of the recommended doses (see Figure 123).

Figure 123: Knowledge about Number of TT Doses Required to Protect a Woman against Tetanus in Rural Areas by Division in 2015



The respondents who were living in SCC (85.2 percent), BCC (83.8 percent), RCC (82.9 percent) and Rang CC (81.4 percent) possessed better knowledge about the required number of TT doses than those were residing in other city corporations. It was found that 31.9 percent among those residing in CCC knew about the correct required number of TT doses, while 67.6 percent could not mention the required number of TT dose (see Figure 124).

Figure 124: Knowledge about Number of TT Doses Required to Protect a Woman against Tetanus in Urban Areas by City Corporation and Municipality in 2015



5.13 SOURCES OF TT VACCINATION

The sources for TT1 vaccine are presented in Figure 125. Overall, in 91.2 percent cases, TT1 vaccine was received from GoB outreach centres, more so in rural areas (94.4 percent) than urban areas (77.7 percent). Nationally, other sources included GoB hospitals (5.5 percent), and NGOs and private clinics/ hospitals (3.2 percent).

Figure 125: Sources of TT1 Vaccination by National, Rural and Urban Areas in 2015

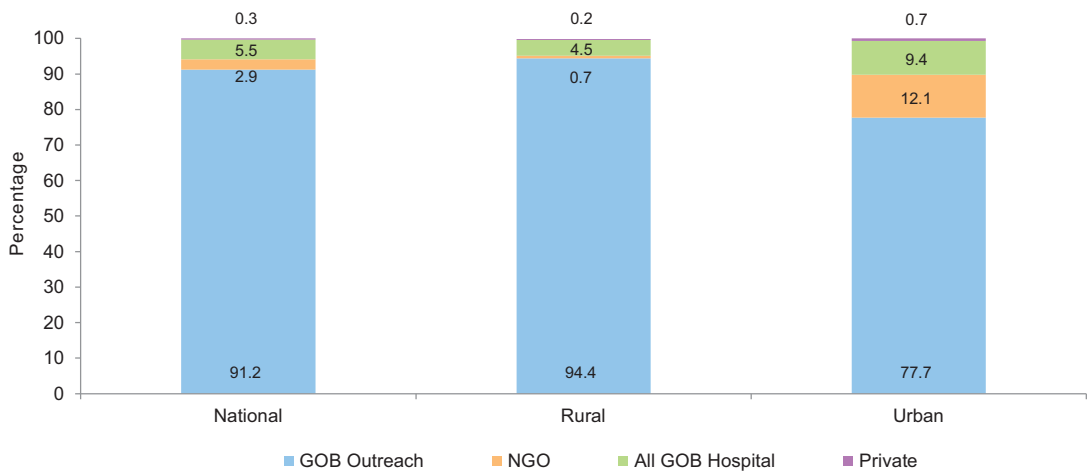
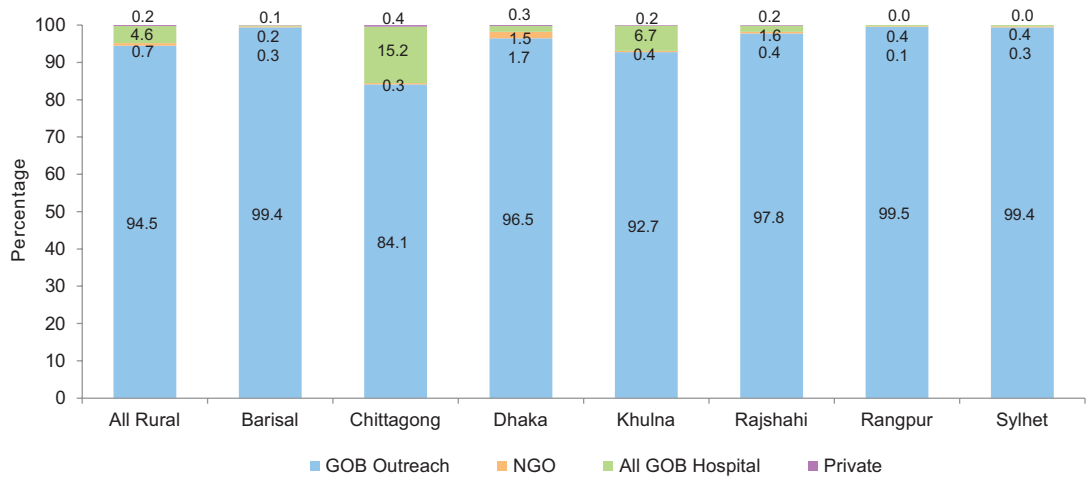


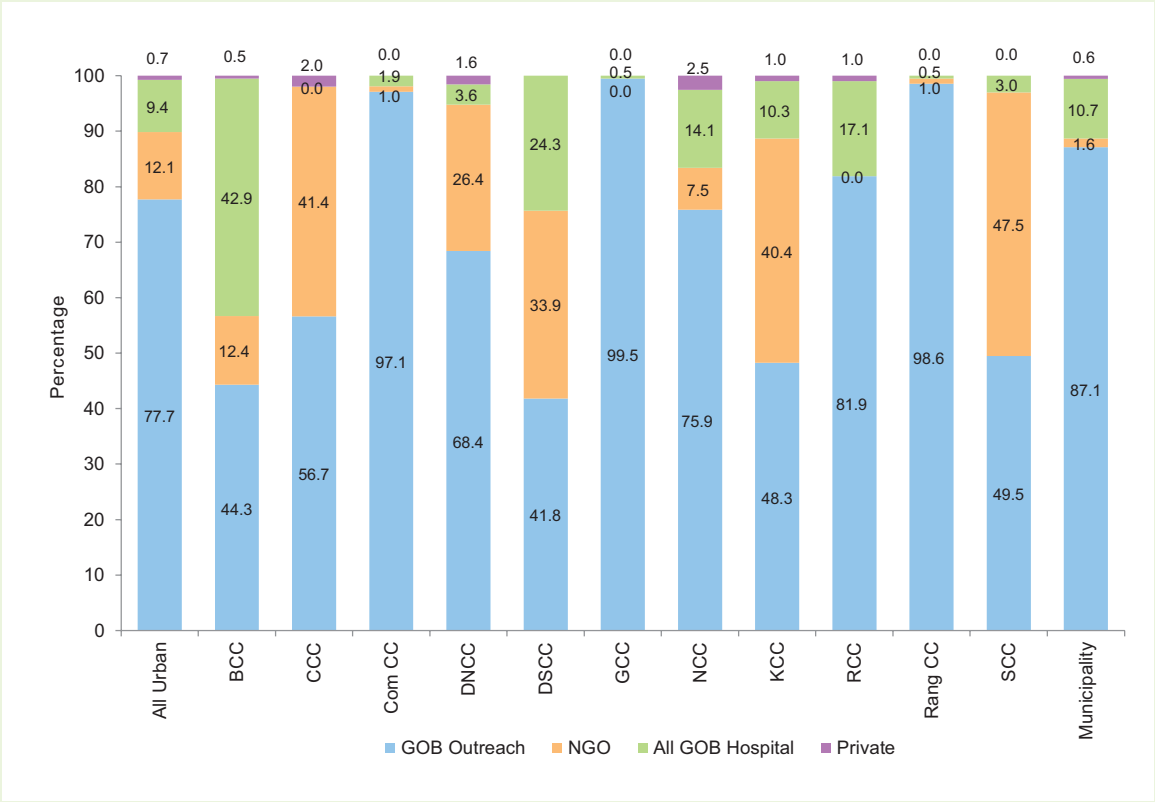
Figure 126 shows the distribution of sources of TT1 doses by rural divisions. Again, the vast majority received their TT1 doses from GoB outreach centres, with rates ranging from 99.4 percent in Rangpur division to 84.1 percent in Chittagong division. NGO and private sources were very low in all divisions.

Figure 126: Sources of TT1 Vaccination in Rural Areas by Division in 2015



By city corporations, the distribution of sources of TT1 dose were again for the most part GoB outreach centres but there was more variety than in rural areas. The data show that 99.0 percent respondents in GCC and Ranpur City Corporations received TT1 from GoB outreach centres. At the other end of the scale, 41.8 percent go to GoB outreach centres in DSCC. A significant portion of respondents from DNCC (26.4. percent) and DSCC (33.9 percent) received TT1 from NGO health centres (see Figure 127).

Figure 127: Sources of TT1 Vaccination in Urban Areas by City Corporation and Municipality in 2015



CHAPTER 6

TT5 COVERAGE AMONG CHILD BEARING AGE WOMEN

TT5 VACCINATION COVERAGE AMONG CHILD BEARING AGE WOMEN

EPI provides TT vaccine to all women of child bearing age (15-49 years) through its routine vaccination programme. To confirm adequate protection of newborn babies against neonatal tetanus, EPI aims to complete all five doses of TT to all the target women at the shortest possible interval. Based on the vaccination schedule, the shortest possible interval would be at least two years and seven months. If a woman starts the TT vaccinations at the age of 15 and keeps to the exact scheduled intervals, she would be able to complete all the required doses before the age of her marriage, and she would be protected from tetanus through her reproductive years.

6.1 OBJECTIVES OF TT5 VACCINATION COVERAGE

The Tetanus Toxoid (TT) survey was undertaken to achieve the following objectives:

- completed all five doses of TT
- rate of TT card retention
- sources of TT vaccination
- reasons for those not receiving TT

6.2 SELECTION OF SAMPLES

The survey samples for TT5 were selected from the same clusters as were the samples for Chapter 5, where the samples were selected following WHO 30 clusters sampling technique. First, a list was compiled from women 18-49 years old who were identified within each household. From that list, a sampling frame with all the eligible women was made. Finally, seven women were selected randomly to examine their TT vaccination status through a pre-designed structured questionnaire.

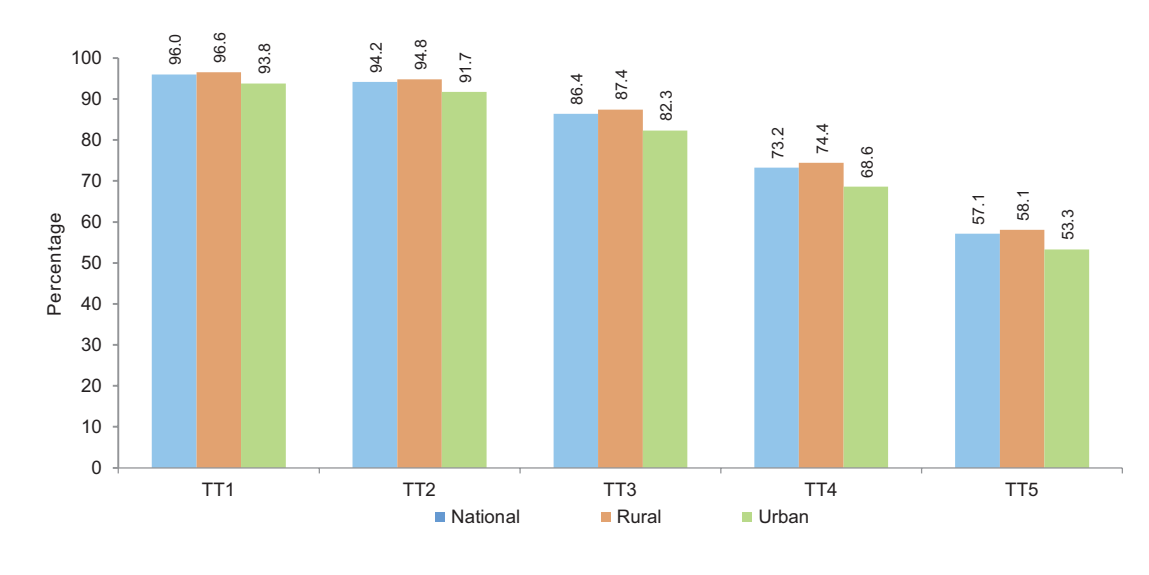
6.3 LEVELS OF TT VACCINATION COVERAGE

The Coverage Evaluation Survey 2015 estimated two types of TT vaccination coverage: crude and valid. Crude TT vaccination coverage includes all TT vaccines administered to a recipient, although the EPIrecommended TT vaccination schedule may not have been followed. On the other hand, valid coverage is estimated from only those doses of vaccine which were administered according to the EPI-recommended TT vaccination schedule. Both types of the coverage are discussed below.

Crude Vaccination Coverage

Figure 128 shows that nationally 57.1 percent of the women received all the 5 doses of TT vaccines with some variation in coverage between rural (58.1 percent) and urban (53.3 percent) women. On the way to TT5, there had been a steep downward trend in crude coverage between TT doses. Having started with TT1 at 96.0 percent nationally, the rate had dropped at 86.4 percent for TT3 and 73.2 percent for TT4 dose. A similar picture was observed both in rural and urban areas.

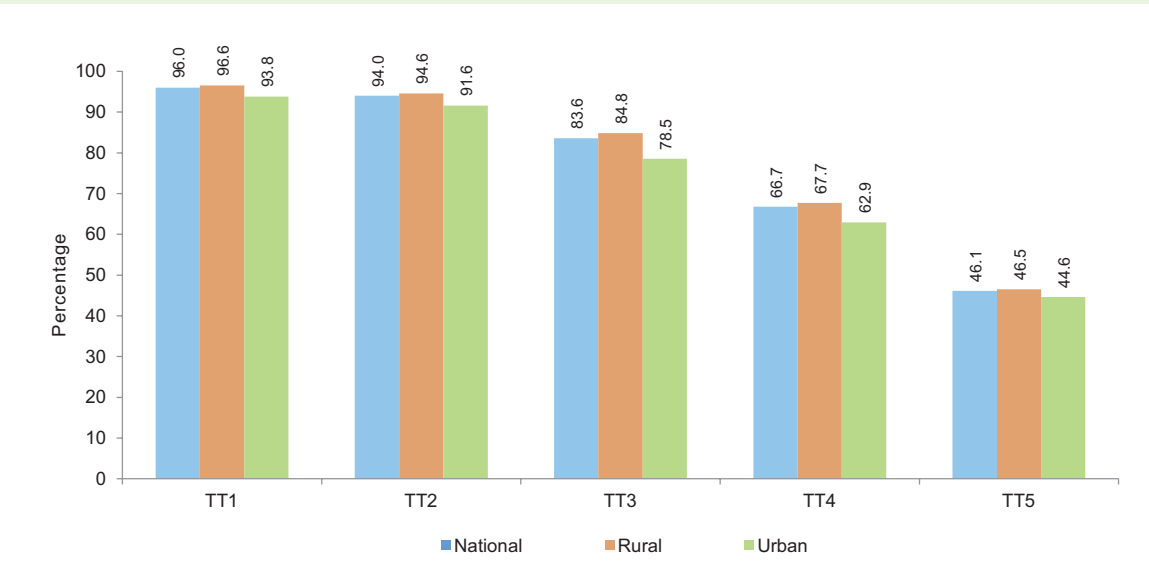
Figure 128: Crude TT5 Vaccination Coverage by National, Rural and Urban Areas in 2015



As regards valid TT vaccination coverage, less than half (46.1 percent) of the surveyed women received all five doses of valid TT vaccine across the country- 46.5 percent in rural and 44.6 percent in urban areas. Like crude TT coverage, valid TT coverage for the subsequent doses were also found to have decreased substantially, from 96.0 percent for TT1 to 46.1 percent for TT5 (see Figure 129).

By residence, valid TT coverage was higher in rural areas than the urban areas for all TT doses. The gap in coverage between rural and urban areas was found high for TT3 dose (84.8 percent vs 78.5 percent).While the gap was low for TT5 dose (46.5 percent vs 44.6 percent)

Figure 129: Valid TT5 Vaccination Coverage by National, Rural and Urban Areas in 2015



6.4 TT VACCINATION COVERAGE BY RURAL DIVISION

Crude TT Vaccination Coverage

Figure 130 and Map 22 show crude TT5 vaccination coverage in rural areas by division. Crude TT5 coverage was the highest in Barisal (68.3 percent) and the lowest in Dhaka divisions (51.7 percent) and ranged between 55.1 percent and 63.9 percent in other divisions.

As the initial dose, TT1 coverage was at or above 93.7 percent in all divisions. The pattern of decreasing coverage by subsequent dosage seen in other TT evaluations is repeated here. However, the highest decrease in TT coverage from the first dose (TT1) to the last (TT5) was observed in Khulna division with 42.9 percent.

Figure 130: Crude TT5 Vaccination Coverage in Rural Areas by Division in 2015

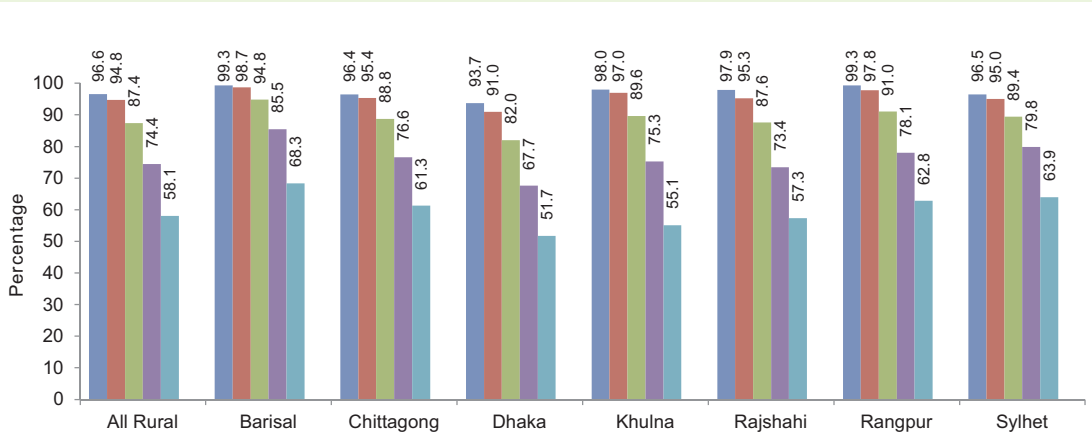
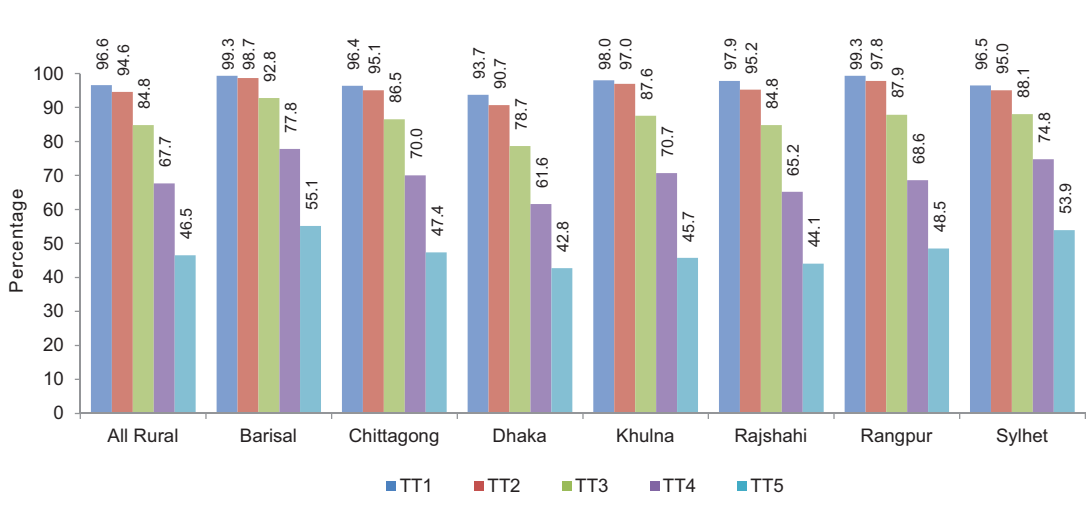


Figure 131: Valid TT5 Vaccination Coverage in Rural Areas by Division in 2015



Valid TT Vaccination Coverage

Valid TT vaccination coverage was defined as the vaccination coverage obtained by administering the TT vaccines as per the EPI-recommended TT vaccination schedule. Valid TT vaccination coverage for women 18-49 years in rural areas by division is presented in Figure 131 and Map 19. Five doses of valid TT vaccine ensure immunity against tetanus for the entire reproductive life of a woman. While first and second rounds of TT coverage was above 90.0 percent for all rural divisions, by TT5 it had dropped to no higher than 55.1 percent in Barisal and as low as 42.8 percent in Dhaka.

6.5 LEVELS OF THE COVERAGE BY THE SURVEY UNIT

As a ready reference, rates of the valid TT coverage among the women of child bearing age by the division / City Corporation are given in the Appendix at Tables 10 & 11.

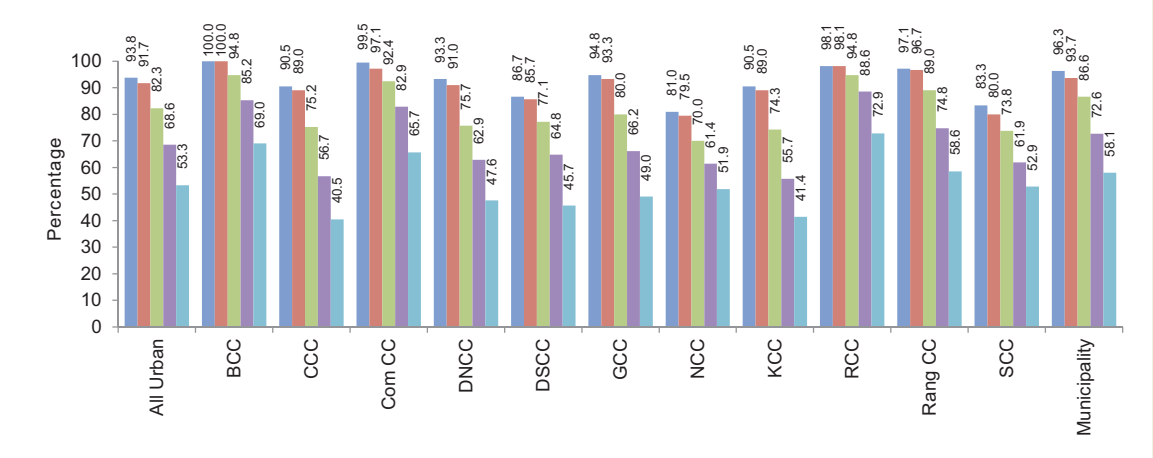
6.6 TT VACCINATION COVERAGE BY CITY CORPORATION

In CES 2015, similar to rural divisions, assessments of TT vaccination coverage were conducted for 11 city corporations. The TT vaccination coverage scenario across the city corporations is presented in Figure 132 and 133. Figure 131 presents the crude TT vaccination coverage, while Figure 132 shows the valid vaccination coverage.

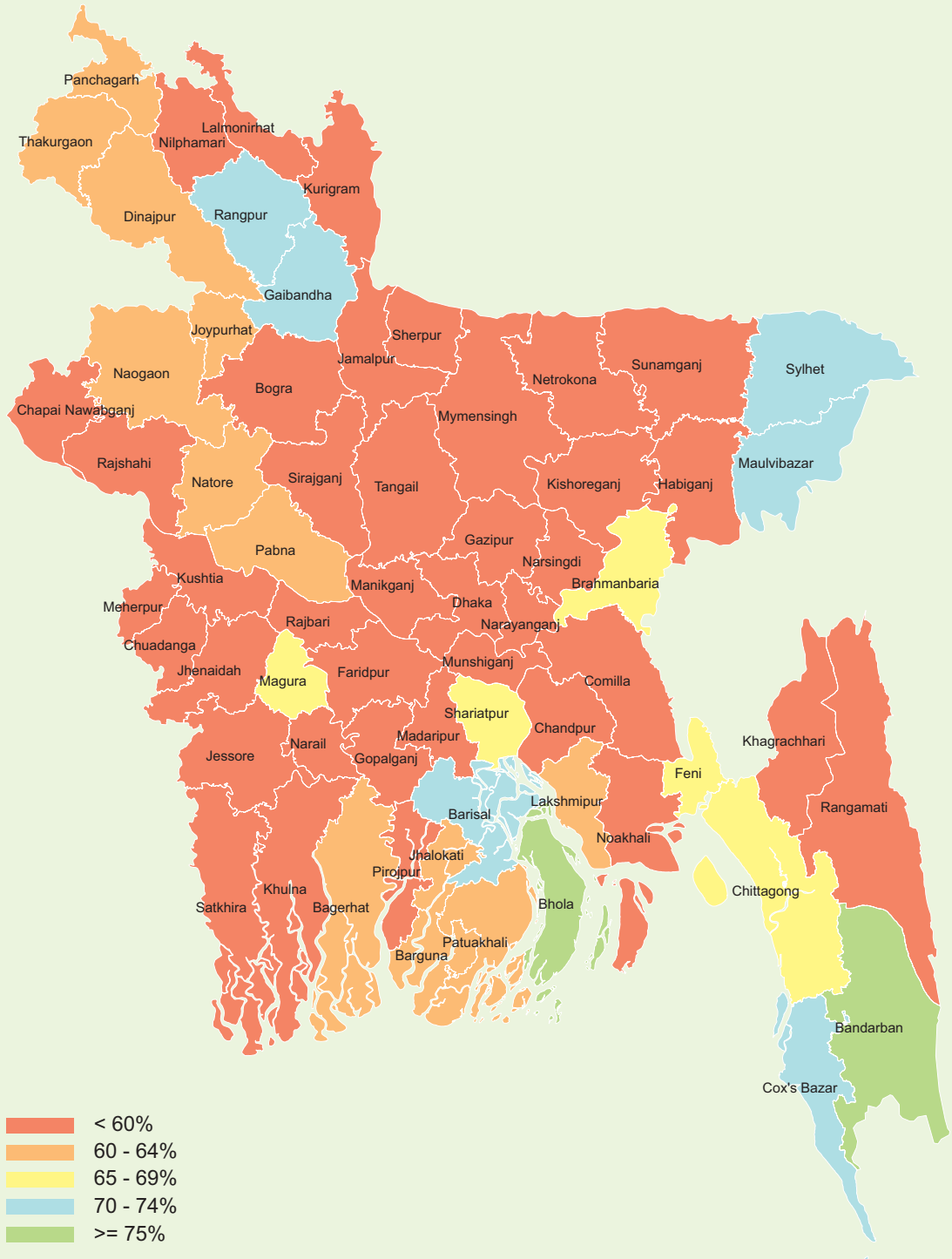
Crude TT Vaccination Coverage

Figure 132 highlights crude TT vaccination coverage by city corporations. It shows that all women (100.0 percent) in BCC received TT1. The lowest TT1 coverage was in NCC (81.0 percent). TT1 coverage was ranged between 83.3 percent and 99.5 percent in other city corporations (see Figure 132). Similarly, crude TT5 coverage was the highest in BCC (69.0 percent) and the lowest in CCC (40.5 percent), a spread of 28.5 percentage points, which is considerably wider than the 12 percentage points between the highest and lowest TT5 rates in the rural divisions.

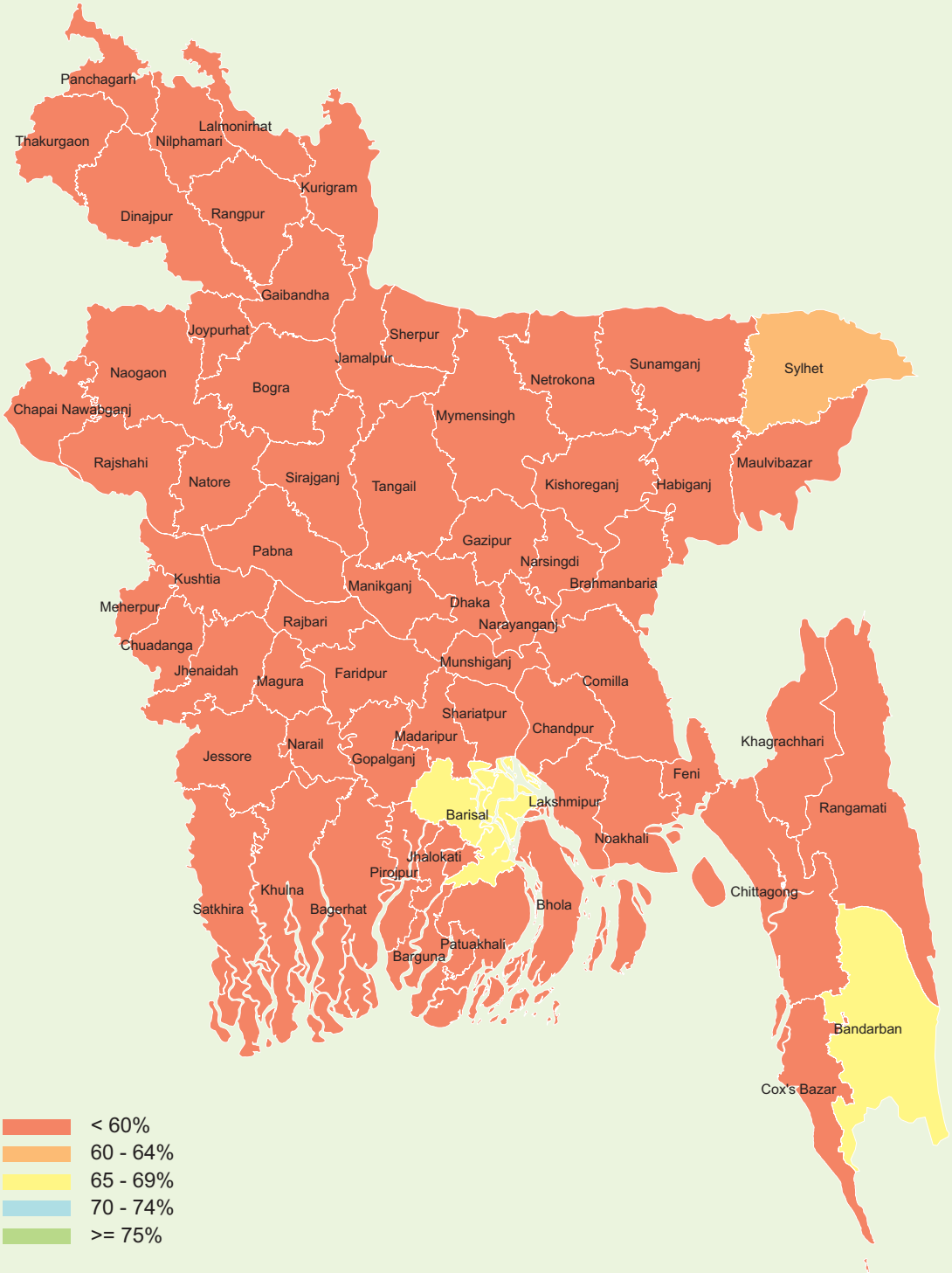
Figure 132: Crude TT5 Vaccination Coverage in Urban Areas by City Corporation and Municipality in 2015



Map 15: Crude TT5 Vaccination Coverage among Child Bearing Age Women by District



Map 16: Valid TT5 Vaccination Coverage among child bearin age women by District

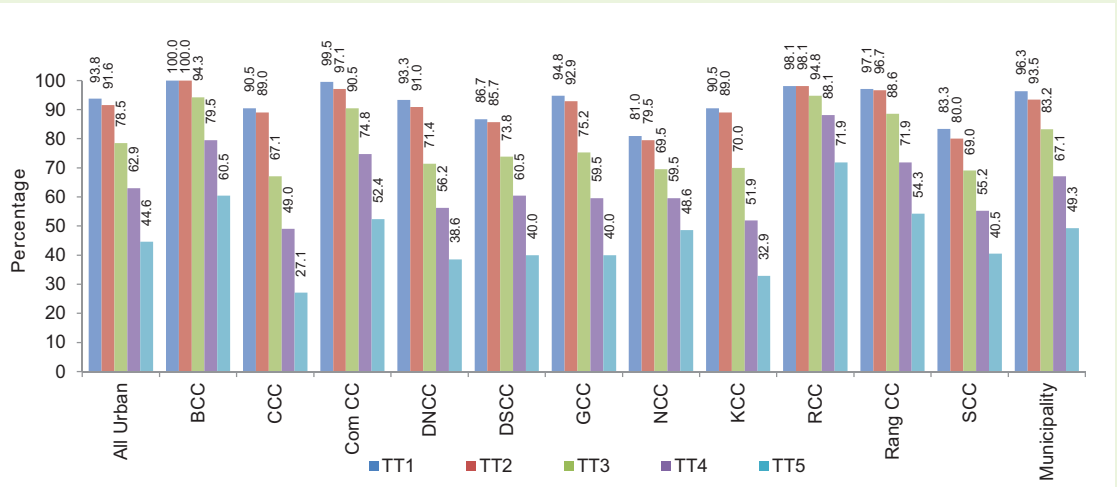


Valid TT Vaccination Coverage

Valid TT vaccination coverage by city corporations is presented in Figure 133. As TT1 is the gateway for receiving all the other doses of TT vaccine, discussion about valid TT1 dose is not necessary in this section. As for valid TT2, coverage was universal in BCC (100.0 percent) and the lowest in NCC (79.5 percent) and ranged between 98.1 percent and 80.0 percent in other city corporations.

Figure 133 depicts reproductive life-time protection against tetanus with five valid TT doses. It shows that the highest proportion of women achieved this status in RCC (71.9 percent) and the lowest proportion in CCC (27.1 percent), with ranging between 60.5 percent in BCC and 32.9 percent in KCC.

Figure 133: Valid TT5 Vaccination Coverage in Urban Areas by City Corporation and Municipality in 2015



6.7 STATUS OF RETENTION OF TT CARD BY WOMEN

The TT vaccination card is an important document; its availability helps avoid unnecessary administrations of TT doses, as well as saves vaccines. Nationally, more than one-third of women reported to having the vaccination card during the survey. Availability of TT vaccination card was higher (44.3 percent) in rural areas than in urban areas (30.9 percent). CES 2015 calculated card retention rate through a separate analysis, presented in Figure 134. It shows that nationally, 44 percent of the women retained the TT vaccination card. Rural women were more likely to retain the vaccination card (46.8 percent) as opposed to 32.4 percent of those residing in urban areas (see Figure 134).

Among rural divisions, card retention rate was the highest in Khulna (68.8 percent) and the lowest in Chittagong (39.1 percent).It ranged between 39.2 percent and 60.1 percent in the other division (Figure 135).

In the city corporations, the card retention rate was found to be the highest in Rang CC (58.8 percent) and the lowest in Com CC (11.5 percent), with the other divisions covering a range from 54.4 percent in RCC to 15.5 percent in GCC (see Figure 136).

Figure 134: TT Vaccination Card Status by National, Rural and Urban Areas in 2015

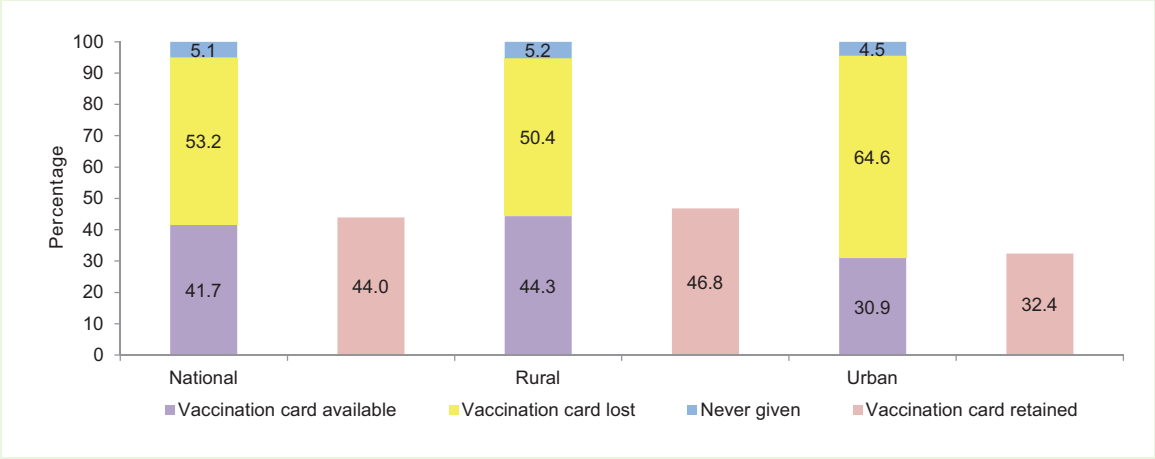


Figure 135: TT Vaccination Card Status in Rural Areas by Division in 2015

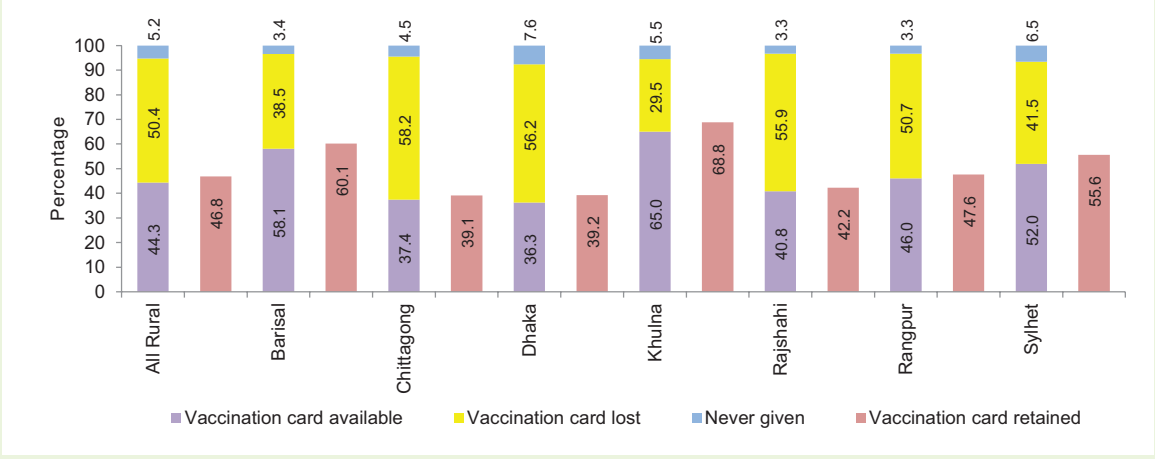
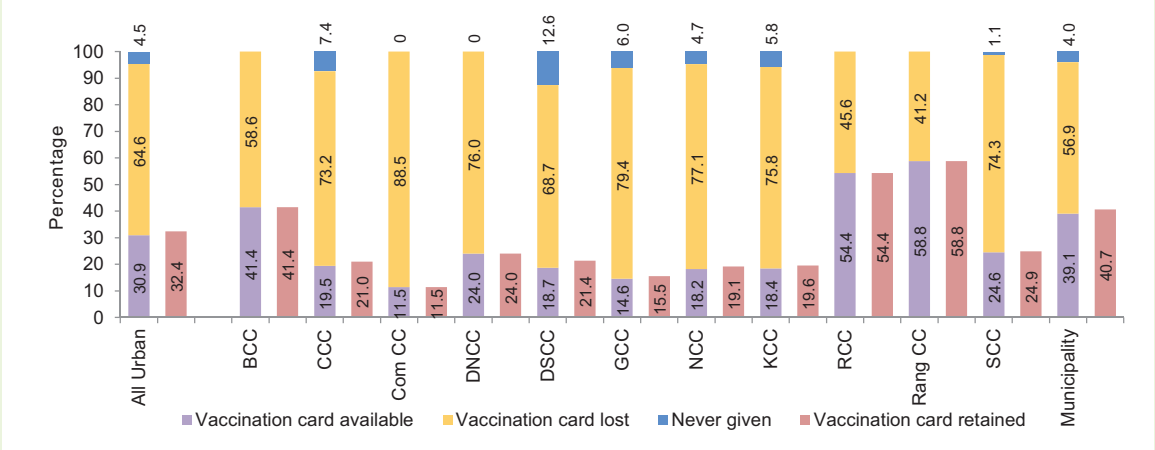


Figure 136: TT Vaccination Card Status in Urban Areas by City Corporation and Municipality in 2015



6.8 INCIDENCE OF INVALID DOSES

An invalid dose occurs if a woman receives any subsequent dose of TT vaccine before the minimum interval between two doses as recommended by the EPI schedule. Invalid TT doses were estimated by analyzing the gap between the consecutive doses (see Figure 137). Nationally, the incidence of invalid doses was most prevalent for TT4 (8.6 percent) but also occurred for TT2 (0.5 percent), TT3 (8.0 percent) and TT5 (7.8 percent). The proportion of women who received invalid doses was higher in rural areas compared to those living in urban areas as a whole and was most prevalent for TT4 (8.9 percent) in rural and for TT3 (8.4 percent) in urban area.

Figure 137: Incidence of Invalid TT Doses by National, Rural and Urban Areas in 2015

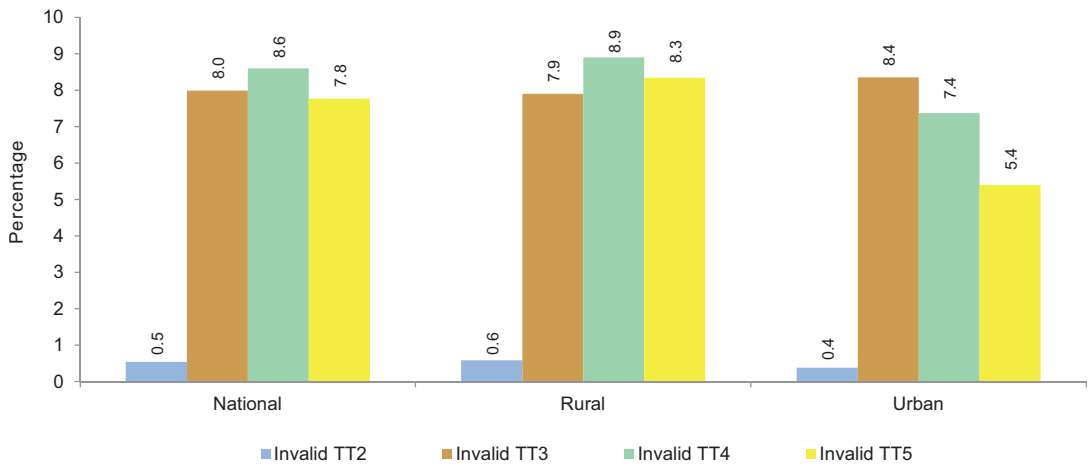
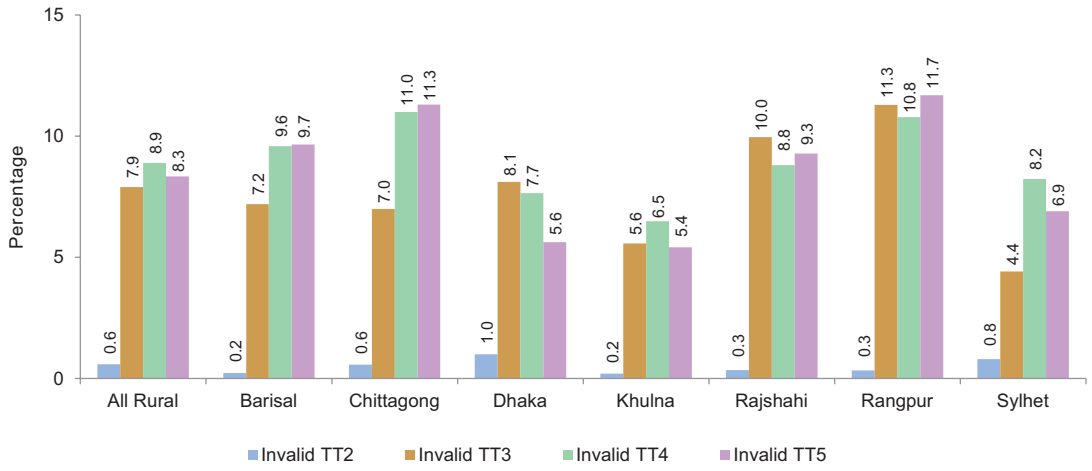


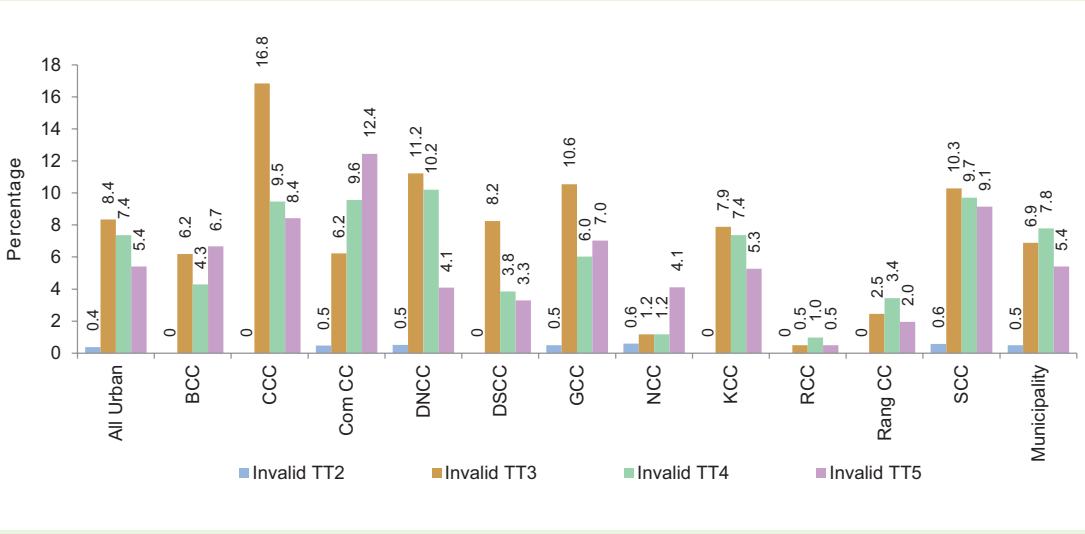
Figure 138: Incidence of Invalid TT Doses in Rural Areas by Divisions in 2015



As with the national findings, the incidence rate of invalid TT4 was higher than for and TT5 in all divisions, except for Rajshahi and Rangpur. Invalid TT5 rate was highest in Rangpur (11.7 percent) and the lowest in Khulna (5.4 percent) (see Figure 138).

Among the city corporations, invalid TT dose were generally lower than their rural counterparts, with some noticeable exceptions: the TT4 rate for DNCC was as high as 10.2 percent and other three CCC (9.5 percent), SCC (9.7 percent), Com CC (9.6 percent), KCC (7.4 percent) and the lowest in RCC (1.0 percent) , all had rates just above 4.1 percent for invalid TT5. Otherwise, the exceptions went the other ways, with DSCC, GCC, NCC, RCC and Rang CC having low rates. For TT5, RCC indicated that almost no woman received invalid doses (see Figure 139).

Figure 139: Incidence of Invalid TT Doses in Urban Areas by City Corporation and Municipality in 2015



6.9 WOMEN'S KNOWLEDGE OF TT DOSES

According to the EPI, to attain adequate lifetime protective antibody against tetanus, a woman should receive five doses of TT vaccine. On this point, women's knowledge of the required number of TT vaccines was assessed in CES 2015. Nationally, a little over two-thirds (68.0 percent) of women reported that five doses of TT vaccine are needed to be administered for one's life-time protection. Rural women were found to be more aware about of the requirement than women residing in urban areas (68.6 percent in rural and 65.5 percent in urban areas). However, a little over one-quarter of the women (26.6 percent) was unaware of the required number of TT doses, with little variation between urban (28.7 percent) and rural (26.1 percent) areas (see Figure 140).

Among the rural divisions, the highest proportion of women to know of the required five doses of TT vaccine was in Barisal division (75.8 percent) and the lowest was in Chittagong division (62.7 percent). Overall, 26.1 percent of women from rural areas were not aware that TT vaccines required a particular number of doses. This proportion was highest in Chittagong (32.6 percent) and lowest in Barisal division (20.0 percent) (see Figure 141).

In urban areas, overall, 65.5 percent of the women had knowledge of the five required doses of TT vaccination, while 28.7 percent of them had no knowledge about required doses at all. Knowledge of the five doses was highest in BCC (87.6 percent) and lowest in CCC (25.7 percent), with the intermediary levels ranging from 86.7 percent in RangCC to 56.7 percent in KCC (see Figure 142).

Figure 140: Knowledge by Women of Child Bearing Age about Number of TT Doses Required during Reproductive Period to Protect against Tetanus by National, Rural and Urban Areas in 2015

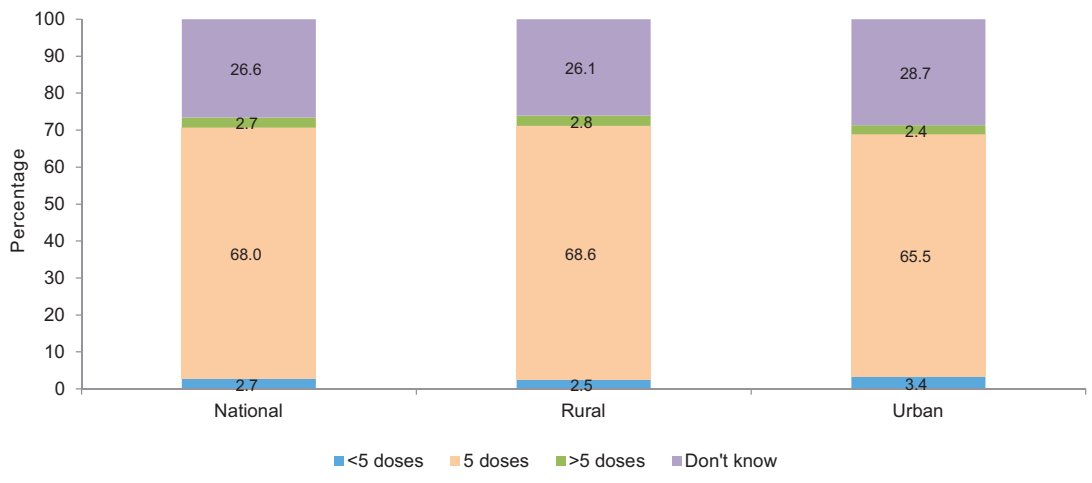


Figure 141: Knowledge by Women of Child Bearing Age about Number of TT Doses Required during Reproductive Period to Protect against Tetanus in Rural Areas by Division in 2015

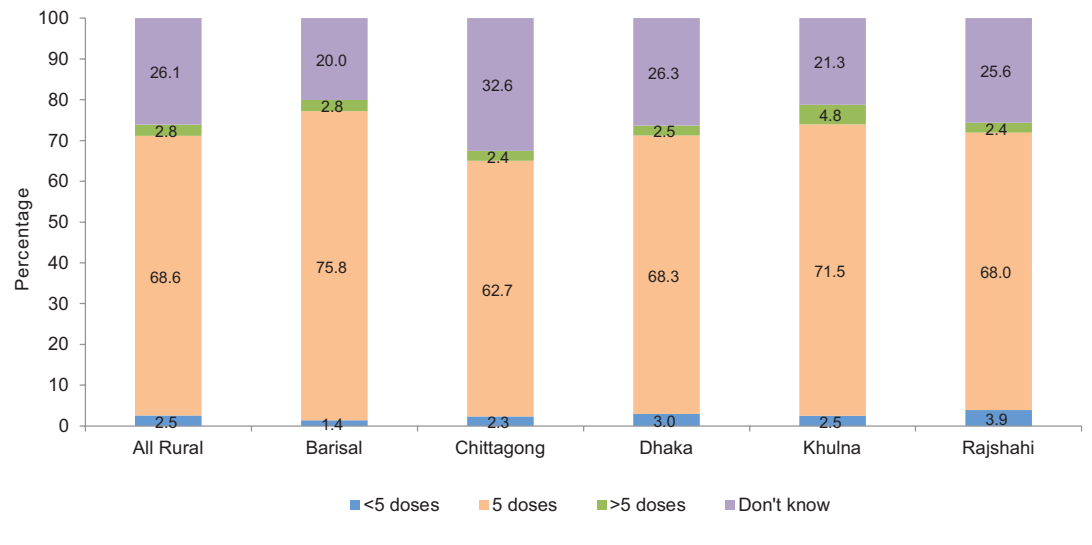
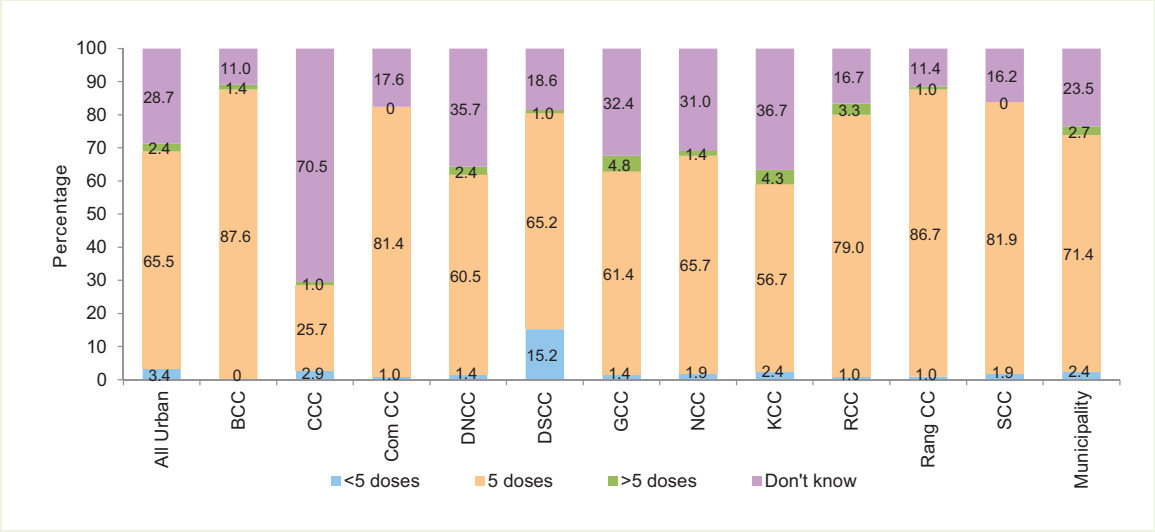


Figure 142: Knowledge by Women of Child bearing age about Number of TT Doses Required during Reproductive Period to Protect against Tetanus in Urban Areas by City Corporations and Municiplity in 2015



6.10 SOURCES OF TT VACCINATION

Nationwide, 91.1 percent of the women received TT1 vaccines from the government outreach centres, with a difference of 16.2 percentage points between rural (94.2 percent) and urban (78.0 percent) areas (see Figure 143). Some variations from this pattern was also observed between rural divisions (see Figure 144). GOB outreach centres were the most common source of TT1 vaccination in Rangpur for the highest proportion (99.4 percent); the smallest proportion received their TT1 vaccines from GoB outreach centres in Chittagong (83.5 percent). Among the city corporations, government outreach centres were also the most prominent source for TT1 vaccination, being most common in Rang CC (99.0 percent) and it was the least in SCC (31.4 percent) (see Figure 145).

Figure 143: Sources of TT1 Vaccination by National, Rural and Urban Areas in 2015

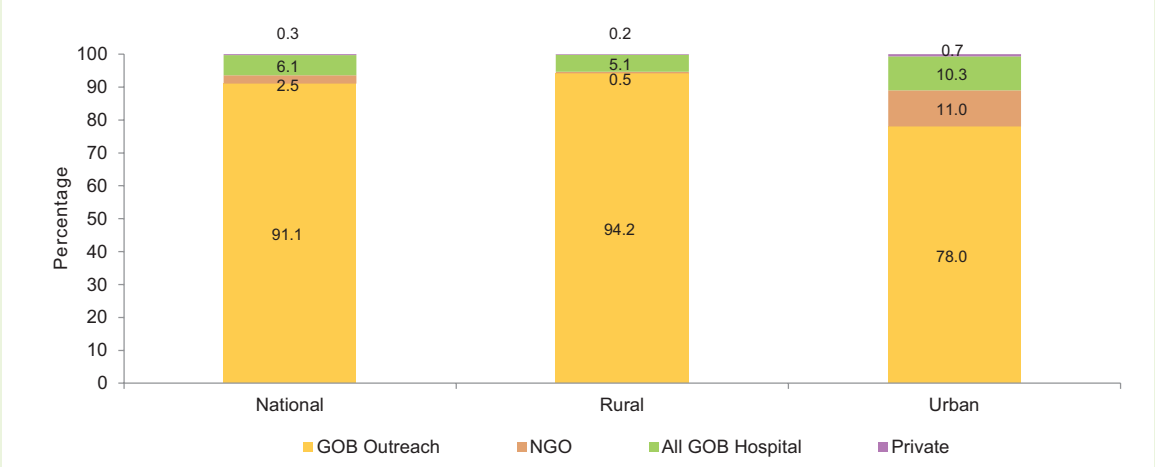


Figure 144: Sources of TT1 Vaccination in Rural Areas by Division in 2015

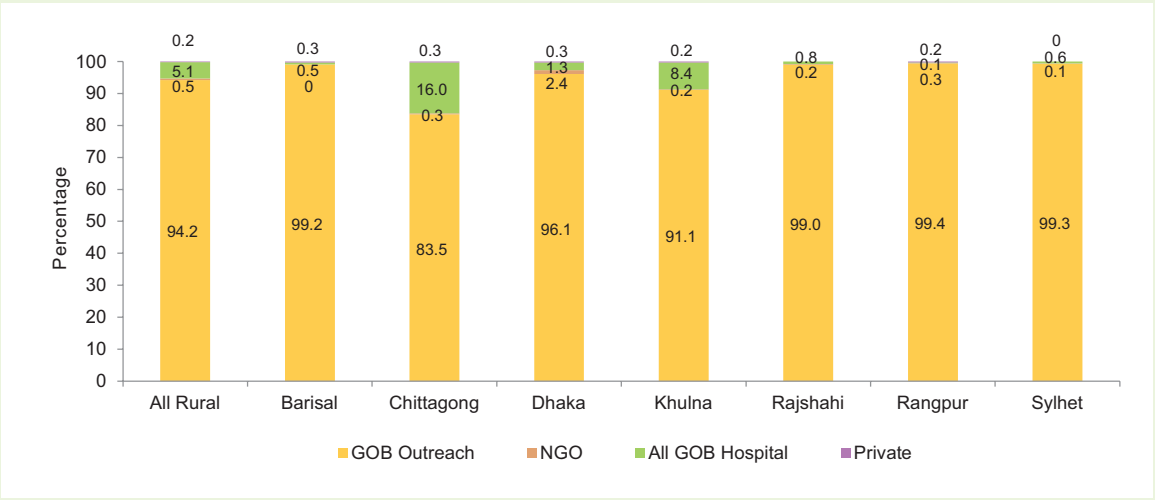
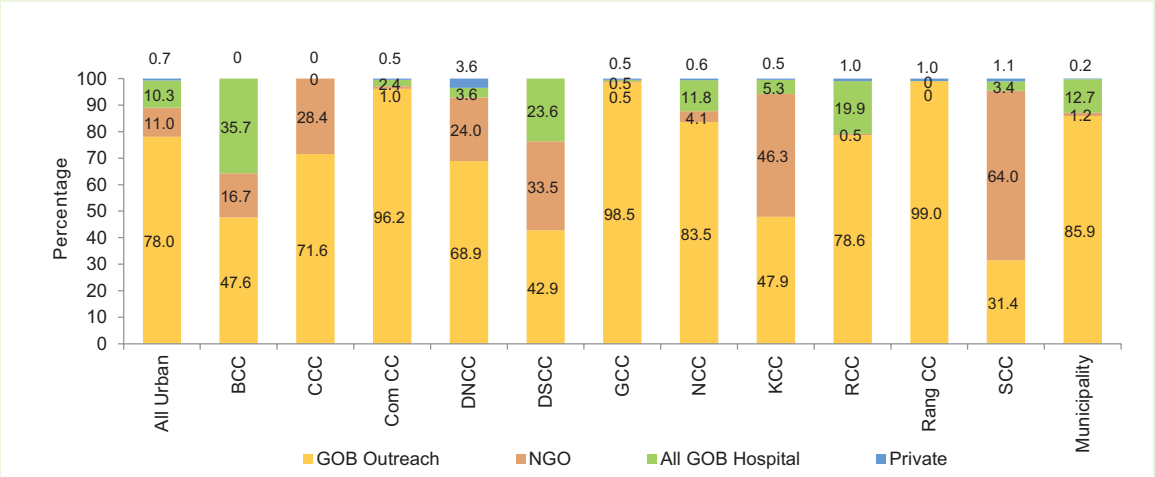


Figure 145: Sources of TT1 Vaccination in Urban Areas by City Corporation and Municipality in 2015



6.11 REASONS FOR NOT RECEIVING TT VACCINATION

Table 13 presents reasons for not receiving TT vaccination. It shows that about half of the women the women (46.1 percent) did not receive TT due to their involvement in household works. About one-third of them (29.4 percent) mentioned “feel fear” as a reason of non-vaccination. However, 3 percent of the women reported about lack of awareness about TT vaccination service. Almost similar percentage of women reported that their family members forbade her to receive TT vaccination.

The data show no significant difference in answers between rural and urban areas. Reasons for non-vaccination of TT by rural divisions and city corporations are presented in the Table 14 and Table 15.

Table 13: Reasons Why Did Not Receive TT Vaccination by National, Rural and Urban areas in 2015

Reasons	National	Rural	Urban
Due to illness	2.1	1.5	3.6
Feel fear	29.4	27.6	33.4
Was busy	46.1	45.9	46.7
Vaccinator didn't give	1.5	0.9	3.0
Vaccinator did not inform about vaccination	1.8	1.2	3.2
No aware of TT vaccination	2.7	3.9	
Not aware of vaccination center	0.4	0.5	0.1
Forbade from family	7.2	8.2	5.2
Has given at school	0.9	1.1	0.6
Don't know	7.7	9.2	4.3
Total	**629**	**434**	**195**

Table 14: Reasons Why Did Not Receive TT Vaccination in Rural areas by Division in 2015

Reasons	All Rural	Barisal	Chittagong	Dhaka	Khulna	Rajshahi	Rangpur	Sylhet
Was busy	45.9	63.0	32.3	48.8	61.2	47.0	50.3	43.6
Feel fear	27.6		28.1	28.9	26.7	21.3	28.1	29.2
Don't know	9.2	10.9	31.1	0.8	1.3	23.4	9.4	
Forbade from family	8.2	17.4	0.2	12.4	3.2	4.5		10.0
No aware of TT vaccination	3.9	8.7	0.8	6.0	0.0	0.0	0.0	6.1
Due to illness	1.5	0.0	3.6	0.0	2.9	0.0	0.0	7.2
Vaccinator did not inform about vaccination	1.2	0.0	0.0	0.7	1.3	2.5	12.2	3.9
Has given at school	1.1	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Vaccinator didn't give	0.9	0.0	1.8	0.5	3.5	0.0	0.0	0.0
Not aware of vaccination center	0.5	0.0	2.0	0.0	0.0	1.3	0.0	0.0
Total	**434**	**5**	**90**	**230**	**30**	**36**	**10**	**33**

Table 15: Reasons Why Did Not Receive TT Vaccination in Urban areas by City Corporation and Municipality in 2015

Reasons	All Urban	BCC	CCC	Com CC	DNCC	DSCC	GCC	NCC	KCC	RCC	Rang CC	SCC	Municipality
was busy	46.7	0.0	60.0	100.0	57.1	21.4	54.5	30.0	65.0	25.0	33.3	74.3	50.8
Feel fear	33.4	0.0	10.0	0.0	28.6	42.9	45.5	67.5	5.0		50.0	25.7	31.0
Forbade from family	5.2	0.0	0.0	0.0	0.0	17.9	0.0	0.0	25.0	0.0	0.0	0.0	2.0
Don't know	4.3	0.0	10.0	0.0	7.1	0.0	0.0	0.0	5.0	25.0	0.0	0.0	6.4
Due to illness	3.6	0.0	10.0	0.0	0.0	7.1	0.0	0.0	0.0		16.7		2.7
Vaccinator did not inform about vaccination	3.2	0.0	5.0	0.0	7.1	0.0	0.0	2.5	0.0	0.0	0.0	0.0	4.9
Vaccinator didn't give	3.0	0.0	0.0	0.0	0.0	10.7	0.0	0.0	0.0	25.0	0.0	0.0	2.2
Has given at school	0.6	0.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Not aware of vaccination center	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.0	0.0	0.0	0.0
Total	195	0.0	23	0	27	40	14	15	7	1	2	9	58

CHAPTER 7

MATERNAL HEALTH AND NEWBORN CARE

MATERNAL AND NEWBORN CARE

Pregnancy and child-birth related complications are responsible for the majority of maternal mortalities. In Bangladesh, one in three women does not receive any antenatal care during pregnancy, and about three in five deliver their babies without the assistance of a skilled birth attendant. The enabling environment for safe motherhood and child birth depends on the care and attention provided to pregnant women and newborns by communities and families, the acumen of skilled health personnel, and the availability of adequate healthcare facilities, equipment, medicines, and emergency care when needed. CES 2015 examined the enabling environment for safe motherhood and child births. This chapter provides information on the issues related to maternal and new-born health, such as ANC, micronutrient supplementation, delivery, PNC, continuum of care, etc.

7.1 ANTENATAL CARE (ANC)

Antenatal care (ANC) from a medically-trained provider is important to monitor the status of a pregnancy, identify the complications associated with the pregnancy, and prevent adverse pregnancy outcomes. To be most effective, all pregnant women should receive at least four ANC check up by a medically trained provider. CES 2015 assessed the ANC status of mothers with children aged between 0-11 months

7.1.1 Antenatal Care Coverage

Table 16 summarizes ANC coverage provided by a medically-trained provider, as provided by three surveys. It shows that two-third of pregnant women received some ANC from a medically-trained providers/skilled health providers throughout the country. According to the Bangladesh demographic and Health Survey (BDHS) 2014, 63.9 percent of the women who gave birth within three years preceding the survey received ANC from a medically-trained provider. However, the Multiple Indicator Cluster Survey (MICS) 2012-2013 shows that 58.7 percent of the women who gave birth two years preceding the survey received ANC at least once from skilled health personnel.

Figure 146: Any ANC Covearge by Medically Trained Providers in BDHS 2011, MICS 2012-2013, and CES 2014, and 2015

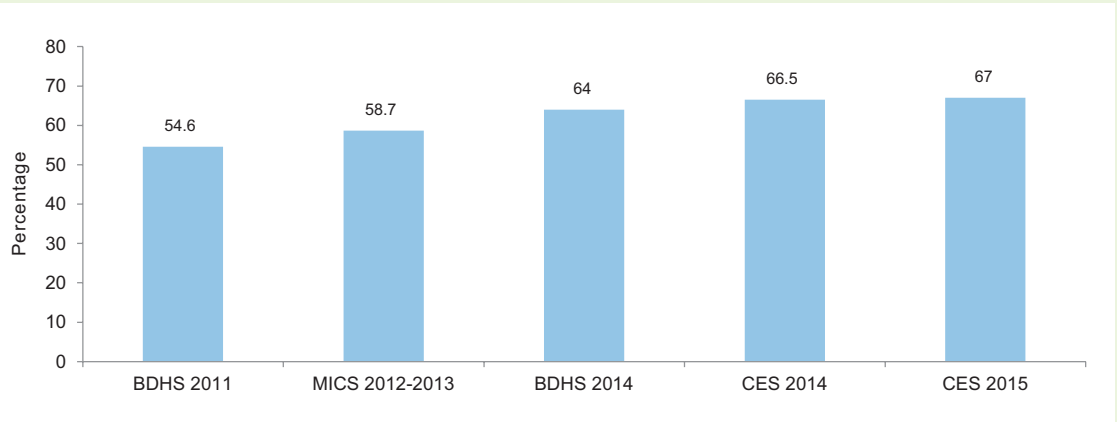


Table 16: Women Aged 15-49 with Children 0-11 Months Old during Survey by Antenatal Care Provider during Pregnancy and Received Antenatal Care from a Medically-trained Provider according to Background Characteristics, by Percent, Bangladesh, CES 2015

Background Characteristic	Did not check up	MBBS doctor	Nurse/ midwife/ Paramedic	FWV	CSBA	SACMO	HA/FWA/ CHCP	TTBA	TBA (Dai)	Unqualified Provider	NGO Health Worker	Medically trained	Number of Women
Mothers Age													
<20 yrs	14.4	65.7	3.9	3.4	0.4	0.2	2.8	0.2	0.0	1.1	7.8	73.7	1700
20-34 yrs	18.1	60.3	3.0	3.2	0.2	0.7	3.7	0.1	0.1	0.9	9.8	67.4	13220
35-49 yrs	25.7	53.5	2.4	2.8	0.5	1.1	3.8	0.3	0.1	0.5	9.4	60.3	830
Number of Birth													
1	13.6	66.3	3.1	3.0	0.2	0.6	3.3	0.1	0.0	0.9	8.7	73.2	6550
2-3	18.9	58.4	3.1	3.3	0.3	0.8	3.8	0.1	0.1	0.7	10.4	66.0	7621
4-5	32.4	47.2	2.6	3.1	0.2	0.6	3.5	0.3		1.2	8.8	53.8	1331
6+	32.3	44.3	2.3	3.5	0.4	0.5	5.5	0.0	0.0	0.6	10.7	51.0	249
Residence													
Rural	18.9	59.3	2.8	3.6	0.8	0.3	4.2	0.1	0.1	1.0	3.2	65.9	12602
Urban	14.5	65.5	4.3	1.6	0.1	0.2	1.4	0.2	0.0	0.5	1.9	71.6	3148
Division													
Barisal	19.9	60.4	2.3	4.1	0.3	0.4	3.5	0.1	0.1	0.6	0.7	67.2	917
Chittagong Division	21.6	64.7	3.1	1.6	0.3	0.1	2.9	0.0	0.0	0.7	1.1	69.6	3082
Dhaka Division	17.3	60.7	2.6	1.6	1.0	0.4	4.0	0.3	0.1	0.9	1.7	65.3	5157
Khulna Division	11.8	67.5	3.7	2.0	1.4	0.2	4.2		0.1	1.2	0.4	73.4	1728
Rajshahi Division	19.9	63.6	4.0	3.6	0.1	0.1	3.5	0.2		0.7	0.5	71.4	2036
Rangpur Division	9.3	46.2	3.3	11.4	0.9		3.9	0.1		0.5	10.9	60.9	1739
Sylhet Division	30.8	54.2	2.6	2.3	0.2	0.5	2.9			2.8	0.7	59.5	1091
Education													
Illiterate	34.9	39.5	3.4	2.7	0.5	0.5	4.5	0.3	0.1	0.4	12.7	46.6	1713
Primary	26.0	48.8	3.4	4.3	0.8	0.2	4.4	0.1	0.1	0.7	11.0	57.5	4336
Secondary	14.1	65.1	3.1	3.0	0.8	0.2	3.6	0.1	0.0	0.7	9.1	72.2	6642
SSC/Dhakil/O level	7.9	75.8	2.6	2.3	0.3	0.4	2.5	0.1	0.0	1.6	7.2	81.4	1615
HSC/Alim/ A leve	4.9	80.5	2.6	2.0	0.5	0.3	1.7	0.3	0.1	0.3	6.5	85.8	948
Degree/Fazil	2.3	85.8	0.5	2.7	0.5	0.0	0.3	0.3	0.0	0.0	5.7	89.5	308
Masters/Kamil	1.2	89.1	2.6	1.2	0.0	0.0	1.4	0.0	0.0	0.0	4.2	93.0	189
Wealth Quintiles													
Poorest	27.2	40.4	3.1	5.8	1.5	0.3	6.4	0.1	0.2	0.4	14.1	51.2	3208
Socond	21.7	54.6	3.1	4.2	0.9	0.4	3.9	0.0	0.0	0.5	10.3	63.2	3213
Middle	18.1	62.2	3.3	2.5	0.5	0.3	3.5	0.1	0.0	0.6	8.6	68.8	3132
Fourth	13.5	68.9	2.7	1.7	0.4	0.1	2.9	0.2	0.0	0.2	8.5	73.8	3048
Richest	9.4	77.2	3.1	1.5	0.2	0.2	1.3	0.2	0.0	0.3	6.1	82.2	3149
National	18.1	60.5	3.1	3.2	0.7	0.3	3.6	0.1	0.1	0.9	2.2	67.0	15750

It is worth mentioning that CES 2015 included mothers who gave birth to the children between July 2014 and June 2015 it indicates that 67 percent of women received ANC from medically trained providers.

By residence, ANC by medically-trained providers was more prominent among urban women than rural women (71.6 percent vs. 65.9 percent). Among the divisions, women from Khulna were more likely to receive ANC from medically-trained providers (73.4 percent), followed by Rajshahi (71.4 percent), Chittagong (69.6 percent), Barisal (67.2 percent), Dhaka (65.3 percent), Rangpur (60.9 percent), and Sylhet (59.5 percent) divisions. As regards the wealth quintile, marked variation was observed between the richest and the poorest quintile in this regard. Eighty-two percent of the women from the richest wealth quintile received ANC from medically-trained providers, as opposed to 51.2 percent of those who belonged to the lowest wealth quintile. Similarly, large differences were also noticed between highly educated and illiterate mothers. Almost 47 percent of the mothers who had no education received ANC from a medically-trained provider, a proportion more than doubled among mothers who obtained postgraduation degrees (93.0 percent).

7.1.2 Places for Antenatal Care

Table 17 shows the CES's findings as to the percentage of women who received ANC by the place where it was received. The public and private sectors were found to be the main sources of ANC. Public sector venues include all GoB health facilities, such as medical college hospitals, district sadar hospitals, Maternal and Child Welfare Centres (MCWC), UHC, Union sub-centres, Family Welfare Centres (FWC), and Community Clinics. Private sector venues include private clinics and hospitals, NGO sector includes different static and satellite NGO clinic runned by national and international NGOs with approval of GoB. It is evident from the table that a little under one-fourth of the mothers (24.3 percent) received ANC from the public sector, and 43.9 percent of the mothers received ANC from the private sectors. Far fewer received ANC at home (6.2 percent) or at places in the NGO sector (5.7 percent). The likelihood of receiving ANC from the private sector was higher in all the divisions than from the public sector except Rangpur (see Table 17).

In contrast to the CES findings, BDHS 2014 shows that 58.0 percent of the women received ANC from the private sector, 41.0 percent from the public sector, 9.0 percent from NGO sectors and 16.0 percent from home. However, BMMHS 2010 shows that 41.9 percent of the women received ANC from the public sector, 36.9 percent from the private sector, 13.2 percent from NGO sector, and 18.7 percent from home.

The above findings suggest that ANC at home decreased over the time. By CES 2015, the private sector had emerged as a leading source of ANC. The decrease of ANC at home and the increase use of the private sector may be the effect of the establishment of private hospitals and clinics, different private and non-governmental organization's health workers working to increase utilization of health facilities by pregnant mothers at the Upazila level. The percentage of public places used was similar across the surveys.

By residence, rural mothers were more likely to utilize private health facilities than government (44.3 percent vs. 24.3 percent). In contrast, women who had the highest educational attainment tended to use private facilities more (65.3 percent private and 23.7 percent public), as did those who belonged to the richest wealth quintile (56.5 percent private vs.22.3 percent public).

Table 17: Percentage Distribution of Women who Received ANC during Pregnancy by Place and by Background Characteristics

Percentage Distribution of Women who Received ANC during Pregnancy by Place of ANC Care, according to Background Characteristics in CES 2015

Background Characteristic	Home	Public Sector	Private Sector	NGO Sector	Others	Did not check up	Number
Mothers Age							
<20 yrs	4.9	24.8	47.3	6.4	2.3	14.4	1700
20-34 yrs	6.3	24.4	43.9	5.7	1.7	18.1	13220
35-49 yrs	7.4	21.4	37.6	5.9	2.0	25.7	830
Number of Birth							
1	5.3	24.9	48.2	6.0	2.1	13.6	6550
2-3	7.0	24.4	42.3	5.8	1.6	18.9	7621
4-5	6.1	21.3	34.5	4.0	1.8	32.4	1331
6+	6.8	22.8	30.4	7.4	0.4	32.3	249
Residence							
Rural	7.0	24.3	44.3	3.7	1.7	18.9	12602
Urban	2.8	24.5	42.3	13.8	2.0	14.5	3148
Division							
Barisal Division	7.9	29.3	38.1	3.8	0.9	19.9	917
Chittagong Division	2.8	19.8	49.2	5.2	1.4	21.6	3082
Dhaka Division	6.3	21.4	45.9	7.6	1.5	17.3	5157
Khulna Division	7.2	27.3	45.3	6.2	2.2	11.8	1728
Rajshahi Division	4.0	26.4	45.3	3.6	0.8	19.9	2036
Rangpur Division	14.7	35.5	31.5	5.2	3.9	9.3	1739
Sylhet Division	2.7	20.2	39.1	4.7	2.6	30.8	1091
Education of the respondent							
Illiterate	8.5	23.1	24.8	7.2	1.4	34.9	1713
Primary	7.8	25.2	33.4	6.2	1.4	26.0	4336
Secondary	5.9	24.2	48.3	5.5	2.0	14.1	6642
SSC/Dhakil/O level	3.8	22.3	58.8	5.2	2.0	7.9	1615
HSC/Alim/ A leve	2.9	24.9	60.1	4.8	2.4	4.9	948
Degree/Fazil	2.3	29.2	61.8	3.4	1.1	2.3	308
Masters/Kamil	0.8	23.7	65.3	3.7	5.4	1.2	189
Wealth Quintiles							
Poorest	11.4	27.2	27.9	4.8	1.5	27.2	3208
Socond	7.8	25.7	38.3	4.6	1.9	21.7	3213
Middle	5.4	24.5	46.0	4.3	1.7	18.1	3132
Fourth	4.2	21.6	51.5	7.6	1.7	13.5	3048
Richest	2.0	22.3	56.5	7.6	2.2	9.4	3149
National	6.2	24.3	43.9	5.7	1.8	18.1	**15750**

7.1.3 Number of Antenatal Visits

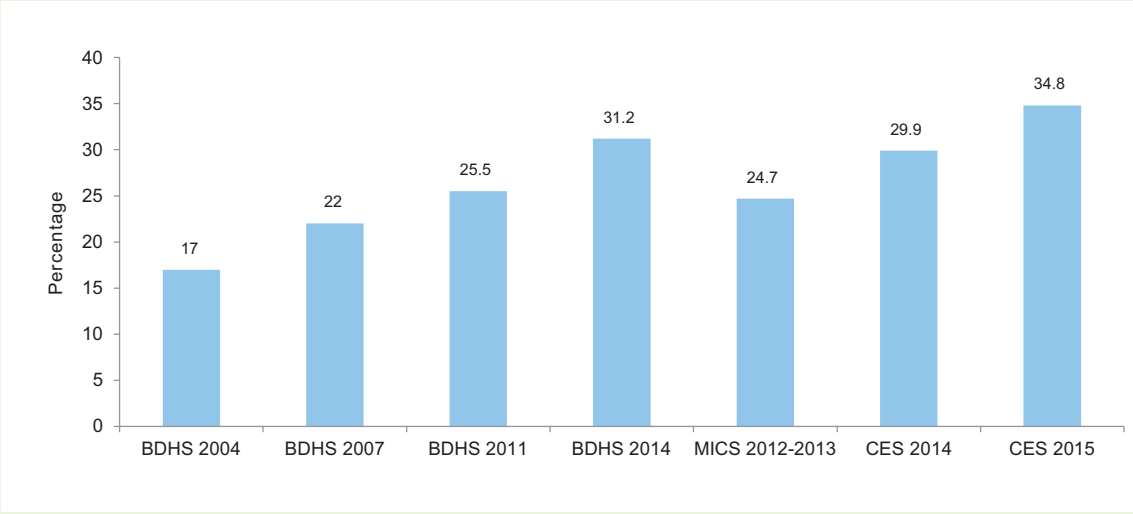
Antenatal care visits help in providing key services to pregnant women, including measures to detect and treat anemia; tetanus immunization; and provision of vital information to pregnant women on danger signs during pregnancy, delivery and postpartum peiod. The minimum number of antenatal care visits during a pregnancy recommended by Governmnet is four which has been recommended by WHO and UNICEF. Table 18 presents the number of ANC visits made by women.

It shows that about one-third of the mothers (34.8 percent) made four or more ANC visits across the country. Urban mothers were a little bit ahead than rural mothers in question of four or more ANC visits (urban 42.1 percent and rural 32.9 percent). Figure 147 presents findings of 4 and more number of ANC obtained in BDHS 2004, 2007, 2014, MICS 2012-2013, and CES 2014-2015. Between BDHS 2011 and MICS 2012-2013, no marked difference in the findings observed. However, difference between CES 2015 and MICS 2012-2013 was 10.1 percentage points. And, the difference between BDHS 2014 and CES 2015 was 3.6 percentage points. The findings of CES 2015 were found to be matched with the trend in antenatal care visit (see Figure 147).

Table 18: Number of Antenatal Care Visits during Pregnancy, as Percentage Distribution of Women Aged 15-49 who had children 0-11 Months during Survey by according to Residence, in CES 2015

Number of ANC	National	Rural	Urban
None	18.1	18.9	14.5
1 time	16.2	17.2	12.4
2 times	16.8	17.1	15.2
3 times	14.2	13.8	15.6
4+	**34.8**	**32.9**	**42.1**
Mean	3.1	3.0	3.6

Figure 147: 4+ Antenatal Care Visits in BDHS 2004, 2007, 2011, MICS 2012, 2014 and CES 2015



Urban women were more likely to receive 4+ ANC than rural women (42.1 percent vs. 32.9 percent). By divisions, women from Rangpur were more likely to receive 4+ ANC (62.6 percent), followed by Khulna (37.9 percent), Chittagong and Barisal (36.1 percent each), Sylhet (22.5 percent), and Rajshahi (21.6 percent) divisions.

As regards the wealth quintile, marked variation was observed between the richest and the poorest quintile in this regard. Forty-nine percent of the women from the richest wealth quintile received 4+ ANC, as opposed to 29.0 percent of those who belonged to the lowest wealth quintile. In contrast 4+ ANC was more prominent among women who had the highest educational attainment compared to those who had no education (69.5 percent vs. 21.5 percent).

Table 19: Number of Antenatal Care Visits during Pregnancy as Percentage Distribution of Women Aged 15-49 who had Children 0-11 Months during Survey according to Residence. In CES 2015

Background Characteristic	1 time	2 times	3 times	4 times and more	Never	Total
Mothers Age						
<20 yrs	21.0	18.4	14.2	31.9	14.4	1700
20-34 yrs	15.7	16.7	14.3	35.3	18.1	13220
35-49 yrs	15.7	13.8	12.3	32.5	25.7	830
Number of Birth						
1	16.6	17.1	15.6	37.0	13.6	6550
2-3	15.9	16.9	13.5	34.8	18.9	7621
4-5	16.1	14.4	10.9	26.2	32.4	1331
6+	16.5	16.4	12.5	22.3	32.3	249
Residence				**0.0**		
Rural	17.2	17.1	13.8	32.9	18.9	12602
Urban	12.4	15.3	15.6	42.1	14.5	3148
Division				**0.0**		
Barisal	12.8	15.4	15.8	36.1	19.9	917
Chittagong	18.1	18.5	13.9	27.8	21.6	3082
Dhaka	16.0	16.2	14.4	36.1	17.3	5157
Khulna	15.4	19.3	15.7	37.9	11.8	1728
Rajshahi	21.1	21.6	15.9	21.6	19.9	2036
Rangpur	9.5	8.4	10.1	62.6	9.3	1739
Sylhet	18.1	15.6	13.1	22.5	30.8	1091
Education						
Illiterate	18.0	14.8	10.7	21.5	34.9	1713
Primary	18.4	16.5	12.7	26.4	26.0	4336
Secondary	17.1	17.7	14.5	36.6	14.1	6642
SSC/Dhakil/O level	12.7	18.2	17.9	43.4	7.9	1615
HSC/Alim/ A leve	8.9	15.5	17.1	53.6	4.9	948
Degree/Fazil	5.3	14.6	16.0	61.8	2.3	308
Masters/Kamil	3.5	8.6	17.2	69.5	1.2	189
Wealth Quintiles						
Poorest	18.0	14.2	11.5	29.0	27.2	3208
Second	18.3	17.4	13.6	29.0	21.7	3213
Middle	18.7	18.8	14.0	30.4	18.1	3132
Fourth	15.4	18.0	16.4	36.7	13.5	3048
Richest	10.8	15.4	15.4	49.0	9.4	3149
National	16.2	16.8	14.2	34.8	18.1	15750

7.1.4 Content of Antenatal Care

The components of ANC are presented in Table 20. Overall 92.3 percent of the women surveyed measured their blood pressure, 74.2 percent gave urine samples for testing, 69.2 percent provided blood sample for testing, and 90.1 percent measured their weight during ANC. Compared to the Bangladesh Maternal Health Services and Maternal Mortality Survey (BMMS) 2010, these proportions were higher in CES 2015. BMMS 2010 showed that 90.5 percent of the women measured their blood pressure, 50.1 percent gave urine samples for testing, 37.4 percent provided

blood sample for testing, and 83.5 percent measured their weight during ANC. CES 2015 findings show that urban women were slightly ahead of their rural counterparts in these practices. Ninety-five percent of urban mothers measured blood pressure, 82.9 percent had their urine tested, 81.3 percent had their blood tested, and 93.8 percent had their weight measured, as compared to 91.5 percent, 71.9 percent, 66.0 percent, 89.1 percent, respectively, of rural mothers. Similar to urban areas, disparity in the findings was observed between the highest and lowest wealth quintile, as well between the highest and the lowest educational attainment among the mothers. In all the components, the highest proportion of mothers who performed these procedures were those with higher educational attainment and in the richest wealth index, especially when compared to those who had no education or belonged to the lowest wealth index.

Table 20: Women who Received Specific Antenatal Care Services by Background Characteristics, by percentage, CES 2015

Background Characteristic	Blood Pressure measured	Urine Sample Test	Blood Sample Test	Weight Measured
Mothers Age				
<20	89.5	72.6	67.6	87.0
20-34 yrs	92.6	74.6	69.5	90.5
35-49 yrs	92.0	71.3	66.4	89.7
Number of Birth				
1	92.6	77.2	73.0	91.1
2-3	92.1	72.1	66.6	89.4
4-5	91.3	70.4	64.3	88.5
6+	88.3	71.4	61.2	87.6
Residence				
Rural	91.5	71.9	66.0	89.1
Urban	95.0	82.9	81.3	93.8
Division				
Barisal Division	96.9	82.5	79.4	96.3
Chittagong Division	90.1	80.3	75.7	89.7
Dhaka Division	90.4	72.2	69.6	88.0
Khulna Division	91.8	72.8	68.1	92.3
Rajshahi Division	91.7	72.7	65.4	90.7
Rangpur Division	97.3	64.6	52.5	88.2
Sylhet Division	96.7	83.7	80.9	94.4
Education				
Illiterate	88.1	59.8	53.9	82.5
Primary	90.6	66.2	59.6	87.5
Secondary	92.1	75.1	70.0	90.3
SSC/Dhakil/O level	95.2	84.2	80.0	93.3
HSC/Alim/ A leve	97.2	88.7	87.4	95.3
Degree/Fazil	98.1	92.8	91.1	98.0
Masters/Kamil	98.7	92.8	91.6	99.6
Wealth Quintiles				
Poorest	89.3	57.2	47.4	84.4
Socond	92.0	68.2	60.9	89.0
Middle	91.9	74.9	68.8	89.8
Fourth	92.8	78.2	76.0	90.8
Richest	94.9	88.2	87.0	94.2
National	**92.3**	**74.2**	**69.2**	**90.1**

Among the divisions, the highest proportion of mothers who gave blood and urine samples to be tested was in Sylhet (80.9 percent and 83.7 percent respectively). While Dhaka, Chittagong, Rajshahi and Khulna divisions were quite alike in the proportions of mothers who gave sample

(between 75.7 percent and 65.4 percent for blood and between 80.3 percent and 72.2 percent for urine), Barisal (79.4 percent blood and 82.5 percent urine). However, the women of Rangpur division were far behind from the national average (52.5 percent and 64.6 percent).

Table 21: ` Component of Antenatal Care by providers of ANC, by percentage of Women who received Antenatal Care, by ANC provider, CES 2015

ANC provider	Procedure Performed[1] and or Advised to be Performed during antenatal care				
	Blood Pressure Measured	Urine test	Blood test	Weight	Number
MBBS doctor	93.1	82.3	78.4	91.2	9534
Nurse/midwife/paramedic/FWV	91.6	59.9	50.1	91.2	982
SACMO	90.8	48.5	52.5	92.2	41
CSBA	87.2	45.9	41.3	88.6	109
Community Health Worker	89.5	49.6	36.7	84.7	2071
Others	79.3	33.5	11.8	69.6	168
Total	92.3	74.2	69.2	90.1	12905

The providers of ANC components are presented in Table 21. It shows that measuring blood pressure and weight were most common done by qualified doctors, nurses, and Community Skilled Birth Attendants (CSBA), SACMOs and community health workers. For the urine and blood tests, these were most frequently advised by qualified doctors.

7.1.5 Iron and Calcium Supplementation

Adequate nutrition for pregnant women is critical for the health and survival prospects of both the mothers and the newborns. Malnutrition increases the health risks of both mothers and children. A low body mass index for pregnant women increases the risk of both maternal and neonatal mortality; low body mass can also restrict the growth of the fetus, which is a risk factor for neonatal conditions, such as low birth weight. Nutritional supplements for calcium, folic acid, and iron provided by health workers can have beneficial effects against these risks. They can reduce the likelihood of malnutrition and anemia in the mother and low birth weight in the newborn. CES 2015 investigated the iron and calcium intake during pregnancy. The findings are presented below.

Iron Supplementation

Nationally 72.4 percent women took iron tablets during their last pregnancy (see Figure 148). A little variation was observed between rural and urban areas (71.6 percent and 75.6 percent, respectively). The percentage of women who took iron tablets was higher in Rangpur (81.8 percent) and Barisal (78.1 percent) division than in other divisions and lowest in Sylhet division (67.3 percent).

Number of Days Iron Tablets Taken

Government has recommended IFA supplements (1 tablet in each day) from confirmation of pregnancy (preferably after 12 weeks of gestation) until end of pregnancy and to be continued upto 3 months after delivery. Nationally, on average women took iron tablets for about 110 days as against recommended 6 weeks before delivery and continued upto 12 weeks of delivery. Women living in urban areas took the tables for longer than those living in rural areas (115 days and 109 days, respectively). It was also observed that nationally around one in every three women (33.5 percent) took iron tablets for 61-120 days, while only 11.9 percent of women took them for more than 180 days. Among the seven divisions, on average woman from Chittagong, Barisal,

and Rangpur divisions took more iron tablets. Women from Khulna division took the iron tablets comparatively for a shorter duration, on an average (99 days).

Figure 148: Percenatge of Mothers Who Took Iron Tablet during Pregnancy in 2015

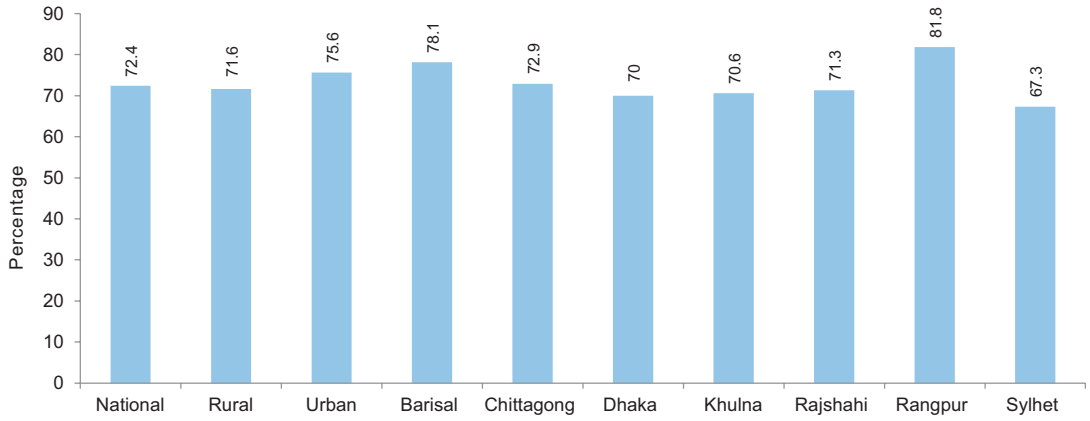


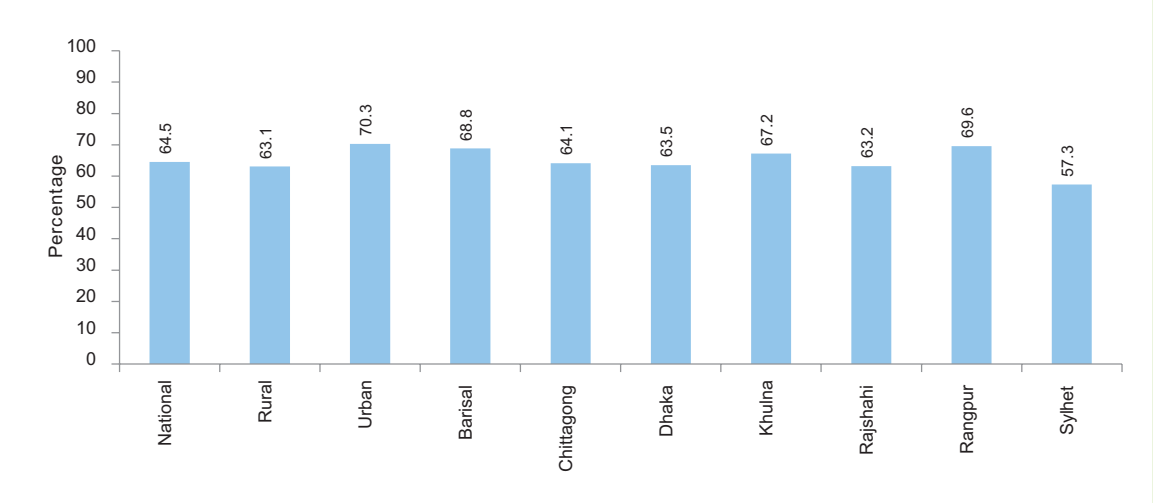
Table 22: Number of Days Mothers Took Iron Tablet, by percentage

	Upto 15 days	16 days to 1.0 month	1.1 - 2.0 months	2.1 - 4.0 months	4.1 - 6.0 months	6.0+ months	Dont know	Average
National	5.0	14.5	13.9	33.5	20.0	11.9	1.2	110.2
Rural	5.3	14.8	13.8	33.8	19.8	11.4	1.1	108.9
Urban	3.9	13.3	14.4	32.3	20.6	13.9	1.5	115.2
Barisal Division	4.8	13.8	13.2	30.1	24.8	11.3	2.1	115.0
Chittagong Division	3.5	12.5	11.8	35.1	21.8	15.0	0.2	120.0
Dhaka Division	5.6	14.0	14.5	34.0	19.0	12.0	0.8	109.2
Khulna Division	7.3	18.7	16.6	30.8	15.7	10.9	0.0	99.3
Rajshahi Division	4.7	16.1	15.0	36.3	16.7	11.0	0.1	104.3
Rangpur Division	3.6	11.6	11.6	34.4	22.8	12.6	3.2	117.4
Sylhet Division	5.9	19.1	15.9	26.3	22.6	4.4	5.7	96.0

Calcium Supplementation

Government has recommended 1 tablet of calcium (500mg) twice daily from 20 weeks of gestation until end of pregnancy. Figure 149 shows that nationally about two-thirds of the women (64.5 percent) took calcium tablets during their last pregnancy. A seven percentage point's variation was observed between rural and urban women (70.3 percent and 63.1 percent, respectively). By division, the percentage of women who took calcium tablets was higher in Ranpur (69.6 percent) and Barisal (68.8 percent) than those in other divisions and lowest in Sylhet division 57.3 percent for the same.

Figure 149: Mothers Who Took Calcium Tablet during Pregnancy by Percentage in 2015



Number of Days Calcium Tablets Taken

Calcium supplementation is recommended to women from 20 weeks of pregnancy to the end of the pregnancy. Table 23 shows that at the national level, on average, women took calcium tablets for about 113 days and was higher among the women in urban areas than those living in rural areas (around 117 days and 113 days, respectively). It was seen that 33.8 percent of the women took calcium tablets for two to four months (61-120 days) while only 12.4 percent of those took it for more than six months (180 days) duration. Among the divisions, the majority of the women in Rajshahi (37.0 percent), Chittagong (36.3 percent), Rangpur (33.5 percent), Dhaka (33.3 percent), Barisal (32.9 percent), Khulna (32.7 percent) and Sylhet (25.2 percent) took calcium tablet for longer durations (61-120 days).

Table 23: Number of Days Mothers Took Calcium Tablet, by percentage

	01-15 dys	16-30 ddays	31-60 days	61-120 days	121-180 days	180+ days	Dont know	Average
National	3.3	13.9	14.8	33.8	21.0	12.4	0.8	113.4
Rural	3.4	14.1	14.8	34.1	20.7	12.1	0.7	112.6
Urban	2.8	13.4	14.5	32.6	22.1	13.6	1.1	116.5
Division								
Barisal Division		12.0	14.8	32.9	28.7	11.6	0.4	123.0
Chittagong Division	2.2	10.4	10.3	36.3	23.7	16.7	0.9	127.8
Dhaka Division	4.1	13.7	15.6	33.3	20.0	12.3	0.4	111.2
Khulna Division	5.7	18.3	17.9	32.7	14.3	10.8	0.1	99.0
Rajshahi Division	3.8	16.3	14.8	37.0	17.4	10.7	0.1	105.9
Rangpur Division	0.3	13.5	15.4	33.5	23.4	13.8	6.2	119.2
Sylhet Division	5.7	16.2	17.4	25.2	24.8	4.6	0.0	100.2

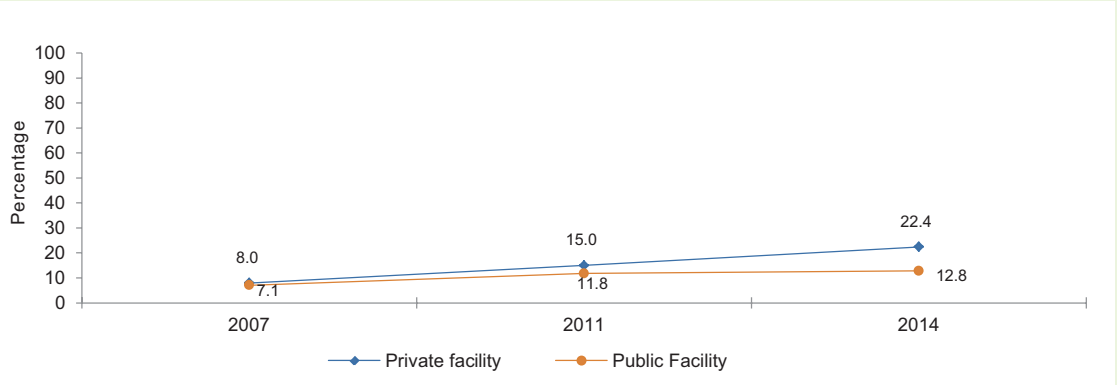
7.2 DELIVERY CARE

Childbirth can be a time of risk for both delivery mother as well as her newborn. The majority of maternal deaths occur from complications either during the time of delivery or in the immediate postpartum period. These complications include the following: hemorrhage; infection; eclampsia; sepsis, and obstructed labour. Effective management of delivery complications is required to reduce risks of maternal, as well as newborn, death. Institutional delivery and/or delivery with a medically-trained provider at home can address and manage the complication associated with childbirth. CES 2015 investigated the delivery place and assistance provided during the time of delivery. The findings are presented in this section.

7.2.1 Place of Delivery

The findings in Table 24 reveal that nationally 46.8 percent deliveries were made at a health facility, while 53.2 percent were at home. However, BDHS 2014 shows that 37.4 percent of the births in Bangladesh were delivered at a health facility and 62.2 percent at home. Among the health facility deliveries recorded by CES 2015, 15.2 percent were conducted at public health facilities, 29.4 percent at private hospital/ clinics, and 2.1 percent at NGO clinics. Increased use of public health facilities for delivery has been moderate compare with private hospital/clinics. According to BDHS 2007 7.1 percent of the deliveries were conducted at a public health facility, but had increased to 11.8 percent in BDHS 2011 and 12.8 in BDHS 2014. In contrast, delivery in private facilities was 8 percent in BDHS 2007, 15 percent in 2011 and 22.4 percent in BDHS 2014. The analysis shows that delivery in private facilities increased substantially compared to public facilities. Utilization of public facility for delivery purpose should given more emphasis through voucher scheme or other motivational program.

Figure 150 : Trend in Utilization of Public and Private Health Facility According to BDHS 2007, 2011 and 2014



By residence, urban women were more likely than rural women to utilize the health facility for delivery (59.7 percent and 43.5 percent, respectively). Private hospitals/clinics were the main places for institutional delivery (29.4 percent). Among the divisions, women from Khulna, Rajshahi, and Dhaka divisions (59.0 percent, 55.0 percent, and 46.6 percent, respectively) conducted more deliveries at health facilities than those living in the other divisions. The percentage of institutional delivery was lagging behind for women living in Sylhet (33.4 percent), Barisal (36.4 percent), Chittagong (43.1 percent), and Rangpur (45.8 percent) division.

Table 24: Birth by Place of Delivery according to Background Characteristic, by percentage, in CES 2015

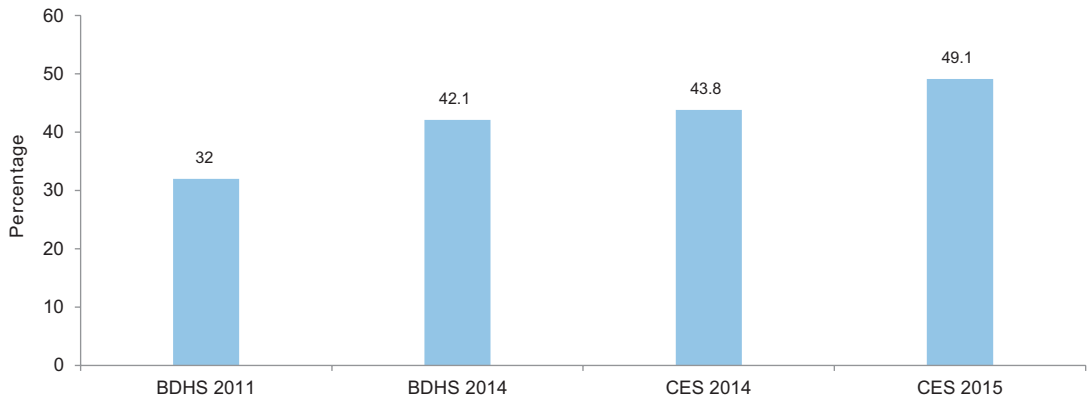
Background Characteristic	Public	Private Hospital/ Clinic	NGO Static Clinic	Home	Percentage delivered in health facility	Number
Mohers Age						
<20 yrs	15.9	30.9	2.7	50.5	49.5	1700
20-34 yrs	15.1	29.6	2.0	53.3	46.7	13220
35-49 yrs	15.1	24.7	2.4	57.8	42.2	830
Number of Birth						
1	17.3	35.4	2.2	45.0	55.0	6550
2-3	14.3	27.1	2.1	56.5	43.5	7621
4-5	10.9	17.1	1.9	70.1	29.9	1331
6+	9.5	9.2	2.2	79.1	20.9	249
Residence						
Rural	14.1	28.3	1.2	56.5	43.5	12602
Urban	19.7	33.9	6.0	40.3	59.7	3148
Division						
Barisal Division	13.0	22.8	0.5	63.6	36.4	917
Chittagong Division	12.5	28.6	2.0	56.9	43.1	3082
Dhaka Division	13.8	30.1	2.7	53.4	46.6	5157
Khulna Division	18.2	38.9	1.9	41.0	59.0	1728
Rajshahi Division	18.3	35.0	1.7	45.0	55.0	2036
Rangpur Division	18.8	24.3	2.7	54.2	45.8	1739
Sylhet Division	15.1	17.1	1.2	66.6	33.4	1091
Education						
Illiterate	12.0	15.0	0.9	72.1	27.9	3208
Primary	15.4	20.8	1.1	62.7	37.3	3213
Secondary	15.0	28.5	1.6	54.9	45.1	3132
SSC/Dhakil/O level	15.5	36.3	3.3	44.9	55.1	3048
HSC/Alim/ A leve	18.2	47.2	3.8	30.8	69.2	3149
Degree/Fazil						
Masters/Kamil	12.5	14.4	2.3	70.7	29.3	1713
Wealth Quintiles	**12.2**	**18.0**	**2.3**	**67.6**	**32.4**	**4336**
Poorest	16.3	31.0	2.1	50.6	49.4	6642
Socond	17.4	46.2	1.8	34.7	65.3	1615
Middle	19.5	52.9	1.5	26.1	73.9	948
Fourth	21.9	56.9	2.3	18.9	81.1	308
Richest	19.6	66.3	3.2	10.9	89.1	189
National	**15.2**	**29.4**	**2.1**	**53.2**	**46.8**	**15750**

7.2.2 Delivery Assistance

Reducing maternal deaths from birth complications is possible by increasing the number of births attended by a medically-trained provider – a doctor, nurse, or trained midwife. CES 2015 investigated those who assisted deliveries. The findings are shown in Table 25 by type of providers. The table shows that medically-trained providers attended 49.1 percent of the total number of births nationally a number higher in urban areas (60.4 percent) than in rural areas (46.2 percent). Among the medically-trained providers, MBBS doctors were the main service providers in both urban and rural areas (49.4 percent and 36.1 percent), followed by nurses/midwives (10.3 percent and 8.7 percent). The findings of CES 2015 were similar to the trend in delivery attendance by medically-

trained providers shown in BDHS 2014. There has been a commendable increase in the number of deliveries attended by medically-trained providers, as was observed in BDHS 2014. It shows that the delivery attended by a medically-trained provider increased by 11 percentage points- from 21.0 percent in 2007 to 32.0 percent in 2011 and 42 percent in 2014. CES 2015 reveals that 49.1 percent of the deliveries were attended by medically-trained providers.

Figure 151: Delivery Conducted by Skilled Attendance in BDHS 2011, BDHS 2014 , CES 2014 and CES 2015 by Percentage



It is worth to mention here that so far 13,000 CSBA has been trained on conducting safe delivery throughout the country. Compared to this large number contribution of CSBA in conducting delivery was found poor. According to Coverage Evaluation Survey (CES), CSBA contributes 0.3 percent of total deliveris in 2014 and 0.8 percent in 2015. According to BDHS, 0.3 percent deliveris were conducted by CSBA in 2011 and 0.1 percent in 2014. Program should identify the bottlenecks of poor contribution of CSBA in conducting deliveris and should take appropriate measure (see figure 152).

Figure 152: Delivery Conducted by CSBA in BDHS 2011 , BDHS 2014, CES 2014 and CES 2015 by Percentage

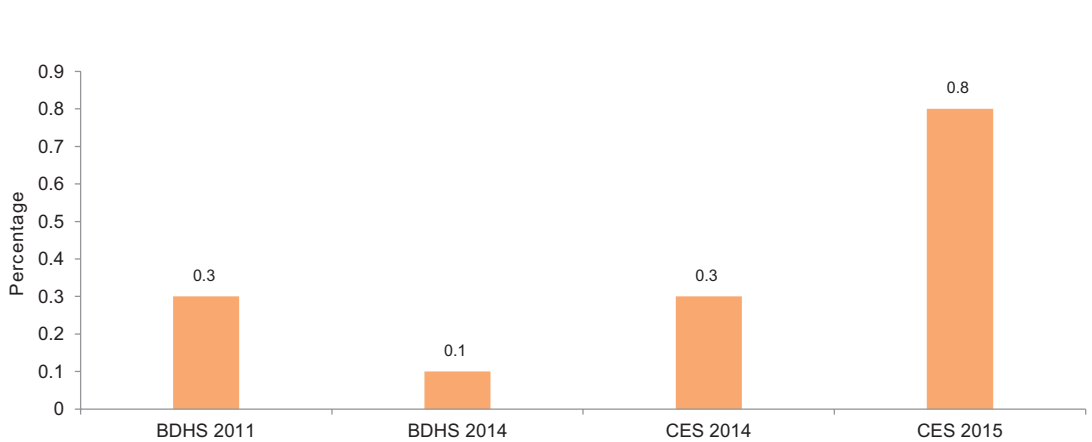


Table 25: Assistance during Delivery

Percentage Distribution of Live Birth by Person Providing Assistance during Delivery by Background Characteristic in CES 2015

Background Characteristic	Qualified doctor	Nurse/ Mid wife/ Paramedic	FWV	CSBA	SACMO	HA/FWA/ CHCP	TTBA	TBA	Unqualified Providers	Relatives/ Friend	NGO Health Worker	Medically trained provider	Number
Mother's Age													
<20 yrs	41.1	9.4	0.4	0.3	0.1	0.7	8.6	28.7	1.6	7.2	2.0	51.2	1700
20-34 yrs	38.8	9.0	0.4	0.8	0.1	0.6	9.7	27.0	2.5	8.8	2.2	49.1	13220
35-49 yrs	32.7	9.2	0.4	1.2	0.2	1.3	8.3	32.6	3.6	8.9	1.6	43.7	830
Number of Birth													
1	46.6	9.5	0.4	0.7	0.1	0.5	8.3	22.8	1.8	7.4	1.9	57.3	6550
2-3	35.5	9.1	0.4	0.9	0.1	0.6	10.1	29.4	2.8	8.8	2.4	45.9	7621
4-5	23.0	7.5	0.4	0.9	0.0	1.3	12.0	35.2	4.1	13.3	2.3	31.8	1331
6+	15.8	4.1	0.4	0.5	0.0	0.0	10.4	54.8	3.3	10.0	0.6	20.8	249
Residence													
Rural	36.1	8.7	0.5	0.9	0.0	0.6	10.5	29.4	0.7	10.7	1.9	46.2	89.1
Urban	49.4	10.3	0.1	0.3	0.3	0.8	5.5	20.1	0.4	9.6	3.2	60.4	93.8
Division													
Barisal Division	31.8	7.9	1.0	1.7	0.0	1.1	8.0	31.1	0.7	16.1	0.7	42.3	917
Chittagong Division	35.4	9.9	0.3	0.4	0.1	0.7	4.3	34.6	1.1	12.2	1.1	46.1	3082
Dhaka Division	40.1	6.8	0.2	1.0	0.1	0.7	11.0	26.9	0.5	11.0	1.7	48.2	5157
Khulna Division	51.3	8.8	0.3	1.4	0.1	0.5	8.9	19.7	1.1	7.4	0.4	61.9	1728
Rajshahi Division	46.7	9.7	0.3	0.2	0.1	0.3	4.6	26.9	0.4	10.5	0.5	56.9	2036
Rangpur Division	32.1	12.2	1.5	0.9	0.1	0.9	17.0	19.4	0.3	4.8	10.9	46.8	1739
Sylhet Division	23.5	12.1	0.2	0.3	0.0	0.5	16.7	34.0	0.2	11.7	0.7	36.1	1091
Education													
Illiterate	22.0	6.7	0.4	0.9	0.2	0.6	11.9	37.4	4.1	13.1	2.8	30.2	1713
Primary	24.8	8.2	0.4	0.7	0.0	0.7	11.4	37.0	3.6	10.7	2.5	34.2	4336
Secondary	41.2	9.7	0.5	0.8	0.0	0.5	9.6	25.5	2.0	8.0	2.1	52.3	6642
SSC/Dhakil/O level	56.8	10.1	0.4	0.7	0.1	0.8	5.7	17.1	1.4	5.4	1.4	68.2	1615
HSC/Alim/ A leve	64.1	11.0	0.1	0.5	0.3	0.8	6.2	11.2	0.3	3.7	1.8	76.0	948
Degree/Fazil	73.8	7.9	0.4	1.7	0.0	2.4	3.7	4.4	0.7	4.0	1.0	83.8	308
Masters/Kamil	85.0	5.4	0.4	1.2	0.0	0.0	2.1	1.5	0.0	2.5	1.8	92.1	189
Wealt Quintiles													
Poorest	21.6	7.5	0.4	1.3	0.0	0.5	14.0	37.7	2.9	10.6	3.4	30.9	3208
Socond	28.8	9.1	0.9	1.0	0.0	0.5	11.6	32.4	3.2	10.3	2.2	39.8	3213
Middle	37.1	9.9	0.4	0.9	0.2	0.7	9.6	28.3	3.0	8.4	1.5	48.6	3132
Fourth	46.9	9.0	0.2	0.5	0.0	0.8	7.3	23.3	1.9	7.9	2.3	56.6	3048
Richest	60.1	9.7	0.2	0.3	0.1	0.7	4.8	15.5	1.3	5.8	1.5	70.3	3149
National	38.7	9.0	0.4	0.8	0.1	0.6	9.5	27.5	0.6	10.5	2.2	49.1	15750

Of the unqualified health providers, traditional birth attendants, relatives/friends, NGO health workers played a major role in deliveries. In the divisions, the proportion of deliveries attended by medically-trained providers was the highest in Khulna division (61.9 percent), followed by Rajshahi division (56.9 percent); and was the lowest in Sylhet division (36.1 percent).

However, disparities in attending the delivery by a medically-trained provider were again observed between the highly educated and the illiterate mothers, and between the richest and the poorest wealth quintile. For instance, 85.0 percent of the deliveries of postgraduate mothers were attended by a doctor, while in the case of mothers who were illiterate the figure was only 22.0 percent. In contrast, women from the poorest quintile of households were about one-fourth (21.6 percent) as likely to be attended by a doctor, compared to those from the richest households (60.0 percent).

7.2.3 Postnatal Care (PNC) for Mothers and Newborns

Postnatal checkups and care are recognized as an integral component of comprehensive maternity and newborn care. Post-natal checkups provide an opportunity to assess and treat delivery complications and to counsel mothers on how to care for themselves and their babies. Evidence indicates that the risks of maternal mortality and morbidity are high in the 48 hours immediately after the child's birth. Around three-quarter of neonatal deaths take place in the first week; with up to half of these occurring within 24 hours of birth.[1]

Therefore, there is an urgent need for care for both mothers and children in the immediate post-partum period. CES 2015 assessed the postnatal care for mothers and children. The findings are presented in the table below.

Table 26: Postnatal Care for Mother and Newborn

Timing	Mother		Newborn	
	Any Provider	Medically trained provider	Any Provider	Medically trained provider
Within 2 days	54.4	45.7	57.9	46.3
3-6 days	1.2	0.4	0.0	0.0
7-41 days	1.9	0.8	0.0	0.0
41 days and Above	0.2	0.1	0.0	0.0
DK	1.8	0.6	0.0	0.0
Did not receive	40.4	52.4	41.9	53.6
Number	15750	15750	15750	15750

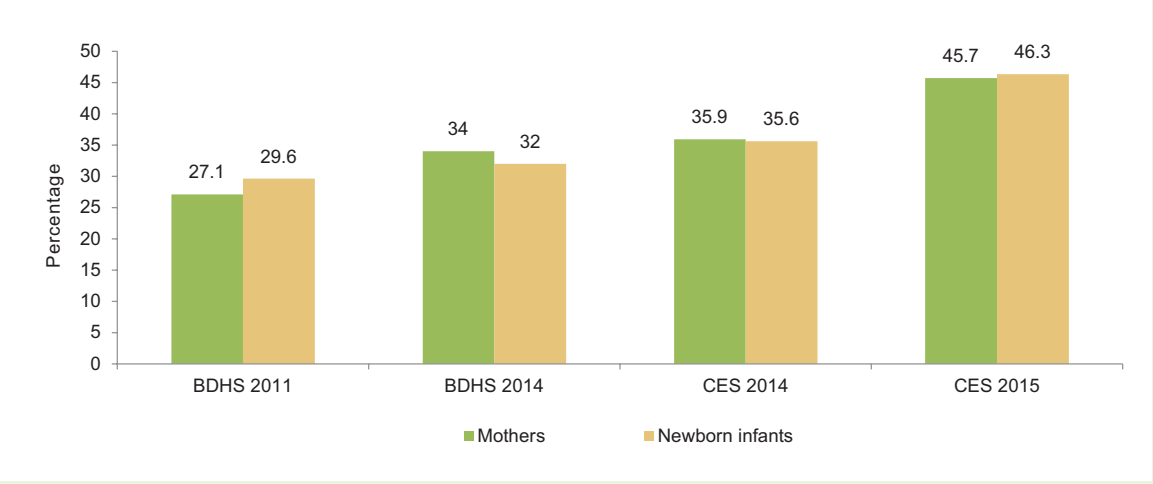
Postnatal Checkups for Mothers and Newborns

Table 26 illustrates the percent distribution of mothers and newborns who received PNC by providers.Nationally 45.7 percent of women and 46.3 percent of newborns received PNC within two days after delivery from medically-trained providers. In contrast, 40.4 percent of the mothers and 41.9 percent of the newborns did not receive any postnatal care. Figure 153 shows a comparison between BDHS 2011 and CES 2015. It shows that compared to CES 2014 9.8 percentage points increase in PNC for the mothers and 10.7 percentage points for the children in CES 2015. The 2014 BDHS data show that 34.0 percent of the mothers and 32.0 percent of the children received

1 The State of Worlds Children 2009, Maternal and Newborn Health, Page 54, UNICEF

postnatal care from a medically-trained provider within the crucial first two days of the delivery. These were found to be 16.0 percent and 13.0 percent, respectively, in BDHS 2004; 20.0 percent for both mothers and newborn infants in BDHS 2007. Between BDHS 2011 and 2014, PNC for mothers increased by 6.9 percentage points and 2.4 percentage points for newborn. It is worth to mention here that BDHS considered mothers delivered child three years back of the survey. However, CES considered mothers who delivered child between July 1, 2014 and June 30, 2015. This might casue difference in finding BDHS 2014 and CES 2015. Moreover, hospital delivery increased from 41.2 percent in 2014 to 46.8 percent in 2015. This improvement in health facility delivery increased the PNC for both mothers and newborns.

Figure 153: Postnatal Care for Women and Newborn from Medically-Trained Provider within Two Days of Delivery in BDHS 2011, 2014, CES 2014 and CES 2015



Urban-rural differentiation in receving PNC mother was found notable. PNC by medically-trained providers was more prominent among urban women than rural women (59.6 percent vs. 44.6 percent). By divisions, women from Khulna were more likely to receive ANC from medically-trained providers (61.6 percent), followed by Rajshahi (54.1 percent), Dhaka (47.5 percent), Rangpur (44.4 percent), Barisal (43.3 percent), Chittagong (42.4 percent), and Sylhet (36.6. percent) divisions (see Table 27).+As regards the wealth quintile, marked variation was observed between the richest and the poorest quintile in this regard. Seventy percent of the women from the richest wealth quintile received PNC from medically-trained providers, as opposed to 29.2 percent of those who belonged to the lowest wealth quintile (see Table 27).

Similarly, disparities in attending the delivery by a medically-trained provider were again observed between the highly educated and the illiterate mothers, and between the richest and the poorest wealth quintile. For instance, 90.8 percent of the PNC of postgraduate mothers were attended by a doctor, while in the case of mothers who were illiterate the figure was only 29.6 percent (see Table 27).

It is worth to mention here that like ANC component, PNC component such as blood pressure measure, blood test, urine test, weighing information should include in future survey to know specific PNC services are provided to delivered mother.

PNC for newborn by providers is presented in Table 27a. Findings were found almost similar to PNC for mothers.

Table 27: Women Aged 15-49 with Children 0-11 Months Old Attended by Postnatal Care Providers after Delivery and Received from a Medically-trained Provider, according to Background Characteristics, by Percent, Bangladesh, CES 2015

Background Characteristic	MBBS doctor	Nurse/ midwife/ paramedic	FWV	CSBA	SACMO	HA/ FWA/ CHCP	TBA	TTBA	Unqualified provider	NGO Health Worker	None	Don't know	Any Provider	PNC from medically trained provider	Number of Women
Mothers Age															
<20 yrs	38.1	11.0	0.7	0.0	0.0	1.4	2.9	0.8	2.9	3.8	38.2	0.0	61.8	49.9	1700
20-34 yrs	37.7	8.9	0.3	0.5	0.1	1.5	1.9	1.2	2.8	4.5	40.5	0.1	59.5	47.5	13220
35-49 yrs	35.0	6.9	0.7	0.6	0.2	2.0	1.7	1.5	2.4	5.1	43.9	0.1	56.1	43.4	830
Number of Birth															
1	44.2	10.3	0.5	0.4	0.0	1.4	2.0	1.2	2.7	3.3	34.0	0.0	66.0	55.4	6550
2-3	34.8	8.7	0.3	0.5	0.1	1.5	2.2	1.2	2.8	5.4	42.5	0.1	57.5	44.4	7621
4-5	25.0	5.3	0.3	0.5	0.2	2.5	1.2	1.4	2.6	5.0	56.0	0	44.0	31.3	1331
6+	19.4	4.8	0.8	0.5	0.0	1.2	2.7	2.2	5.1	4.2	59.1	0.0	40.9	25.5	249
Residence															
Rural	35.2	8.3	0.4	0.5	0.1	1.8	1.6	1.3	3.2	4.6	42.9	0	57.1	44.6	12602
Urban	47.3	11.8	0.2	0.3	0.1	0.5	3.8	1.0	1.1	3.9	30.1	0.1	69.9	59.6	3148
Division															
Barisal	34.2	6.6	1.0	1.2	0.2	2.8	0.2	0.5	4.3	4.1	44.9	0.2	55.1	43.3	917
Chittagong	34.8	6.7	0.5	0.4	0.1	2.2	0.2	0.0	3.0	0.9	51.2	0.1	48.8	42.4	3082
Dhaka	39.9	6.8	0.2	0.6	0.0	1.5	5.2	2.4	1.5	3.9	38.1	0	61.9	47.5	5157
Khulna	48.9	11.5	0.2	0.8	0.1	1.8	0.5	0.9	5.9	2.6	26.7	0.0	73.3	61.6	1728
Rajshahi	40.5	13.0	0.3	0.2	0.1	0.6	0.3	0.1	2.8	1.6	40.5	0.0	59.5	54.1	2036
Rangpur	28.1	15.6	0.7	0.1	0.0	1.2	1.0	2.5	3.1	19.4	28.4	0	71.6	44.4	1739
Sylhet	29.9	6.1	0.3	0.2	0.0	1.2	1.1	0.4	1.6	1.6	57.5	0.1	42.5	36.6	1091
Education															
Illiterate	23.4	5.3	0.3	0.6	0.0	1.5	2.7	1.5	2.4	4.8	57.5	0.1	42.5	29.6	1713
Primary	24.5	7.8	0.3	0.4	0.1	2.1	2.3	1.1	3.4	5.5	52.6	0.1	47.4	33.1	4336
Secondary	39.4	10.0	0.4	0.4	0.1	1.3	2.2	1.5	2.8	4.3	37.6	0.1	62.4	50.4	6642
SSC/Dhakil/O level	53.7	10.5	0.4	0.5	0.1	1.8	1.4	0.5	2.2	3.7	25.2	0.1	74.8	65.2	1615
HSC/Alim/ A leve	63.4	11.6	0.5	0.3	0.0	1.2	0.9	1.2	2.6	2.5	15.8	0	84.2	75.8	948
Degree/Fazil	71.6	10.0	1.2	1.5	0.0	1.7	0.2	0.6	1.1	1.6	10.4	0	89.6	84.3	308
Masters/Kamil	81.7	8.7	0.4	0.0	0.0	0.3	0.0	0.0	0.0	1.1	7.8	0	92.2	90.8	189
Wealth Quintiles															
Poorest	20.9	7.2	0.4	0.7	0.0	2.1	2.3	1.6	2.8	7.0	55.0		45.0	29.2	3208
Socond	28.5	8.3	0.4	0.5	0.1	1.8	2.1	1.4	4.2	5.8	46.9		53.1	37.8	3213
Middle	36.3	8.8	0.4	0.5	0.2	1.7	1.4	1.3	3.2	3.9	42.2		57.8	46.2	3132
Fourth	45.0	10.1	0.3	0.5	0.0	1.6	2.6	0.8	2.5	3.5	33.1		66.9	55.9	3048
Richest	58.3	10.8	0.4	0.2	0.0	0.6	1.7	0.9	1.2	1.9	24.1	0.0	75.9	69.6	3149
National	**37.6**	9.0	**0.4**	**0.5**	**0.1**	1.6	**2.0**	1.2	2.7	4.4	**40.4**	0.1	59.6	47.5	15750

Table 27a: Newborn Attended by Postnatal Care Providers after Delivery and Received from a Medically-trained Provider, according to Background Characteristics, by Percent, Bangladesh, CES 2015

Background Characteristic	MBBS doctor	Nurse/ midwife/ Paramedic	FWV	CSBA	SACMO	HA/ FWA/ CHCP	TTBA	TBA (Dai)	Unqualified Provider	NGO Health Worker	None	Don't know	Any Provider	Qualified Provider	Number of Children
Mother's Age															
<20 yrs	37.2	9.8	0.5	0.0	0.1	1.5	0.7	2.7	2.2	4.2	40.9	0.1	59.1	47.7	1700
20-34 yrs	37.4	8.3	0.3	0.5	0.0	1.2	1.0	2.1	2.4	4.7	41.8	0.3	58.2	46.5	13220
35-49 yrs	33.0	6.5	0.6	1.3	0.0	1.6	1.2	1.3	2.7	5.3	46.5	0.0	53.5	41.4	830
Number of Birth															
1	43.8	9.5	0.4	0.4	0.1	1.2	0.9	2.2	2.2	3.4	35.6	0.3	64.4	54.2	6550
2-3	34.3	8.1	0.3	0.5	0.0	1.0	1.1	2.3	2.5	5.4	44.2	0.3	55.8	43.3	7621
4-5	24.7	5.2	0.4	0.5	0.0	2.3	1.0	0.9	2.5	6.6	55.8	0.0	44.2	30.8	1331
6+	14.3	3.6	0.5	0.5	0.0	2.3	2.1	3.0	3.2	5.0	65.5	0.0	34.5	18.8	249
Residence															
Rural	34.8	7.7	0.4	0.5	0.1	1.3	1.0	1.7	2.8	5.1	44.4	0.2	55.6	43.5	12602
Urban	46.3	11.1	0.2	0.3	0.0	0.8	1.0	4.1	0.9	2.9	31.9	0.5	68.1	58.0	3148
Division															
Barisal	33.8	5.7	0.7	1.2	0.1	2.1	0.8	0.6	3.6	2.7	48.5	0.2	51.5	41.6	917
Chittagong	36.0	6.7	0.3	0.3	0.0	0.8	0.1	0.4	2.3	0.5	52.3	0.2	47.7	43.4	3082
Dhaka	38.2	6.1	0.3	0.6	0.0	1.6	1.6	4.6	1.9	4.3	40.5	0.4	59.5	45.2	5157
Khulna	48.3	10.9	0.2	0.9	0.1	1.2	1.0	1.6	4.7	1.4	29.3	0.5	70.7	60.4	1728
Rajshahi	40.3	11.8	0.2	0.2	0.1	0.3	0.2	0.7	1.4	1.9	42.8	0.1	57.2	52.5	2036
Rangpur	28.8	14.8	0.7	0.2	0.1	1.5	2.3	1.2	2.6	22.6	25.1	0.0	74.9	44.7	1739
Sylhet	27.8	5.6	0.2	0.0	0.0	1.0	0.5	2.0	2.4	1.5	59.0	0.1	41.0	33.6	1091
Education of the respondent															
Illiterate	22.2	5.7	0.2	0.6	0.0	1.5	1.0	3.0	2.1	5.0	58.5	0.4	41.5	28.5	1713
Primary	23.6	7.4	0.4	0.5	0.0	1.3	1.0	2.6	3.0	6.2	53.8	0.2	46.2	31.9	4336
Secondary	39.3	9.5	0.3	0.5	0.1	1.1	1.1	2.1	2.5	4.5	38.8	0.2	61.2	49.6	6642
SSC/Dhakil/O level	53.5	9.3	0.3	0.3	0.1	1.6	0.8	1.5	1.8	3.0	27.3	0.5	72.7	63.6	1615
HSC/Alim/ A leve	64.1	8.7	0.3	0.4	0.0	0.6	0.9	0.8	1.5	2.4	20.3	0.0	79.7	73.6	948
Degree/Fazil	67.1	9.8	0.9	1.5	0.0	2.0	0.9	0.3	0.8	1.5	15.1	0.3	84.9	79.2	308
Masters	82.0	6.9	1.1	0.0	0.0	0.1	0.0	0.0	0.0	1.5	8.4	0.0	91.6	90.0	189
Masters/Kamil															
Wealth Quintiles															
Poorest	20.4	7.2	0.4	0.8	0.0	1.7	1.2	2.2	2.8	8.8	54.2	0.2	45.8	28.8	3208
Socond	28.7	7.3	0.5	0.6	0.0	1.3	1.1	2.1	3.5	6.0	48.6	0.3	51.4	37.1	3213
Middle	35.7	8.9	0.2	0.4	0.1	1.1	1.1	2.2	2.6	3.8	43.7	0.3	56.3	45.4	3132
Fourth	44.5	8.8	0.1	0.4	0.1	1.3	0.8	2.7	2.5	2.9	35.6	0.3	64.4	53.9	3048
Richest	57.0	9.9	0.5	0.1	0.0	0.7	0.8	1.6	0.6	1.6	27.0	0.3	73.0	67.5	3149
National	37.1	8.4	0.3	0.5	0.0	1.2	1.0	2.1	2.4	4.7	41.9	0.3	58.1	46.4	15750

CHAPTER 8

VITAMIN A COVERAGE DURING VITAMIN A PLUS CAMPAIGN IN APRIL 2015

VITAMIN A SUPPLEMENTATION COVERAGE DURING VITAMIN-A PLUS CAMPAIGN

Vitamin A deficiency poses a major threat to the health and survival of children and mothers. WHO recognizes it as the leading cause of preventable childhood blindness and a major public health concern.

It also increases the risk of child death from diseases such as measles and diarrhea. Because sustained control of Vitamin A deficiency is essential to meeting the Millennium Development Goal for the reduction of child mortality, GOB has been conducting national Vitamin A Plus campaigns countrywide periodically on a regular basis. Most recently, GoB conducted a national Vitamin-A Plus Campaign in April 2015, with technical support from UNICEF, Micronutrient Initiative, and WHO. CES 2015 made an assessment of Vitamin A coverage among children aged 6-59 months.

8.1 OBJECTIVES OF VITAMIN A COVERAGE SURVEY

Vitamin-A Coverage survey was carried out as one of the components of CES 2015 with a view to accomplishing the following objectives:

- to estimate Vitamin A coverage among children aged 6-11 months and 12-59 months
- to know the reasons for not taking Vitamin A

8.2 SAMPLE SELECTION

The Vitamin A coverage survey was carried out with representative samples from among the 6-59 months old children drawn from the cluster samples of CES 2015. Interviewers listed all the eligible children (aged between 6-59 months) in every household of the selected cluster during their household visit in order to make the sampling frame. Afterwards, seven children were selected randomly from the sampling frame to administer the questionnaire.

8.3 VITAMIN A SUPPLEMENTATION COVERAGE

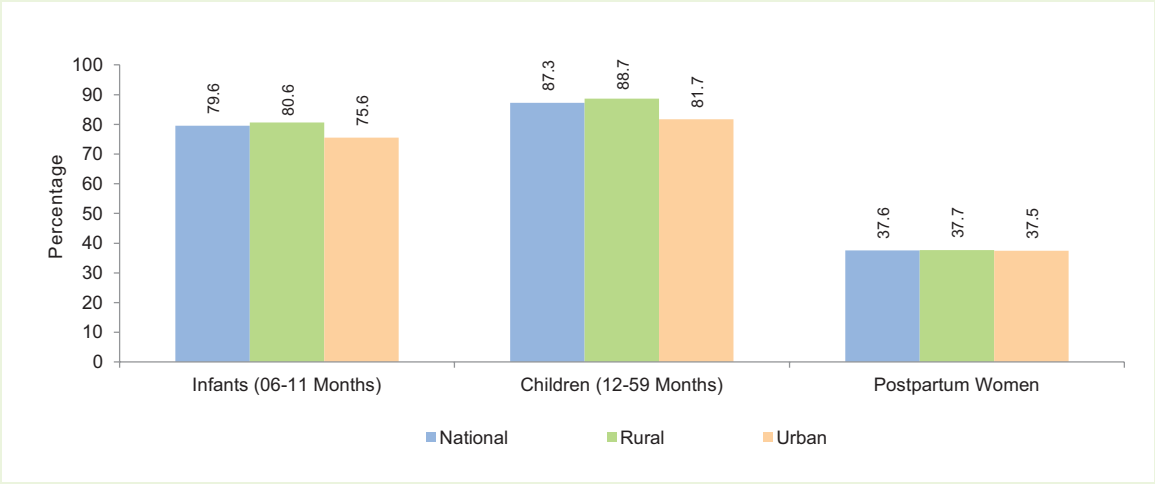
CES 2015 found that nationally, 79.6 percent of infants aged 6-11 months and 87.3 percent of children aged 12-59 months received Vitamin A capsules, with no significant variation in proportions between urban and rural areas. As for the mothers with 0-11 month-old children, nationally, 37.6 percent (37.5 percent urban and 37.7 percent rural) received VAC after delivering their latest child (see Figure 154 and Maps 20 and 21).

8.4 VITAMIN A COVERAGE BY RURAL DIVISIONS

Infants Aged 6-11 Months

Vitamin-A cpasule (VAC) coverage was found to be highest in Barisal (92.6 percent) and lowest in Dhaka division (71.2 percent). In the other divisions, it ranged from 88.7 percent in Kulna to 74.2 percent in Chittagong division.

Figure 154: Vitamin A Supplementation Coverage among 06-11 month-old Infants, 12-59 Month-old Children, and Postpartum Women, by National, Rural and Urban Area in 2015



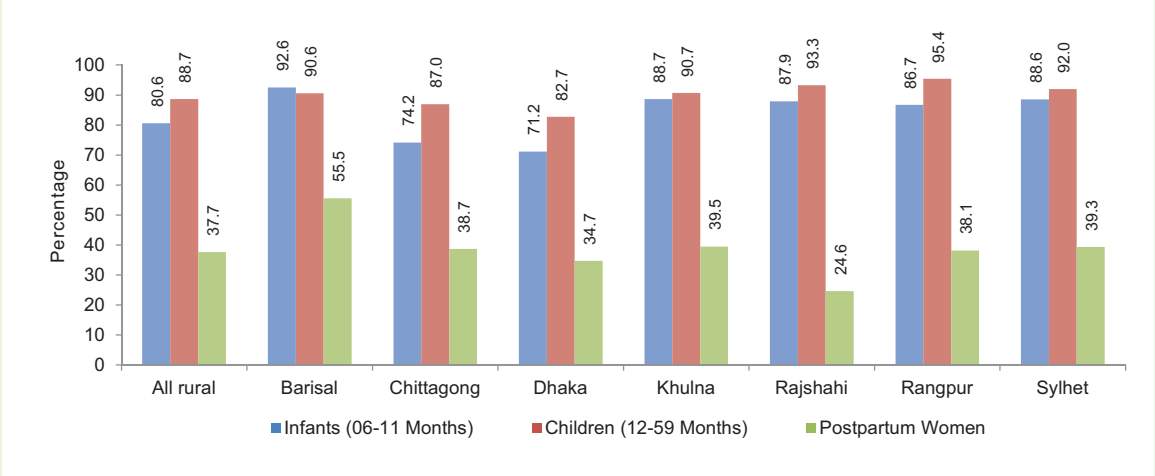
Children Aged 12-59 Months

Figure 155 presents VAC coverage by rural division. It shows that VAC coverage for infants 12 to 59 months old was at or above 90.0 percent in all the divisions except Chittagong and Dhaka. It was the highest in Rangpur (95.4 percent) and the lowest in Dhaka (82.7 percent) and ranged between 87.0 percent and 93.3 percent in the other divisions.

Postpartum Women

In all the divisions, postpartum VAC coverage was found to be lower compared to VAC coverage among the children during the Vitamin A Plus campaign. A little over half of the postpartum mothers (55.5 percent) in Barisal division received Vitamin A capsules after delivering their last child, while only about one-quarter (24.6 percent) did so in Rajshahi division.

Figure 155: Vitamin A Supplementtion Coverage among 06-11 month-old Infants, 12-59 Month-old Children, and Postpartum Women in Rural Areas by Division in 2015



8.5 VITAMIN A COVERAGE BY CITY CORPORATIONS

Infants 6-11 Months

Among the city corporations, as presented in Figure 156, VAC coverage for 6-11 month olds was found the highest in BCC and Com CC (98.6 percent), and the lowest in CCC (43.8 percent). It ranged between 52.6 percent and 93.8 percent in other city corporations.

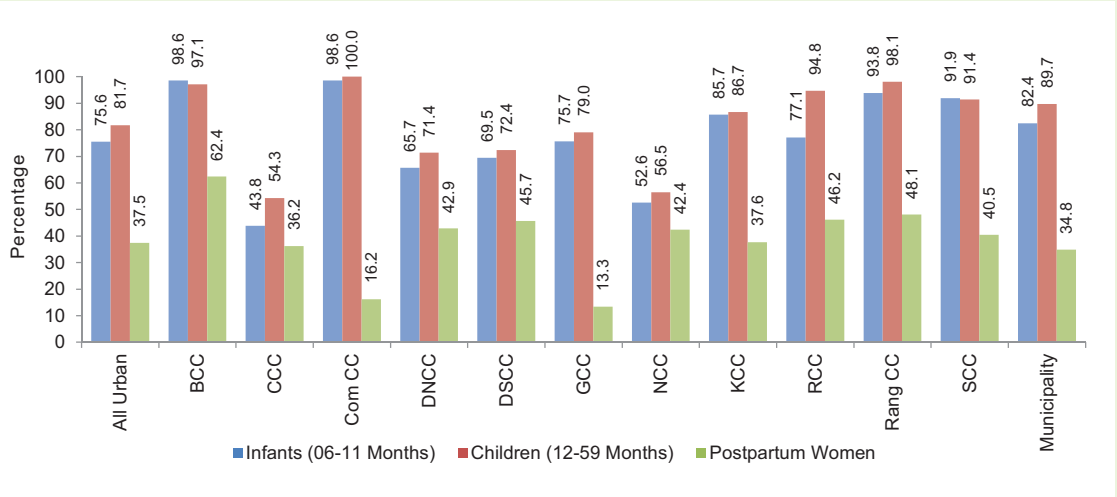
Children 12-59 Months

VAC coverage for 12-59 month olds was the highest in Com CC and went as low as 56.5 percent in NCC.

Postpartum Women

Postpartum Vitamin A coverage was found to have a great range. The highest in proportion was in BCC (62.4 percent), followed by DSCC (45.7 percent) RCC (46.2 percent), and Rang CC (48.1 percent), DNCC (42.9 percent), NCC (42.4 percent), SCC (40.5 percent), KCC (37.6 percent), and CCC (36.2 percent). The percentage for the other divisions then fell considerably, until only 13.3 percent were covered in GCC (see Figure 156).

Figure 156: Vitamin A Supplementtion Coverage among 06-11 month-old Infants, 12-59 Month-old Children, and Postpartum Women in Urban Areas by City Corporation and Municipality in 2015

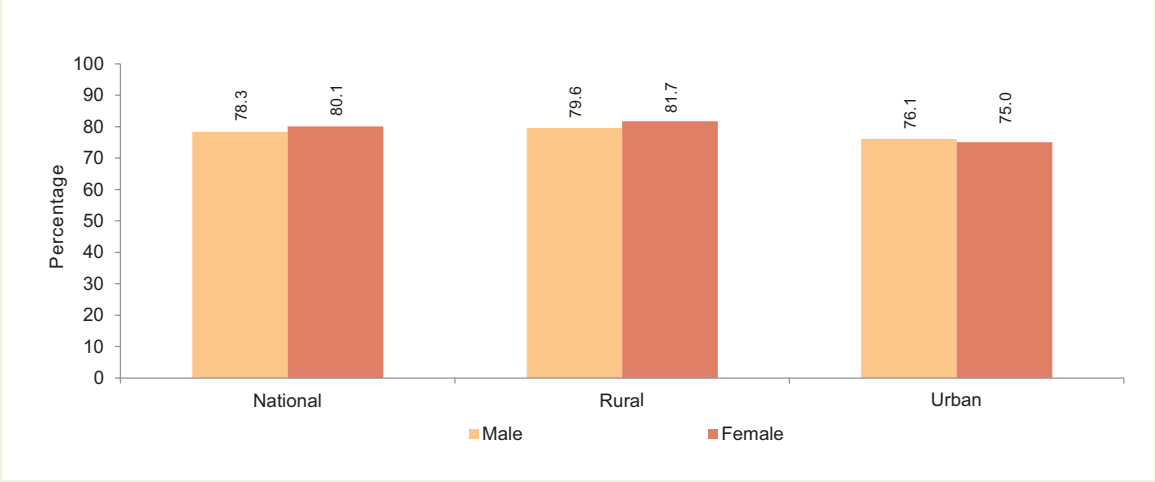


8.6 SEX DIFFERENTIALS IN VITAMIN A COVERAGE

Infants Aged 6-11 Months

By sex, it is evident in Figure 157 that females were more likely to receive Vitamin A (80.1 percent) during the Vitamin A Plus Campaign than their male counterparts (78.3 percent). Similarly, by residence a slight difference was noticed between males and females.

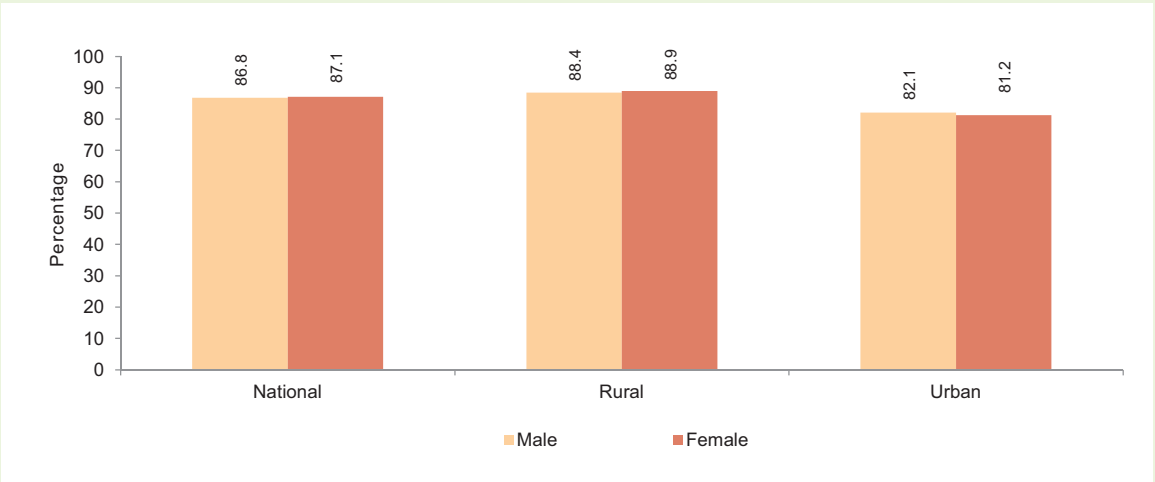
Figure 157: Vitamin A Supplementtion Coverage among 06-11 Month-old Infants by Sex in 2015



Children Aged 12-59 Months

Figure 158 presents VAC coverage among the 12-59 months old children by sex. It shows that 86.8. percent of the males received Vitamin A capsules during the Vitamin A plus Campaign as against 87.1 percent of the females. Almost similar findings were observed between urban and rural areas.

Figure 158: Vitamin A Supplementtion Coverage among 12-59 Month-old Children by Sex in 2015



8.7 REASONS FOR CHILDREN NOT RECEIVING VAC DURING THE VITAMIN A PLUS CAMPAIGN

Reasons for not receiving Vitamin A during the Vitamin A Plus campaign were also investigated in CES 2015 and presented in Table 28. It shows that more than three-quarters of the mothers/ caregivers (85.5 percent) were unaware of the Vitamin A Plus campaign. Less frequently given

reasons were that they were not at home (3.8 percent), the mothers/caregivers busy with household chores (2.9 percent), the mothers/caregivers were scared of the side-effects (1.8 percent), and the mothers/caregivers were travelling (1.7 percent).

Table 28: Reasons Why Children did not Receive Vitamin A Supplementation during VITAMIN A Plus Campaign by National, Rural and Urban Areas in 2015

Reasons	National	Rural	Urban
Didn't know	85.5	85.7	84.7
Was not at home	3.8	4.2	2.8
Was very busy	2.9	2.5	4.1
Was afraid of side effects	1.8	2.1	1.0
Went on traveling	1.7	1.7	1.6
The child was sick, so didn't take him to the vaccination centre	0.8	0.4	1.8
Was waiting to come back home with vitamin A	0.8	1.1	0.1
Vitamin A was not available	0.6	0.5	0.7
The child was sick , so the health worker didn't give vaccin	0.6	0.5	0.9
The session time was inconvenient	0.5	0.5	0.4
Don't believe in Vitamin A	0.4	0.3	0.8
Health worker was not available	0.2	0.3	0.0
The centre was too far	0.2	0.2	0.2
The child was fed in the previous time	0.1		0.4
Religious/Social obstacles	0.1	0.1	0.2
There was a long queue	0.0		0.2
Vaccinator did not give	0.0		0.1
Total	**5,220**	**3,875**	**1,346**

Table 29: Reasons Why Children did not Receive Vitamin A Supplementation during Vitamin-A Plus Campaign in Rural Areas by Division in 2015

Reasons	All Rural	Barisal	Chittagong	Dhaka	Khulna	Rajshahi	Rangpur	Sylhet
Didn't know	85.7	81.1	89.2	87.1	82.7	88.5	86.9	55.8
Was not at home	4.2	11.3	1.2	4.2	5.7	5.3	1.6	15.2
Was very busy	2.5	1.7	3.5	1.7	3.4	0.6	2.6	6.1
Was afraid of side effects	2.1	2.2	1.5	2.3	3.0	1.7	0.2	6.0
Went on traveling	1.7		1.1	1.4	1.3	1.7	5.8	3.0
Was waiting to come back home with vitamin A	1.1	2.6	0.3	1.5	2.9			0.7
Vitamin A was not available	0.5	0.3	0.7	0.4		0.3	1.7	
The session time was inconvenient	0.5	0.9	0.9	0.2	0.3	0.3	1.2	
The child was sick , so the health worker didn't give vaccine	0.5		0.4	0.3		1.1		3.2
The child was sick, so didn't take him to the vaccination centre	0.4		0.2	0.3	0.1	0.6		4.4
Don't believe in Vitamin A	0.3			0.2	0.5			4.2
Health worker was not available	0.3		0.5	0.4				
The centre was too far	0.2		0.6	0.0	0.2			
Religious/Social obstacles	0.1							1.3
Total	**3,875**	**132**	**982**	**1,684**	**306**	**313**	**275**	**183**

Table 30: Reasons Why Children did not Receive Vitamin A Supplementation during VITAMIN A Plus Campaign in Urban Areas by City Corporation and Municipality in 2015

Reasons	All Urban	BCC	CCC	Com CC	DNCC	DSCC	GCC	KCC	NCC	RCC	Rang CC	SCC	Municipality
Didn't know	84.7	77.8	98.1	0.0	81.1	61.5	89.5	97.4	62.1	89.8	100.0	62.9	86.8
Was very busy	4.1	0.0	0.0	33.3	3.0	18.0	1.1	0.0	6.9	0.0	0.0	11.4	2.8
Was not at home	2.8	11.1	0.0	0.0	4.5	3.3	2.1	0.0	5.2	6.8	0.0	8.6	3.4
The child was sick, so didn't take him to the vaccination centre	1.8	0.0	0.0	66.7	2.3	5.7	2.1	0.0	8.6	1.7	0.0	5.7	0.8
Went on traveling	1.6	0.0	0.0	0.0	2.3	4.1	1.1	0.0	5.2	0.0	0.0	0.0	1.4
Was afraid of side effects	1.0	0.0	0.0	0.0	0.8	0.8	0.0	1.6	1.7	0.0	0.0	0.0	1.9
The child was sick , so the health worker didn't give vaccin	0.9	11.1	0.0	0.0	2.3	0.0	2.1	0.5	6.9	1.7	0.0	2.9	0.3
Don't believe in Vitamin A	0.8	0.0	0.0	0.0	0.8	2.5	0.0	0.0	1.7	0.0	0.0	0.0	0.9
Vitamin A was not available	0.7	0.0	0.0	0.0	1.5	2.5	0.0	0.0	0.0	0.0	0.0	2.9	0.4
The session time was inconvenient	0.4	0.0	0.9	0.0	0.8	0.0	0.0	0.0	1.7	0.0	0.0	0.0	0.3
The child was fed in the previous time	0.4	0.0	0.5	0.0	0.8	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.2
The centre was too far	0.2	0.0	0.0	0.0	0.0	0.8	1.1	0.0	0.0	0.0	0.0	0.0	0.0
There was a long queue	0.2	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
Religious/Social obstacles	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5
Vaccinator did not give	0.1	0.0	0.0	0.0	0.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0
Was waiting to come back home with vitamin A	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	5.7	0.0
Health worker was not available	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Total	**1,346**	**2**	**241**	**1**	**250**	**176**	**125**	**71**	**20**	**14**	**4**	**9**	**434**

8.8 SOURCES OF INFORMATION ABOUT VITAMIN A PLUS CAMPAIGN

According to the results shown in Table 31 mosque miking was the most prominent source of information about the Vitamin A Plus Campaign. Thirty-eight percent of mothers/caregivers mentioned it. The other major sources were health worker's home visit (18.6 percent), family/ neighbors/friends (17.7 percent), GoB health worker's visit (16.5 percent), mobile miking (15.0 percent), television (5.8 percent), and volunteers (4.1 percent).

Table 31: Sources of Information about Vitamin A Supplementation during Vitamin A Plus Campaign by National, Rural and Urban Areas in 2015

Source	National	Urban	Rural
Mosque Miking	37.8	40.2	27.1
Health Workers' home visit	18.6	20.6	10.2
Family/neighbor/friends	17.7	14.6	30.7
GOB/ City corporations FW visit	16.5	18.3	8.9
Mobile Miking	15.0	14.2	18.6
Television	5.8	2.7	19.1
Other volunteers Visit	4.1	4.4	2.9
NGO worker Visit	2.9	2.7	3.7
Told during first round	1.0	0.7	2.3
Teacher visit	0.6	0.6	0.9
City Corporation's Health Worker	0.4	0.2	1.3
Poster	0.3	0.3	0.3
Newspaper	0.3	0.1	0.8
Radio	0.2	0.2	0.1
Don't know	0.1	0.1	0.1
Total	**26,280**	**21,330**	**4,949**

Map 17: Vitamin A Coverage of 06-11 Month-old Infants

Map 18: Vitamin A Coverage of 12-59 Month-Old Children

CHAPTER 9

DISCUSSION AND RECOMMENDATIONS

DISCUSSION AND RECOMMENDATIONS

9.1 DISCUSSION

Government of Bangladesh, in collaboration with its relevant partners, to meet its vaccination coverage objectives, it needs to continue to build on the impressive progress it has made in EPI in the past decade. The Coverage Evaluation Survey 2015, carried out between October 20, 2015 and January 14, 2016, is an important component in meeting those objectives. The key findings of that survey are discussed and followed by recommendations in this chapter.

Nationally, by crude vaccination rates, 94.2 percent children received all the eligible vaccines, irrespective of the age for starting the vaccination and/or minimum intervals between doses. However, In terms of valid coverage, which is the coverage for which Bangladesh is attempting to reach 90 percent at the national level by 2016, 82.5 percent of the children across the country received all the scheduled vaccines by the age of 12 months following EPI-recommended age and valid interval between the doses. Urban-rural analysis shows that rural children were more likely to receive valid doses (83.5 percent) compared to their urban counterparts (78.4 percent).

By both crude vaccination coverage by age of 23 months and valid vaccination coverage by age of 12 months, the division found to have the highest rate was Rajshahi division (94.9 percent and 86.1 percent, respectively) and the lowest was Sylhet division (92.1 percent and 76.9 percent). The second highest covearage division is Barisal (86.0 percent). Rajshahi and Barisal were the divisions to reach more than 85 percent target.

For the districts, the objective is that all reach 85 percent by 2016, out of 64 districts, 21 districts have reached the target of full vaccination coverage 85 percent. Nine districts having 85 percent coverage in 2014 are now below 85 percent in 2016, sustaining the high coverage is also challenging, which EPI needs to put special attention.

The data show that those left out and who dropped out of the vaccination schedule contributed to the lower crude coverage. For BCG, the first dose of childhood vaccination schedule, coverage was 99.4 percent, which indicates that about <1.0 percent of the surveyed children still remained unvaccinated. However, the crude fully vaccination coverage was 94.2 percent nationally, which means that 6.0 percent of the surveyed children dropped before receiving any subsequent dose of vaccination after receiving BCG. Since the national finding is the reflection of the divisional finding and the divisional finding is a result of the district coverage, the same interpretation can be applicable in general to the divisions and district. However, the left-out and drop-out rates do vary from one district to another. As an example of the impact the drop-rate can have, crude coverage was the lowest in Sunamganj district (88.1 percent) among all the districts, with the Penta1-MR drop-out rate of 7.4 percent to be the third highest among all the districts and significantly limiting the district's crude coverage. Because of the impact it could have on the crude vaccination rate, reducing the drop-out rate should be given special attention by the EPI programme.

Drop outs from vaccinations are caused mostly from the demand side. CES 2015 findings show that mother/caregiver was busy and so couldn't bring the child for vaccination (29.9%) the most prevailing reason for partial vaccinations, on demand sides, Other most common reasons are sick of child, fear of side effects, reflected thatlacking of right information about the vaccination service, community-level health workers should visit households and monitor the drop-out cases during the vaccination session.

As well, administering lower invalid doses accelerates the rise in vaccination coverage. Nationally, valid coverage was 12 percentage points lower than crude coverage (82.5 percent and 94.2 percent, respectively), with, 3.1 percent of Penta1, 4.6 percent of Penta2, 6.1 percent of Penta3, and 3.0 percent of MR found to be invalid. The highest valid vaccination coverage was observed in Barisal district (92.2 percent), where invalid rates by antigen were for Penta1 at 1.0 percent, Penta2 2.0 percent, Penta3 2.4 percent, and MR 4.9 percent. In contrast, among the districts, the lowest valid vaccination coverage was found in Sunamganj (64.7 percent), the district that also had the higher drop-out rate; its invalid Penta1 was 5.2 percent, Penta2 6.0 percent, Penta3 8.0 percent, and MR 8.9 percent. The analysis suggests that both the drop-out rate and the invalid dose contributed to the lower full vaccination coverage in Sunamganj, a combination common in districts where full valid vaccination coverage was poorer. Since the act of administering invalid doses was mainly caused on the supply side, EPI should identify the causes of administering invalid doses and counteract those causes accordingly.

MSD drop-out rates and invalid doses also play into the national figures. Overall, 85.0 percent of children received crude MSD, with 80.5 percent children receiving the valid doses of MSD. However, the MR-MSD drop-out rate was found to also be 9.8 percent nationally.

The discussion above indicates that both the administration of higher invalid doses and higher drop-out rates contribute to lower fully valid vaccination coverage.

Regarding TT coverage among the mothers with children aged 0-11 months old, nationally valid TT2 vaccination coverage was 96.3 percent, of mothers have immunity status against tetanus. Naturally 91.5 percent newborn was protected against tetanus. Children from Barisal (95.8 percent), Khulna (92.6 percent), Rajshahi (94.5 percent), and Rangpur (91.5 percent) were in higher positions in terms of PAB than other divisions.

The TT vaccination card is an important tool to estimate valid and invalid doses, as well as PAB status of newborn babies. Nationally, 34.9 percent of TT vaccination cards were found to be retained. In 93.0 percent cases, cards had been issued at the time of the first TT vaccination. However, 60.5 percent of the recipients had lost their cards, so only 32.5 percent of the cards were available during the time of data collection. The poor card retention rate may be the result of the mothers' lack of awareness about the importance of TT vaccination card.

Nationally, 79.6 percent of the infants aged 6-11 months and 87.3 percent of the children aged 12-59 months received Vitamin A capsule. No remarkable variation was observed between urban and rural areas. However, 37.6 percent of the mothers received Vitamin A Capsule after delivering their last child.

9.2 RECOMMENDATIONS

Based on the above detailed discussion of the findings on the various survey components of CES 2015, the EPI authorities may consider the following recommendations for further betterment of the program:

- Listing of the drop-outs for every vaccination dose should be prepared on a regular basis, and introduce default tracking system through domiciliary visits by assigned health workers or using new technology devices.
- Reduction of invalid doses and drop-out rates would significantly improve vaccination coverage. To avoid invalid doses, children's vaccination cards and vaccination histories should be carefully reviewed. Additionally, effective supportive supervision, on-the-job training and needs-based refresher training for the service providers should be ensured.
- Biometric or mobile phone technology can be used to help avoid invalid doses and ensure timely vaccinations.
- To maintain equities while sustainably increasing EPI in the chronically and emerging low performing divisions, districts, and city corporations, special attention should be given to those areas.
- Based on the local context, experience of implementation of evidence-based planning & budgeting to address the bottleneckscould be shared with the low performing areas to replicate the ideas or ways of working of the high performing areas.
- Regular monitoring the online reporting on DHIS-2 and to ensure data quality and timeliness of reporting
- Workers should be encouraged and a competitive mentality should be upheld to provide better services; within government rules, rewards may be given to better performers.
- Workers should maintain interpersonal communication with those in the target group until the completion of the last dose of scheduled vaccination. It is most important for MR, MSD, and TT3, TT4, and TT5, as the gap or interval is more important for these doses than others of the scheduled vaccines.
- EPI authorities should take appropriate measures to coordinate with the authorities of the local government ministries, city corporations, NGOs, and private health facilities, with the aim to ensure increased vaccination coverage in urban and slum areas.
- A TT campaign programme at schools, colleges, and garments factories could be established to ensure increased TT coverage, in particular TT 2 coverage.

EPI authorities may set mechanisms to ensure a periodic review of the micro plan by upazilas through a bottle-neck analysis. Then, needs-based measures should be taken to address the weaknesses of the programme in the respective upazilas.

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APPENDIX A:

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APPENDIX B:

Vaccination Coverage by Survey Units (in figures)

Figure 1. Valid Full Vaccination Coverage by Age 12 Months by Districts in Barisal Division (Fully Immunized Arranged in ascending order by All Districts)

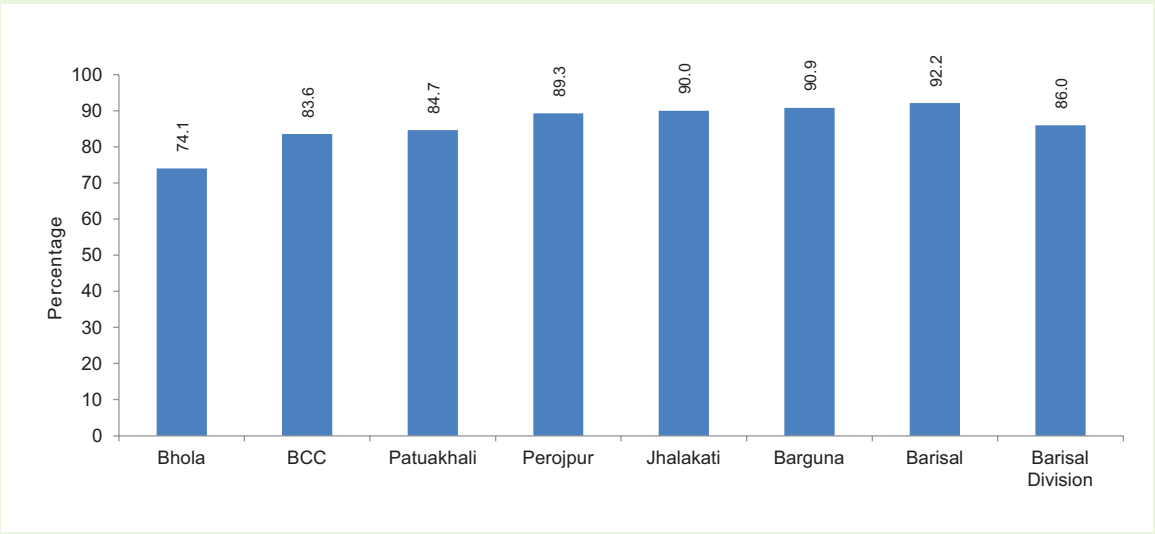


Figure 2. Valid Full Vaccinatiion Coverage by Age 12 Months by Districts in Chittagong Division (Fully Immunized Arranged in ascending order by All Districts)

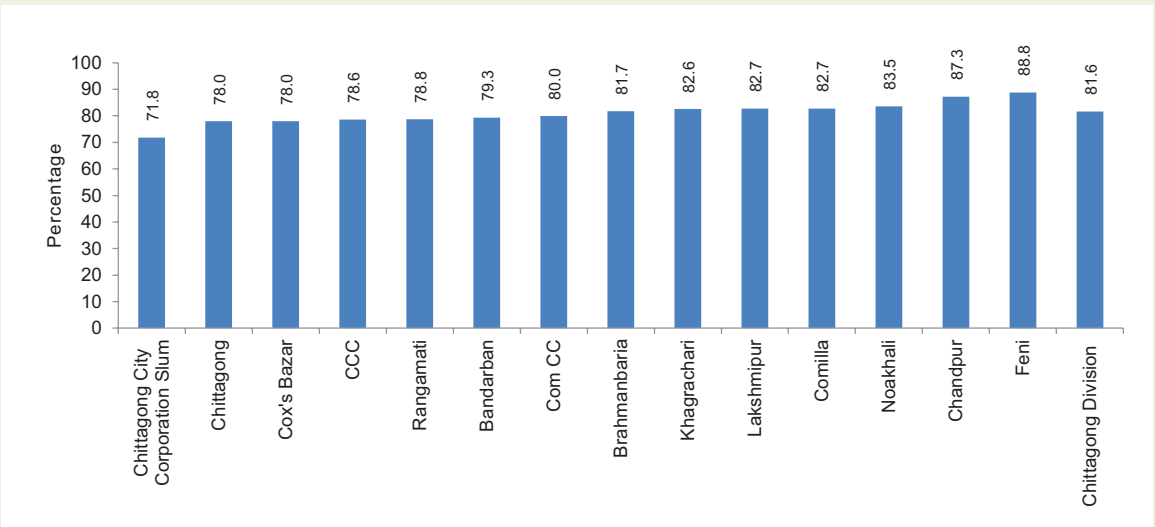


Figure 3. Valid Full Vaccination Coverage by Age 12 Months by Districts in Dhaka Division (Fully Immunized Arranged in ascending order by All Districts)

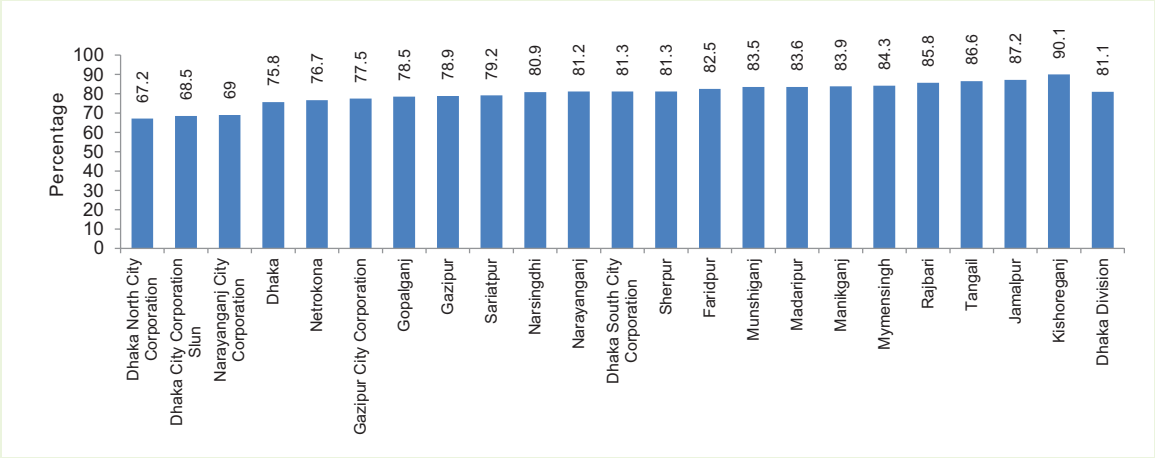


Figure 4. Valid Full Vaccination Coverage by Age 12 Months by Districts in Khulna Division (Fully Immunized Arranged in ascending order by All Districts)

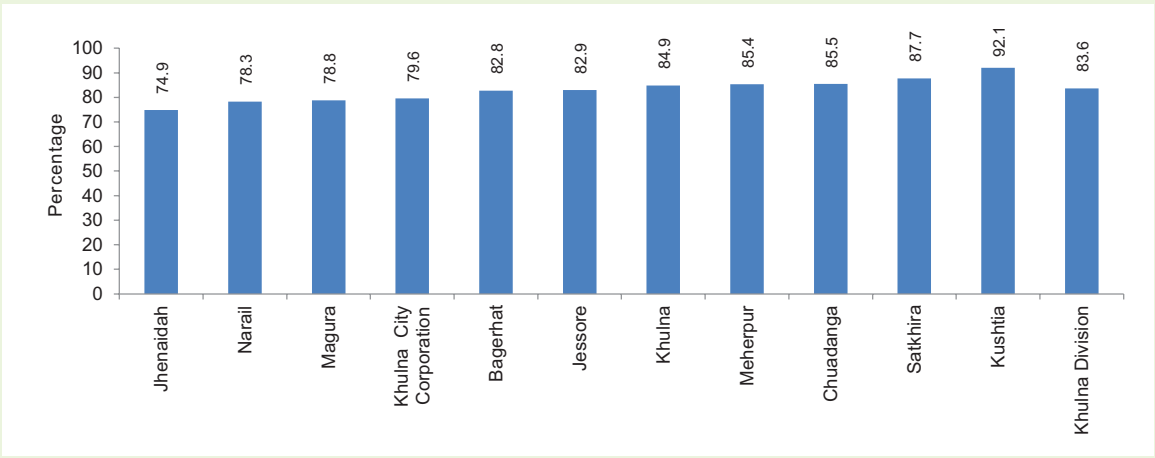


Figure 5. Valid Full Vaccination Coverage by Age 12 Months by Districts in Rajshahi Division (Fully Immunized Arranged in ascending order by All Districts)

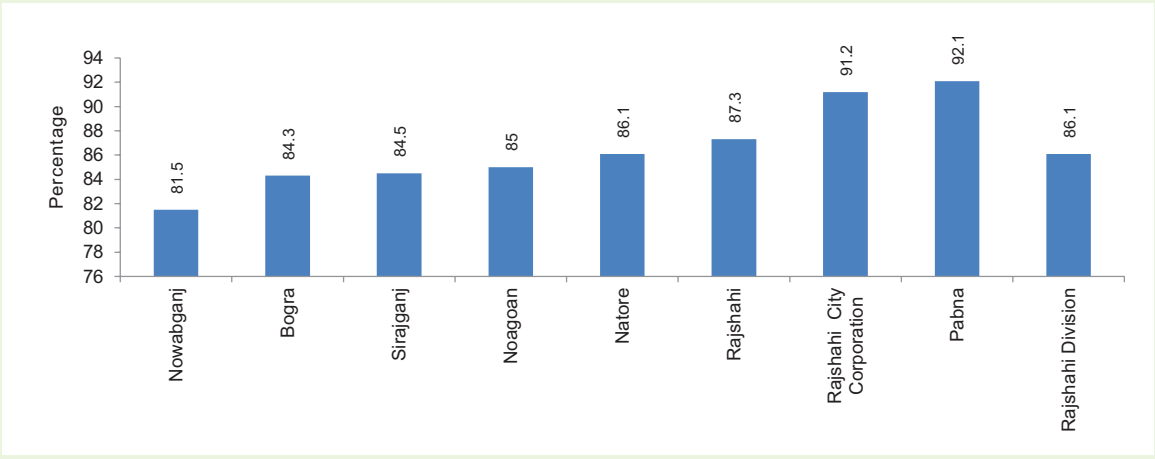


Figure 6. Valid Full Vaccination Coverage by Age 12 Months by Districts in Rangpur Division (Fully Immunized Arranged in ascending order by All Districts)

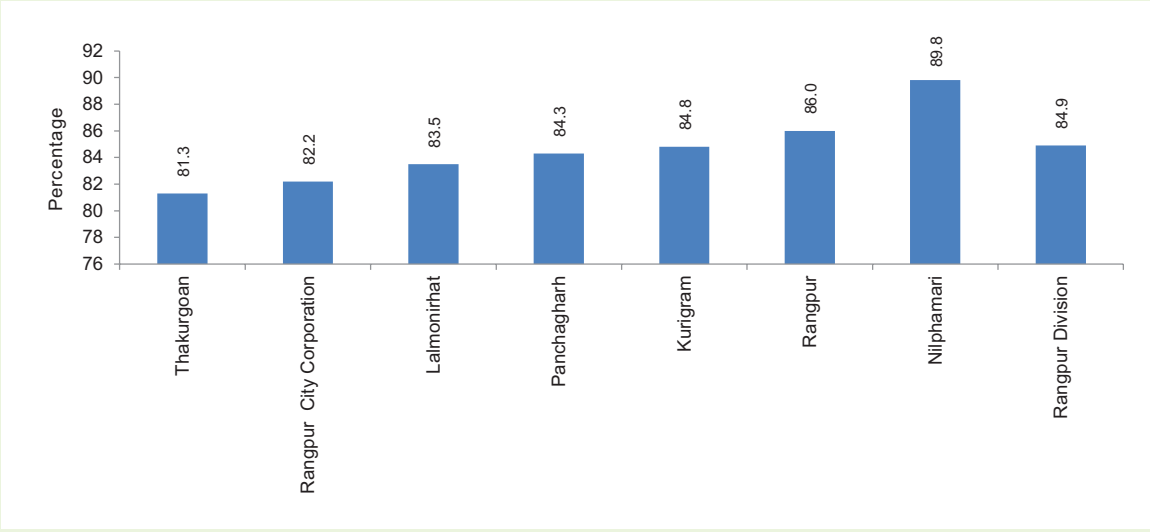
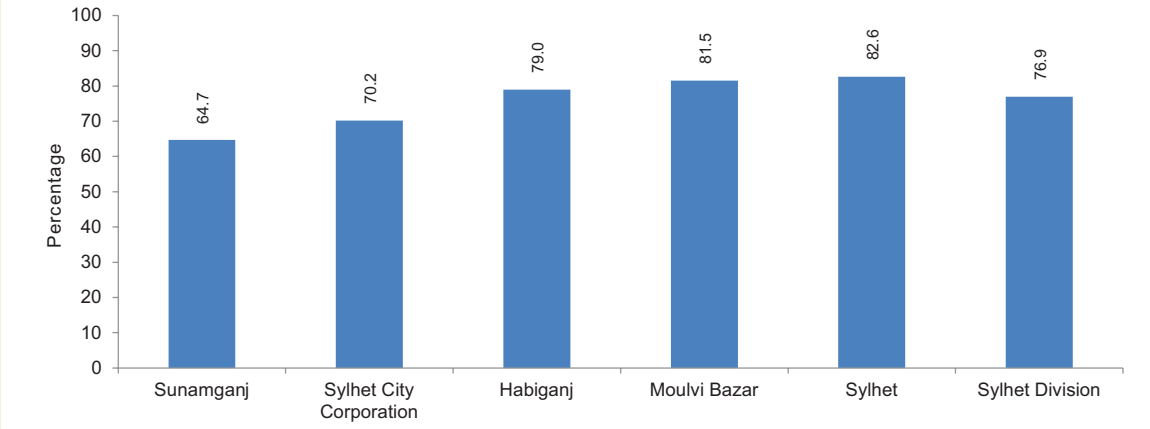


Figure 7. Valid Full Vaccination Coverage by Age 12 Months by Districts in Sylhet Division (Fully Immunized Arranged in ascending order by All Districts)



APPENDIX C:

Vaccination Coverage by Survey Units (in Tables)

Table 1: Crude Vaccination Coverage by Age of 23 Months by District and City Corporation

District/City Corporation	BCG	OPV1	PENTA1	OPV2	PENTA2	OPV3	PENTA3	MR	FVC
Barguna	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Barisal	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Barisal City Corporation	100.0	100.0	100.0	99.5	99.5	99.5	99.5	99.0	99.0
Bhola	100.0	100.0	100.0	99.5	99.5	99.0	99.0	95.7	95.7
Jhalakati	100.0	100.0	100.0	99.5	99.5	99.5	99.5	99.5	99.5
Patuakhali	100.0	100.0	100.0	99.5	99.5	98.1	98.1	96.2	96.2
Perojpur	100.0	100.0	100.0	100.0	100.0	99.5	99.5	98.6	98.6
Barisal Division	**100.0**	**100.0**	**100.0**	**99.8**	**99.8**	**99.3**	**99.3**	**98.1**	**98.1**
Bandarban	94.3	94.3	94.3	92.4	92.4	92.4	92.4	90.0	90.0
Brahmanbaria	100.0	100.0	100.0	99.5	99.5	99.5	99.5	96.7	96.7
Chandpur	100.0	100.0	100.0	99.5	99.5	99.0	99.0	97.1	97.1
Chittagong	96.2	96.2	96.2	95.2	95.2	95.2	95.2	91.9	91.9
Chittagong City Corporation	100.0	100.0	100.0	96.2	96.2	93.8	93.8	91.9	91.4
Comilla	100.0	100.0	100.0	99.5	99.5	98.1	98.1	94.8	94.8
Comilla City Corporation	100.0	100.0	100.0	99.5	99.5	98.1	98.1	96.2	96.2
Cox's Bazar	99.5	99.5	99.5	97.1	97.1	96.2	96.2	91.4	91.4
Feni	100.0	100.0	100.0	99.0	99.0	98.6	98.6	95.7	95.7
Khagrachari	100.0	99.5	99.5	98.6	98.6	97.6	97.6	94.8	94.3
Lakshmipur	100.0	100.0	100.0	99.0	99.0	98.6	98.6	93.8	92.9
Noakhali	99.5	99.5	99.5	98.6	98.6	98.1	98.1	91.4	91.4
Rangamati	98.1	98.1	98.1	96.7	96.7	95.2	95.2	93.3	92.4
Chittagong Division	**99.1**	**99.1**	**99.1**	**98.0**	**98.0**	**97.2**	**97.2**	**93.7**	**93.6**
Dhaka	99.5	99.5	99.5	98.1	98.1	97.1	97.1	91.9	91.9
Dhaka North City Corporation	100.0	100.0	100.0	97.6	97.6	93.8	93.8	86.2	84.8
Dhaka South City Corporation	100.0	100.0	100.0	97.6	97.6	96.7	96.7	94.3	93.8
Faridpur	100.0	100.0	100.0	97.1	97.1	95.2	95.2	91.9	91.9
Gazipur	99.5	99.5	99.5	98.1	98.1	97.1	97.1	94.8	94.8
Gazipur City Corporation	99.0	99.0	99.0	98.1	98.1	96.7	96.7	91.9	91.4
Gopalganj	99.5	99.0	99.0	99.0	99.0	97.6	97.6	93.3	93.3
Jamalpur	100.0	99.5	99.5	98.6	98.6	97.1	97.1	94.3	92.9
Kishoreganj	100.0	100.0	100.0	99.5	99.5	99.0	99.0	95.7	95.7
Madaripur	99.0	99.0	99.0	97.6	97.6	96.2	96.2	95.7	95.7
Manikganj	100.0	100.0	100.0	99.0	99.0	98.6	98.6	95.2	95.2
Munshiganj	99.5	99.5	99.5	99.0	99.0	98.6	98.6	96.2	95.2
Mymensingh	99.5	99.0	99.0	98.6	98.6	96.7	96.7	94.3	93.8
Narayanganj	99.0	99.0	99.0	97.1	97.1	95.2	95.2	91.4	90.5
Narayanganj City Corporation	98.1	98.1	98.1	96.7	96.7	93.3	93.3	85.7	85.2

District/City Corporation	BCG	OPV1	PENTA1	OPV2	PENTA2	OPV3	PENTA3	MR	FVC
Narsingdhi	99.0	99.0	99.0	98.1	98.1	96.7	96.7	94.3	93.8
Netrokona	98.6	98.6	98.6	97.6	97.6	96.7	96.7	94.8	94.8
Rajbari	100.0	100.0	100.0	100.0	100.0	100.0	100.0	97.6	97.6
Sariatpur	99.5	99.5	99.5	99.0	99.0	98.1	98.1	97.6	97.6
Sherpur	99.5	99.5	99.5	99.5	99.5	98.6	98.6	93.8	93.3
Tangail	99.0	98.6	98.6	98.1	98.1	97.1	97.1	94.8	94.3
Dhaka Division	**99.5**	**99.4**	**99.4**	**98.2**	**98.2**	**96.8**	**96.8**	**93.3**	**92.9**
Bagerhat	99.5	99.5	99.5	99.5	99.5	99.0	99.0	96.2	96.2
Chuadanga	100.0	100.0	100.0	99.5	99.5	97.6	97.6	97.1	97.1
Jessore	99.0	99.0	99.0	98.1	98.1	97.1	97.1	95.7	95.2
Jhenaidah	99.0	99.0	99.0	98.6	98.6	98.1	98.1	94.3	94.3
Khulna	99.0	98.6	98.6	97.1	97.1	96.7	96.7	93.8	93.8
Khulna City Corporation	99.0	98.6	98.6	97.1	97.1	95.7	95.7	89.5	89.5
Kushtia	100.0	100.0	100.0	100.0	100.0	99.0	99.0	97.1	97.1
Magura	99.5	99.5	99.5	99.0	99.0	98.6	98.6	92.9	92.9
Meherpur	100.0	100.0	100.0	99.5	99.5	97.6	97.6	94.3	94.3
Narail	100.0	100.0	100.0	99.0	99.0	96.7	96.7	90.5	90.5
Satkhira	99.5	99.5	99.5	99.0	99.0	98.6	98.6	98.1	98.1
Khulna Division	**99.5**	**99.4**	**99.4**	**98.8**	**98.8**	**97.9**	**97.9**	**95.2**	**95.2**
Bogra	99.0	98.1	98.1	96.2	96.2	94.8	94.8	91.0	91.0
Joypurhat	100.0	100.0	100.0	99.5	99.5	99.0	99.0	98.6	98.6
Natore	100.0	100.0	100.0	100.0	100.0	98.6	98.6	96.7	96.7
Noagoan	100.0	100.0	100.0	99.0	99.0	97.1	97.1	95.7	94.8
Nowabganj	99.0	99.0	99.0	98.6	98.6	97.6	97.6	94.8	94.8
Pabna	100.0	100.0	100.0	100.0	100.0	99.5	99.5	99.0	99.0
Rajshahi	100.0	100.0	100.0	99.5	99.5	99.5	99.5	99.0	99.0
Rajshahi City Corporation	100.0	100.0	100.0	100.0	100.0	100.0	100.0	97.6	97.6
Sirajganj	98.6	98.6	98.6	97.6	97.6	96.2	96.2	91.4	90.5
Rajshahi Division	**99.5**	**99.3**	**99.3**	**98.6**	**98.6**	**97.5**	**97.5**	**95.2**	**94.9**
Dinajpur	99.5	99.5	99.5	99.0	99.0	99.0	99.0	97.6	97.6
Gaibandha	99.5	99.0	99.0	98.6	98.6	96.2	96.2	92.9	92.9
Kurigram	100.0	100.0	100.0	100.0	100.0	99.5	99.5	96.2	96.2
Lalmonirhat	100.0	100.0	100.0	100.0	100.0	99.5	99.5	99.5	99.5
Nilphamari	100.0	100.0	100.0	100.0	100.0	100.0	100.0	98.6	98.6
Panchagharh	100.0	100.0	100.0	99.5	99.5	99.5	99.5	98.1	97.6
Rangpur	100.0	100.0	100.0	100.0	100.0	96.7	96.7	94.3	94.3
Rangpur City Corporation	99.5	99.0	99.0	98.1	98.1	96.2	96.2	93.8	93.3
Thakurgoan	100.0	100.0	100.0	100.0	100.0	99.5	99.5	99.0	99.0
Rangpur Division	**99.8**	**99.7**	**99.7**	**99.5**	**99.5**	**98.5**	**98.5**	**96.5**	**96.5**
Habiganj	98.1	97.6	97.6	97.1	97.1	96.7	96.7	95.2	95.2
Moulvi Bazar	97.6	96.7	96.7	94.8	94.8	92.9	92.9	90.0	90.0
Sunamganj	96.2	96.2	96.2	94.3	94.3	93.3	93.3	89.0	88.1
Sylhet	99.0	99.0	99.0	98.6	98.6	97.1	97.1	94.8	94.8
Sylhet City Corporation	99.0	98.1	98.1	96.2	96.2	94.8	94.8	91.4	90.5
Sylhet Division	**97.9**	**97.5**	**97.5**	**96.4**	**96.4**	**95.1**	**95.1**	**92.4**	**92.1**
National	**99.4**	**99.3**	**99.3**	**98.4**	**98.4**	**97.3**	**97.3**	**94.4**	**94.2**
Rural	99.4	99.3	99.3	98.5	98.5	97.6	97.6	94.9	94.8
Urban	99.4	99.3	99.3	97.7	97.7	96.0	96.0	92.3	91.7
Dhaka City Corporation Slum	99.0	97.6	97.6	92.9	92.9	88.1	88.1	81.4	81.4
Chittagong City Corporation Slum	100.0	100.0	100.0	99.0	99.0	96.7	96.7	87.6	87.6

Table 2: Crude Vaccination Coverage by Age of 12 Months by District and City Corporation

District/City Corporation	BCG	OPV1	PENTA1	OPV2	PENTA2	OPV3	PENTA3	MR	FVC
Barguna	100.0	100.0	100.0	100.0	100.0	100.0	100.0	98.4	98.4
Barisal	100.0	100.0	100.0	100.0	100.0	100.0	100.0	99.0	99.0
Barisal City Corporation	100.0	100.0	100.0	99.5	99.5	99.5	99.5	94.7	94.7
Bhola	100.0	100.0	100.0	99.5	99.5	99.0	99.0	91.9	91.9
Jhalakati	100.0	100.0	100.0	99.0	99.0	98.4	98.4	95.1	94.5
Patuakhali	100.0	100.0	100.0	99.5	99.5	97.6	97.6	91.3	91.3
Perojpur	100.0	100.0	100.0	100.0	100.0	98.5	98.5	95.5	95.5
Barisal Division	**100.0**	**100.0**	**100.0**	**99.7**	**99.7**	**99.0**	**99.0**	**95.1**	**95.1**
Bandarban	94.3	94.3	94.3	92.4	92.4	92.4	92.4	87.6	87.6
Brahmanbaria	99.4	99.4	99.4	99.0	99.0	99.0	99.0	94.4	94.4
Chandpur	100.0	100.0	100.0	99.5	99.5	99.0	99.0	95.4	95.4
Chittagong	96.2	96.2	96.2	95.2	95.2	94.7	94.7	86.4	86.3
Chittagong City Corporation	100.0	100.0	100.0	95.6	95.6	93.8	93.8	87.4	86.9
Comilla	99.3	99.3	99.3	98.8	98.8	96.0	96.0	87.4	87.2
Comilla City Corporation	100.0	100.0	100.0	99.5	99.5	96.8	96.8	88.1	88.1
Cox's Bazar	99.5	99.5	99.5	97.1	97.1	96.2	96.2	87.0	87.0
Feni	100.0	100.0	100.0	99.0	99.0	98.6	98.6	94.6	94.6
Khagrachari	100.0	99.5	99.5	98.6	98.6	97.6	97.6	91.1	90.6
Lakshmipur	100.0	100.0	100.0	99.0	99.0	98.0	98.0	89.6	89.3
Noakhali	99.5	99.5	99.5	98.6	98.6	98.1	98.1	88.2	88.1
Rangamati	98.1	98.1	98.1	96.7	96.7	95.2	95.2	87.1	86.7
Chittagong Division	**98.9**	**98.9**	**98.9**	**97.7**	**97.7**	**96.7**	**96.7**	**89.4**	**89.3**
Dhaka	99.5	99.5	99.5	97.4	97.4	96.4	96.4	87.3	87.3
Dhaka North City Corporation	100.0	100.0	100.0	96.9	96.9	92.3	92.3	75.6	74.8
Dhaka South City Corporation	100.0	100.0	100.0	96.5	96.5	93.0	93.0	88.2	87.6
Faridpur	100.0	100.0	100.0	97.1	97.1	95.2	95.2	90.2	90.1
Gazipur	99.5	99.5	99.5	98.1	98.1	96.0	96.0	84.8	84.8
Gazipur City Corporation	99.0	99.0	99.0	98.1	98.1	96.7	96.7	83.3	82.7
Gopalganj	99.0	98.5	98.5	98.5	98.5	97.1	97.1	85.7	85.6
Jamalpur	100.0	99.5	99.5	98.0	98.0	96.6	96.6	91.5	90.6
Kishoreganj	100.0	100.0	100.0	99.5	99.5	99.0	99.0	92.3	92.3
Madaripur	99.0	99.0	99.0	97.0	97.0	95.5	95.5	90.3	89.0
Manikganj	100.0	100.0	100.0	99.0	99.0	98.6	98.6	89.6	89.6
Munshiganj	99.5	99.5	99.5	98.5	98.5	98.0	98.0	91.8	90.8
Mymensingh	99.5	99.0	99.0	98.6	98.6	96.2	96.2	91.7	90.6
Narayanganj	99.0	99.0	99.0	97.1	97.1	95.2	95.2	90.7	89.8
Narayanganj City Corporation	97.4	96.7	96.7	95.3	95.3	91.9	91.9	80.1	78.2
Narsingdhi	99.0	99.0	99.0	97.5	97.5	96.7	96.7	87.8	87.7
Netrokona	98.0	98.0	98.0	97.1	97.1	95.6	95.6	88.3	88.2
Rajbari	100.0	100.0	100.0	100.0	100.0	100.0	100.0	93.3	93.3
Sariatpur	99.5	99.5	99.5	99.0	99.0	96.8	96.8	89.0	89.0
Sherpur	99.5	99.5	99.5	98.4	98.4	98.0	98.0	88.7	87.0
Tangail	99.0	98.6	98.6	98.1	98.1	97.1	97.1	92.4	91.3
Dhaka Division	**99.4**	**99.3**	**99.3**	**97.9**	**97.9**	**96.3**	**96.3**	**88.5**	**87.9**

District/City Corporation	BCG	OPV1	PENTA1	OPV2	PENTA2	OPV3	PENTA3	MR	FVC
Bagerhat	99.0	99.0	99.0	99.0	99.0	98.0	98.0	89.7	89.7
Chuadanga	100.0	100.0	100.0	99.5	99.5	97.1	97.1	93.4	93.4
Jessore	98.5	98.5	98.5	97.6	97.6	95.6	95.6	92.7	91.7
Jhenaidah	99.0	99.0	99.0	98.6	98.6	96.0	96.0	85.7	85.7
Khulna	99.0	98.6	98.6	97.1	97.1	96.7	96.7	92.8	92.8
Khulna City Corporation	99.0	98.0	98.0	95.3	95.3	93.9	93.9	82.1	82.1
Kushtia	100.0	100.0	100.0	100.0	100.0	99.0	99.0	97.1	97.1
Magura	99.0	98.4	98.4	98.5	98.5	95.8	95.8	85.5	85.0
Meherpur	100.0	100.0	100.0	99.5	99.5	97.6	97.6	91.5	91.5
Narail	100.0	100.0	100.0	98.5	98.5	95.0	95.0	85.3	85.3
Satkhira	99.5	99.5	99.5	99.0	99.0	98.1	98.1	96.1	96.1
Khulna Division	**99.3**	**99.2**	**99.2**	**98.5**	**98.5**	**96.8**	**96.8**	**91.5**	**91.2**
Bogra	98.5	98.1	98.1	96.2	96.2	94.8	94.8	88.2	88.2
Joypurhat	100.0	100.0	100.0	99.5	99.5	98.5	98.5	95.4	95.4
Natore	100.0	100.0	100.0	100.0	100.0	98.0	98.0	93.2	93.1
Noagoan	100.0	100.0	100.0	99.0	99.0	97.1	97.1	92.6	91.7
Nowabganj	99.0	99.0	99.0	98.0	98.0	96.0	96.0	88.2	88.2
Pabna	100.0	100.0	100.0	100.0	100.0	99.5	99.5	96.7	96.7
Rajshahi	100.0	100.0	100.0	99.5	99.5	99.5	99.5	94.9	94.9
Rajshahi City Corporation	100.0	100.0	100.0	100.0	100.0	99.4	99.4	93.8	93.8
Sirajganj	98.6	98.6	98.6	97.0	97.0	95.6	95.6	89.1	88.7
Rajshahi Division	**99.4**	**99.3**	**99.3**	**98.4**	**98.4**	**97.1**	**97.1**	**91.8**	**91.6**
Dinajpur	99.5	99.5	99.5	99.0	99.0	99.0	99.0	93.5	93.5
Gaibandha	99.5	99.0	99.0	98.0	98.0	95.6	95.6	90.0	90.0
Kurigram	100.0	100.0	100.0	100.0	100.0	98.5	98.5	93.1	92.6
Lalmonirhat	100.0	100.0	100.0	100.0	100.0	99.5	99.5	92.9	92.9
Nilphamari	100.0	100.0	100.0	100.0	100.0	100.0	100.0	95.5	95.5
Panchagharh	97.8	97.8	97.8	97.3	97.3	96.7	96.7	92.3	91.8
Rangpur	100.0	100.0	100.0	100.0	100.0	96.7	96.7	90.4	90.4
Rangpur City Corporation	98.9	99.0	99.0	98.1	98.1	95.6	95.6	89.2	88.4
Thakurgoan	100.0	100.0	100.0	100.0	100.0	99.5	99.5	93.7	93.7
Rangpur Division	**99.7**	**99.6**	**99.6**	**99.3**	**99.3**	**98.0**	**98.0**	**92.5**	**92.3**
Habiganj	98.1	97.6	97.6	97.1	97.1	96.7	96.7	91.0	90.4
Moulvi Bazar	97.6	96.7	96.7	94.2	94.2	92.3	92.3	88.9	88.9
Sunamganj	95.6	94.3	94.3	92.4	92.4	91.5	91.5	77.2	76.4
Sylhet	99.0	99.0	99.0	98.6	98.6	96.6	96.6	90.0	90.0
Sylhet City Corporation	99.0	98.1	98.1	94.8	94.8	90.0	90.0	81.4	80.3
Sylhet Division	**97.7**	**97.1**	**97.1**	**95.8**	**95.8**	**94.3**	**94.3**	**86.7**	**86.3**
National	99.3	99.1	99.1	98.1	98.1	96.7	96.7	90.1	89.8
Rural	99.2	99.1	99.1	98.3	98.3	97.1	97.1	91.1	90.8
Urban	99.4	99.2	99.2	97.4	97.4	95.2	95.2	86.2	85.5
Dhaka City Corporation Slum	99.0	97.6	97.6	92.9	92.9	86.1	86.1	75.2	74.9
Chittagong City Corporation Slum	99.3	100.0	100.0	99.0	99.0	95.3	95.3	79.7	79.1

Table 3: Valid Vaccination Coverage by Age of 23 Months by District and City Corporation

District/City Corporation	BCG	OPV1	PENTA1	OPV2	PENTA2	OPV3	PENTA3	MR	FVC
Barguna	100.0	96.8	96.8	97.3	97.3	97.3	97.3	95.7	92.5
Barisal	100.0	99.0	99.0	99.0	99.0	99.5	99.5	95.1	93.2
Barisal City Corporation	100.0	91.2	91.2	92.4	92.4	95.2	95.2	94.7	87.3
Bhola	100.0	88.8	88.8	92.1	92.1	93.7	93.7	86.5	76.8
Jhalakati	100.0	97.8	97.8	97.3	97.3	99.0	99.0	97.8	94.5
Patuakhali	100.0	96.2	96.2	97.9	97.9	96.5	96.5	94.0	89.6
Perojpur	100.0	96.9	96.9	96.4	96.4	96.9	96.9	96.0	92.4
Barisal Division	100.0	95.5	95.5	96.5	96.5	97.0	97.0	93.5	88.8
Bandarban	94.3	86.1	86.1	90.6	90.6	90.6	90.6	87.6	81.7
Brahmanbaria	100.0	96.6	96.6	96.1	96.1	94.4	94.4	92.1	84.0
Chandpur	100.0	93.7	93.7	97.2	97.2	97.3	97.3	94.2	89.0
Chittagong	96.2	91.8	91.8	92.5	92.5	93.0	93.0	87.0	82.4
Chittagong City Corporation	100.0	93.5	93.5	92.4	92.4	90.6	90.6	87.4	83.1
Comilla	100.0	91.5	91.5	94.6	94.6	92.4	92.4	93.3	90.2
Comilla City Corporation	100.0	95.1	95.1	95.2	95.2	95.6	95.6	93.7	86.8
Cox's Bazar	99.5	93.1	93.1	92.1	92.1	91.8	91.8	88.3	81.8
Feni	100.0	96.6	96.6	95.6	95.6	95.7	95.7	93.4	89.9
Khagrachari	100.0	93.7	93.7	95.4	95.4	96.0	96.0	91.6	85.8
Lakshmipur	100.0	94.0	94.0	98.4	98.4	96.8	96.8	92.0	86.3
Noakhali	99.5	94.2	94.2	96.6	96.6	96.1	96.1	89.5	86.8
Rangamati	98.1	94.1	94.1	93.3	93.3	91.3	91.3	90.5	83.3
Chittagong Division	99.1	93.4	93.4	94.7	94.7	94.0	94.0	90.5	85.6
Dhaka	99.5	93.6	93.6	90.0	90.0	91.3	91.3	88.8	80.4
Dhaka North City Corporation	100.0	93.1	93.1	93.0	93.0	90.0	90.0	81.7	75.6
Dhaka South City Corporation	100.0	90.0	90.0	91.8	91.8	94.3	94.3	90.7	86.3
Faridpur	100.0	92.7	92.7	92.7	92.7	92.9	92.9	88.5	84.3
Gazipur	99.5	92.7	92.7	93.0	93.0	93.7	93.7	93.0	88.9
Gazipur City Corporation	99.0	94.1	94.1	94.6	94.6	91.7	91.7	91.2	84.8
Gopalganj	99.5	91.1	91.1	94.8	94.8	93.9	93.9	91.2	86.2
Jamalpur	100.0	95.1	95.1	96.4	96.4	94.9	94.9	93.2	88.9
Kishoreganj	100.0	98.3	98.3	97.3	97.3	97.4	97.4	95.1	92.9
Madaripur	99.0	95.1	95.1	92.3	92.3	92.2	92.2	93.7	89.0
Manikganj	100.0	92.9	92.9	95.2	95.2	93.0	93.0	93.6	89.6
Munshiganj	99.5	93.4	93.4	94.6	94.6	93.6	93.6	94.0	86.8
Mymensingh	99.5	93.4	93.4	94.5	94.5	92.6	92.6	93.8	87.4
Narayanganj	99.0	93.3	93.3	92.8	92.8	93.1	93.1	88.5	81.9
Narayanganj City Corporation	98.1	87.7	87.7	91.8	91.8	88.4	88.4	82.9	72.6
Narsingdhi	99.0	94.9	94.9	94.5	94.5	93.1	93.1	89.0	87.1
Netrokona	98.6	90.0	90.0	94.9	94.9	92.9	92.9	90.4	82.7
Rajbari	100.0	95.7	95.7	97.3	97.3	96.8	96.8	96.0	88.5
Sariatpur	99.5	90.0	90.0	94.5	94.5	93.0	93.0	93.7	87.1
Sherpur	99.5	92.2	92.2	95.0	95.0	95.1	95.1	91.5	86.5
Tangail	99.0	92.8	92.8	94.6	94.6	94.2	94.2	93.0	88.4
Dhaka Division	99.5	93.4	93.4	94.0	94.0	93.1	93.1	91.0	85.4

District/City Corporation	BCG	OPV1	PENTA1	OPV2	PENTA2	OPV3	PENTA3	MR	FVC
Bagerhat	99.5	93.4	93.4	93.4	93.4	93.9	93.9	92.4	89.2
Chuadanga	100.0	94.3	94.3	95.4	95.4	93.5	93.5	95.6	89.2
Jessore	99.0	95.0	95.0	95.0	95.0	93.6	93.6	92.7	85.5
Jhenaidah	99.0	93.3	93.3	93.4	93.4	94.4	94.4	89.4	83.0
Khulna	99.0	94.4	94.4	92.0	92.0	94.6	94.6	90.6	85.9
Khulna City Corporation	99.0	93.0	93.0	94.7	94.7	93.3	93.3	88.3	85.8
Kushtia	100.0	97.2	97.2	97.2	97.2	98.5	98.5	96.0	92.1
Magura	99.5	95.7	95.7	94.1	94.1	95.3	95.3	89.5	86.1
Meherpur	100.0	92.6	92.6	95.8	95.8	93.4	93.4	92.6	88.2
Narail	100.0	92.7	92.7	95.7	95.7	93.3	93.3	87.0	83.5
Satkhira	99.5	95.6	95.6	94.6	94.6	96.1	96.1	96.6	89.7
Khulna Division	99.5	94.6	94.6	94.6	94.6	94.8	94.8	92.6	87.2
Bogra	99.0	97.0	97.0	96.2	96.2	93.6	93.6	88.7	87.0
Joypurhat	100.0	93.7	93.7	96.4	96.4	98.5	98.5	96.5	91.2
Natore	100.0	97.1	97.1	96.5	96.5	97.4	97.4	93.7	89.0
Noagoan	100.0	94.7	94.7	95.5	95.5	94.2	94.2	95.1	88.1
Nowabganj	99.0	95.3	95.3	94.8	94.8	93.3	93.3	94.2	87.6
Pabna	100.0	99.4	99.4	97.7	97.7	98.9	98.9	96.7	94.4
Rajshahi	100.0	93.3	93.3	93.3	93.3	94.9	94.9	96.7	91.4
Rajshahi City Corporation	100.0	100.0	100.0	100.0	100.0	100.0	100.0	95.1	95.1
Sirajganj	98.6	94.5	94.5	94.2	94.2	92.7	92.7	90.8	86.3
Rajshahi Division	99.5	95.9	95.9	95.6	95.6	95.1	95.1	93.5	89.2
Dinajpur	99.5	96.9	96.9	95.4	95.4	96.5	96.5	95.1	88.3
Gaibandha	99.5	93.5	93.5	95.2	95.2	92.8	92.8	90.6	87.1
Kurigram	100.0	96.4	96.4	96.9	96.9	95.4	95.4	94.6	88.4
Lalmonirhat	100.0	90.5	90.5	94.1	94.1	96.3	96.3	95.7	89.6
Nilphamari	100.0	95.5	95.5	95.5	95.5	95.5	95.5	96.0	92.9
Panchagharh	100.0	93.9	93.9	96.2	96.2	95.0	95.0	94.6	89.0
Rangpur	100.0	95.6	95.6	97.8	97.8	93.9	93.9	93.7	88.7
Rangpur City Corporation	99.5	96.0	96.0	93.3	93.3	93.8	93.8	92.9	86.5
Thakurgoan	100.0	93.8	93.8	92.7	92.7	93.2	93.2	95.3	86.7
Rangpur Division	99.8	95.0	95.0	95.6	95.6	94.8	94.8	94.2	88.7
Habiganj	98.1	92.2	92.2	94.7	94.7	94.3	94.3	89.8	82.6
Moulvi Bazar	97.6	91.3	91.3	93.2	93.2	91.8	91.8	85.2	82.5
Sunamganj	96.2	88.8	88.8	91.8	91.8	90.3	90.3	82.2	76.4
Sylhet	99.0	92.3	92.3	93.9	93.9	93.0	93.0	93.7	87.4
Sylhet City Corporation	99.0	89.8	89.8	92.1	92.1	90.6	90.6	90.0	79.6
Sylhet Division	97.9	91.1	91.1	93.3	93.3	92.2	92.2	88.3	82.5
National	99.4	94.0	94.0	94.7	94.7	94.1	94.1	91.7	86.5
Rural	99.4	94.2	94.2	94.9	94.9	94.5	94.5	92.3	87.1
Urban	99.4	93.3	93.3	93.7	93.7	92.5	92.5	89.4	83.9
Dhaka City Corporation Slum	99.0	89.6	89.6	85.5	85.5	81.5	81.5	80.0	74.2
Chittagong City Corporation Slum	100.0	96.0	96.0	94.4	94.4	93.4	93.4	84.3	80.4

Table 4: Valid Vaccination Coverage by Age of 12 Months by District and City Corporation

District/City Corporation	BCG	OPV1	PENTA1	OPV2	PENTA2	OPV3	PENTA3	MR	FVC
Barguna	100.0	96.8	96.8	97.3	97.3	97.3	97.3	94.1	90.9
Barisal	100.0	99.0	99.0	99.0	99.0	99.5	99.5	94.1	92.2
Barisal City Corporation	100.0	91.2	91.2	92.4	92.4	95.2	95.2	90.4	83.6
Bhola	100.0	88.8	88.8	92.1	92.1	93.7	93.7	83.3	74.1
Jhalakati	100.0	97.8	97.8	96.7	96.7	97.8	97.8	93.4	90.0
Patuakhali	100.0	96.2	96.2	97.9	97.9	95.9	95.9	89.1	84.7
Perojpur	100.0	96.9	96.9	96.4	96.4	95.9	95.9	92.9	89.3
Barisal Division	100.0	95.5	95.5	96.4	96.4	96.6	96.6	90.6	86.0
Bandarban	94.3	86.1	86.1	90.6	90.6	90.6	90.6	85.3	79.3
Brahmanbaria	99.4	96.0	96.0	95.5	95.5	93.8	93.8	89.8	81.7
Chandpur	100.0	93.7	93.7	97.2	97.2	97.3	97.3	92.5	87.3
Chittagong	96.2	91.8	91.8	92.5	92.5	92.5	92.5	81.4	78.0
Chittagong City Corporation	100.0	93.5	93.5	91.7	91.7	9inued0.6	90.6	82.8	78.6
Comilla	99.3	90.8	90.8	93.9	93.9	91.0	91.0	85.9	82.7
Comilla City Corporation	100.0	95.1	95.1	95.2	95.2	94.3	94.3	85.6	80.0
Cox's Bazar	99.5	93.1	93.1	92.1	92.1	91.8	91.8	83.8	78.0
Feni	100.0	96.6	96.6	95.6	95.6	95.7	95.7	92.3	88.80
Khagrachari	100.0	93.7	93.7	95.4	95.4	96.0	96.0	87.9	82.6
Lakshmipur	100.0	94.0	94.0	98.4	98.4	96.8	96.8	87.8	82.7
Noakhali	99.5	94.2	94.2	96.6	96.6	96.1	96.1	86.2	83.5
Rangamati	98.1	94.1	94.1	93.3	93.3	91.3	91.3	84.2	78.8
Chittagong Division	98.9	93.3	93.3	94.5	94.5	93.6	93.6	86.1	81.6
Dhaka	99.5	93.6	93.6	89.2	89.2	90.5	90.5	84.2	75.8
Dhaka North City Corporation	100.0	93.1	93.1	92.3	92.3	88.5	88.5	71.1	67.2
Dhaka South City Corporation	100.0	90.0	90.0	90.6	90.6	90.6	90.6	84.6	81.3
Faridpur	100.0	92.7	92.7	92.7	92.7	92.9	92.9	86.8	82.5
Gazipur	99.5	92.7	92.7	93.0	93.0	92.6	92.6	83.1	78.9
Gazipur City Corporation	99.0	94.1	94.1	94.6	94.6	91.7	91.7	82.6	77.5
Gopalganj	99.0	90.5	90.5	94.3	94.3	93.4	93.4	83.6	78.5
Jamalpur	100.0	95.1	95.1	95.8	95.8	94.4	94.4	90.3	87.2
Kishoreganj	100.0	98.3	98.3	97.3	97.3	97.4	97.4	91.7	90.1
Madaripur	99.0	95.1	95.1	91.7	91.7	91.6	91.6	88.3	83.6
Manikganj	100.0	92.9	92.9	95.2	95.2	93.0	93.0	88.0	83.9
Munshiganj	99.5	93.4	93.4	94.1	94.1	93.1	93.1	89.6	83.5
Mymensingh	99.5	93.4	93.4	94.5	94.5	92.0	92.0	91.1	84.3
Narayanganj	99.0	93.3	93.3	92.8	92.8	93.1	93.1	87.8	81.2
Narayanganj City Corporation	97.4	87.0	87.0	90.4	90.4	87.0	87.0	77.3	69.0
Narsingdhi	99.0	94.9	94.9	93.9	93.9	93.1	93.1	82.5	80.9
Netrokona	98.0	89.5	89.5	94.4	94.4	91.8	91.8	83.9	76.7
Rajbari	100.0	95.7	95.7	97.3	97.3	96.8	96.8	91.7	85.8
Sariatpur	99.5	90.0	90.0	94.5	94.5	92.3	92.3	85.1	79.2
Sherpur	99.5	92.2	92.2	94.4	94.4	94.6	94.6	86.5	81.3
Tangail	99.0	92.8	92.8	94.6	94.6	94.2	94.2	90.7	86.6
Dhaka Division	99.4	93.3	93.3	93.7	93.7	92.6	92.6	86.1	81.1

District/City Corporation	BCG	OPV1	PENTA1	OPV2	PENTA2	OPV3	PENTA3	MR	FVC
Bagerhat	99.0	92.9	92.9	92.9	92.9	92.9	92.9	86.0	82.8
Chuadanga	100.0	94.3	94.3	95.4	95.4	92.9	92.9	91.9	85.5
Jessore	98.5	94.5	94.5	94.5	94.5	93.1	93.1	89.6	82.9
Jhenaidah	99.0	93.3	93.3	93.4	93.4	92.8	92.8	80.8	74.9
Khulna	99.0	94.4	94.4	92.0	92.0	94.6	94.6	89.6	84.9
District/City Corporation	**BCG**	**OPV1**	**PENTA1**	**OPV2**	**PENTA2**	**OPV3**	**PENTA3**	**MR**	**FVC**
Khulna City Corporation	99.0	93.0	93.0	93.4	93.4	92.0	92.0	80.8	79.6
Kushtia	100.0	97.2	97.2	97.2	97.2	98.5	98.5	96.0	92.1
Magura	99.0	94.6	94.6	93.6	93.6	93.1	93.1	82.2	78.8
Meherpur	100.0	92.6	92.6	95.8	95.8	93.4	93.4	89.9	85.4
Narail	100.0	92.7	92.7	95.1	95.1	91.5	91.5	81.8	78.3
Satkhira	99.5	95.6	95.6	94.6	94.6	95.6	95.6	94.6	87.7
Khulna Division	99.3	94.4	94.4	94.3	94.3	94.1	94.1	88.8	83.6
Bogra	98.5	97.0	97.0	96.2	96.2	93.6	93.6	85.9	84.3
Joypurhat	100.0	93.7	93.7	96.4	96.4	98.0	98.0	93.3	88.0
Natore	100.0	97.1	97.1	96.5	96.5	96.8	96.8	90.2	86.1
Noagoan	100.0	94.7	94.7	95.5	95.5	94.2	94.2	92.0	85.0
Nowabganj	99.0	95.3	95.3	94.3	94.3	92.2	92.2	87.6	81.5
Pabna	100.0	99.4	99.4	97.7	97.7	98.9	98.9	94.4	92.1
Rajshahi	100.0	93.3	93.3	93.3	93.3	94.9	94.9	92.6	87.3
Rajshahi City Corporation	100.0	100.0	100.0	100.0	100.0	99.4	99.4	91.2	91.2
Sirajganj	98.6	94.5	94.5	93.6	93.6	92.2	92.2	88.5	84.5
Rajshahi Division	99.4	95.9	95.9	95.5	95.5	94.9	94.9	90.2	86.1
Dinajpur	99.5	96.9	96.9	95.4	95.4	96.5	96.5	90.9	84.2
Gaibandha	99.5	93.5	93.5	95.2	95.2	92.8	92.8	87.7	84.7
Kurigram	100.0	96.4	96.4	96.9	96.9	94.4	94.4	91.5	84.8
Lalmonirhat	100.0	90.5	90.5	94.1	94.1	96.3	96.3	89.0	83.5
Nilphamari	100.0	95.5	95.5	95.5	95.5	95.5	95.5	93.0	89.8
Panchagharh	97.8	91.6	91.6	93.9	93.9	92.2	92.2	88.9	84.3
Rangpur	100.0	95.6	95.6	97.8	97.8	93.9	93.9	89.9	86.0
Rangpur City Corporation	98.9	96.0	96.0	93.3	93.3	93.2	93.2	87.4	82.2
Thakurgoan	100.0	93.8	93.8	92.7	92.7	93.2	93.2	89.9	81.3
Rangpur Division	99.7	94.9	94.9	95.5	95.5	94.5	94.5	90.1	84.9
Habiganj	98.1	92.2	92.2	94.7	94.7	94.3	94.3	85.6	79.0
Moulvi Bazar	97.6	91.3	91.3	92.6	92.6	91.3	91.3	84.1	81.5
Sunamganj	95.6	86.9	86.9	90.0	90.0	88.5	88.5	70.4	64.7
Sylhet	99.0	92.3	92.3	93.9	93.9	92.5	92.5	89.0	82.6
Sylhet City Corporation	99.0	89.8	89.8	91.4	91.4	87.2	87.2	80.0	70.2
Sylhet Division	97.7	90.7	90.7	92.7	92.7	91.4	91.4	82.6	76.9
National	99.3	93.9	93.9	94.5	94.5	93.6	93.6	87.4	82.5
Rural	99.2	94.0	94.0	94.7	94.7	94.0	94.0	88.4	83.5
Urban	99.4	93.3	93.3	93.4	93.4	91.8	91.8	83.3	78.4
Dhaka City Corporation Slum	99.0	89.6	89.6	85.5	85.5	80.9	80.9	73.8	68.5
Chittagong City Corporation Slum	99.3	96.0	96.0	94.4	94.4	92.0	92.0	76.4	71.8

Tale 4a: Valid Vaccination Coverage by Age of 12 Months by District and City Corporation (Fully Vaccinated Arranged in Ascending Order by All Districts)

District/City Corporation	BCG	OPV1	PENTA1	OPV2	PENTA2	OPV3	PENTA3	MR	FVC
Sunamganj	95.6	86.9	86.9	90.0	90.0	88.5	88.5	70.4	64.7
Dhaka North City Corporation	100.0	93.1	93.1	92.3	92.3	88.5	88.5	71.1	67.2
Dhaka City Corporation Slum	99.0	89.6	89.6	85.5	85.5	80.9	80.9	73.8	68.5
Narayanganj City Corporation	97.4	87.0	87.0	90.4	90.4	87.0	87.0	77.3	69.0
Sylhet City Corporation	99.0	89.8	89.8	91.4	91.4	87.2	87.2	80.0	70.2
Chittagong City Corporation Slum	99.3	96.0	96.0	94.4	94.4	92.0	92.0	76.4	71.8
Bhola	100.0	88.8	88.8	92.1	92.1	93.7	93.7	83.3	74.1
Jhenaidah	99.0	93.3	93.3	93.4	93.4	92.8	92.8	80.8	74.9
Dhaka	99.5	93.6	93.6	89.2	89.2	90.5	90.5	84.2	75.8
Netrokona	98.0	89.5	89.5	94.4	94.4	91.8	91.8	83.9	76.7
Gazipur City Corporation	99.0	94.1	94.1	94.6	94.6	91.7	91.7	82.6	77.5
Chittagong	96.2	91.8	91.8	92.5	92.5	92.5	92.5	81.4	78.0
Cox's Bazar	99.5	93.1	93.1	92.1	92.1	91.8	91.8	83.8	78.0
Narail	100.0	92.7	92.7	95.1	95.1	91.5	91.5	81.8	78.3
Gopalganj	99.0	90.5	90.5	94.3	94.3	93.4	93.4	83.6	78.5
Chittagong City Corporation	100.0	93.5	93.5	91.7	91.7	90.6	90.6	82.8	78.6
Rangamati	98.1	94.1	94.1	93.3	93.3	91.3	91.3	84.2	78.8
Magura	99.0	94.6	94.6	93.6	93.6	93.1	93.1	82.2	78.8
Gazipur	99.5	92.7	92.7	93.0	93.0	92.6	92.6	83.1	78.9
Habiganj	98.1	92.2	92.2	94.7	94.7	94.3	94.3	85.6	79.0
Sariatpur	99.5	90.0	90.0	94.5	94.5	92.3	92.3	85.1	79.2
Bandarban	94.3	86.1	86.1	90.6	90.6	90.6	90.6	85.3	79.3
Khulna City Corporation	99.0	93.0	93.0	93.4	93.4	92.0	92.0	80.8	79.6
Comilla City Corporation	100.0	95.1	95.1	95.2	95.2	94.3	94.3	85.6	80.0
Narsingdhi	99.0	94.9	94.9	93.9	93.9	93.1	93.1	82.5	80.9
Narayanganj	99.0	93.3	93.3	92.8	92.8	93.1	93.1	87.8	81.2
Thakurgoan	100.0	93.8	93.8	92.7	92.7	93.2	93.2	89.9	81.3
Dhaka South City Corporation	100.0	90.0	90.0	90.6	90.6	90.6	90.6	84.6	81.3
Sherpur	99.5	92.2	92.2	94.4	94.4	94.6	94.6	86.5	81.3
Moulvi Bazar	97.6	91.3	91.3	92.6	92.6	91.3	91.3	84.1	81.5
Nowabganj	99.0	95.3	95.3	94.3	94.3	92.2	92.2	87.6	81.5
Brahmanbaria	99.4	96.0	96.0	95.5	95.5	93.8	93.8	89.8	81.7
Rangpur City Corporation	98.9	96.0	96.0	93.3	93.3	93.2	93.2	87.4	82.2
Faridpur	100.0	92.7	92.7	92.7	92.7	92.9	92.9	86.8	82.5
Khagrachari	100.0	93.7	93.7	95.4	95.4	96.0	96.0	87.9	82.6
Sylhet	99.0	92.3	92.3	93.9	93.9	92.5	92.5	89.0	82.6
Lakshmipur	100.0	94.0	94.0	98.4	98.4	96.8	96.8	87.8	82.7
Comilla	99.3	90.8	90.8	93.9	93.9	91.0	91.0	85.9	82.7
Bagerhat	99.0	92.9	92.9	92.9	92.9	92.9	92.9	86.0	82.8
Jessore	98.5	94.5	94.5	94.5	94.5	93.1	93.1	89.6	82.9
Munshiganj	99.5	93.4	93.4	94.1	94.1	93.1	93.1	89.6	83.5

District/City Corporation	BCG	OPV1	PENTA1	OPV2	PENTA2	OPV3	PENTA3	MR	FVC
Lalmonirhat	100.0	90.5	90.5	94.1	94.1	96.3	96.3	89.0	83.5
Noakhali	99.5	94.2	94.2	96.6	96.6	96.1	96.1	86.2	83.5
Barisal City Corporation	100.0	91.2	91.2	92.4	92.4	95.2	95.2	90.4	83.6
Madaripur	99.0	95.1	95.1	91.7	91.7	91.6	91.6	88.3	83.6
Manikganj	100.0	92.9	92.9	95.2	95.2	93.0	93.0	88.0	83.9
Dinajpur	99.5	96.9	96.9	95.4	95.4	96.5	96.5	90.9	84.2
Bogra	98.5	97.0	97.0	96.2	96.2	93.6	93.6	85.9	84.3
Mymensingh	99.5	93.4	93.4	94.5	94.5	92.0	92.0	91.1	84.3
Panchagharh	97.8	91.6	91.6	93.9	93.9	92.2	92.2	88.9	84.3
Sirajganj	98.6	94.5	94.5	93.6	93.6	92.2	92.2	88.5	84.5
Patuakhali	100.0	96.2	96.2	97.9	97.9	95.9	95.9	89.1	84.7
Gaibandha	99.5	93.5	93.5	95.2	95.2	92.8	92.8	87.7	84.7
Kurigram	100.0	96.4	96.4	96.9	96.9	94.4	94.4	91.5	84.8
Khulna	99.0	94.4	94.4	92.0	92.0	94.6	94.6	89.6	84.9
Noagoan	100.0	94.7	94.7	95.5	95.5	94.2	94.2	92.0	85.0
Meherpur	100.0	92.6	92.6	95.8	95.8	93.4	93.4	89.9	85.4
Chuadanga	100.0	94.3	94.3	95.4	95.4	92.9	92.9	91.9	85.5
Rajbari	100.0	95.7	95.7	97.3	97.3	96.8	96.8	91.7	85.8
Rangpur	100.0	95.6	95.6	97.8	97.8	93.9	93.9	89.9	86.0
Natore	100.0	97.1	97.1	96.5	96.5	96.8	96.8	90.2	86.1
Tangail	99.0	92.8	92.8	94.6	94.6	94.2	94.2	90.7	86.6
Jamalpur	100.0	95.1	95.1	95.8	95.8	94.4	94.4	90.3	87.2
Chandpur	100.0	93.7	93.7	97.2	97.2	97.3	97.3	92.5	87.3
Rajshahi	100.0	93.3	93.3	93.3	93.3	94.9	94.9	92.6	87.3
Satkhira	99.5	95.6	95.6	94.6	94.6	95.6	95.6	94.6	87.7
Joypurhat	100.0	93.7	93.7	96.4	96.4	98.0	98.0	93.3	88.0
Feni	100.0	96.6	96.6	95.6	95.6	95.7	95.7	92.3	88.80
Perojpur	100.0	96.9	96.9	96.4	96.4	95.9	95.9	92.9	89.3
Nilphamari	100.0	95.5	95.5	95.5	95.5	95.5	95.5	93.0	89.8
Jhalakati	100.0	97.8	97.8	96.7	96.7	97.8	97.8	93.4	90.0
Kishoreganj	100.0	98.3	98.3	97.3	97.3	97.4	97.4	91.7	90.1
Barguna	100.0	96.8	96.8	97.3	97.3	97.3	97.3	94.1	90.9
Rajshahi City Corporation	100.0	100.0	100.0	100.0	100.0	99.4	99.4	91.2	91.2
Pabna	100.0	99.4	99.4	97.7	97.7	98.9	98.9	94.4	92.1
Kushtia	100.0	97.2	97.2	97.2	97.2	98.5	98.5	96.0	92.1
Barisal	100.0	99.0	99.0	99.0	99.0	99.5	99.5	94.1	92.2
National	99.3	93.9	93.9	94.5	94.5	93.6	93.6	87.4	82.5
Rural	99.2	94.0	94.0	94.7	94.7	94.0	94.0	88.4	83.5
Urban	99.4	93.3	93.3	93.4	93.4	91.8	91.8	83.3	78.4

Table 4b: Valid Vaccination Coverage by Age of 12 Months by District and City Corporation (Ascending Order)

District/City Corporation	BCG	OPV1	PENTA1	OPV2	PENTA2	OPV3	PENTA3	MR	FVC
Bhola	100.0	88.8	88.8	92.1	92.1	93.7	93.7	83.3	74.1
Barisal City Corporation	100.0	91.2	91.2	92.4	92.4	95.2	95.2	90.4	83.6
Patuakhali	100.0	96.2	96.2	97.9	97.9	95.9	95.9	89.1	84.7
Perojpur	100.0	96.9	96.9	96.4	96.4	95.9	95.9	92.9	89.3
Jhalakati	100.0	97.8	97.8	96.7	96.7	97.8	97.8	93.4	90.0
Barguna	100.0	96.8	96.8	97.3	97.3	97.3	97.3	94.1	90.9
Barisal	100.0	99.0	99.0	99.0	99.0	99.5	99.5	94.1	92.2
Barisal Division	100.0	95.5	95.5	96.4	96.4	96.6	96.6	90.6	86.0
Chittagong	96.2	91.8	91.8	92.5	92.5	92.5	92.5	81.4	78.0
Cox's Bazar	99.5	93.1	93.1	92.1	92.1	91.8	91.8	83.8	78.0
Chittagong City Corporation	100.0	93.5	93.5	91.7	91.7	90.6	90.6	82.8	78.6
Rangamati	98.1	94.1	94.1	93.3	93.3	91.3	91.3	84.2	78.8
Bandarban	94.3	86.1	86.1	90.6	90.6	90.6	90.6	85.3	79.3
Comilla City Corporation	100.0	95.1	95.1	95.2	95.2	94.3	94.3	85.6	80.0
Brahmanbaria	99.4	96.0	96.0	95.5	95.5	93.8	93.8	89.8	81.7
Khagrachari	100.0	93.7	93.7	95.4	95.4	96.0	96.0	87.9	82.6
Lakshmipur	100.0	94.0	94.0	98.4	98.4	96.8	96.8	87.8	82.7
Comilla	99.3	90.8	90.8	93.9	93.9	91.0	91.0	85.9	82.7
Noakhali	99.5	94.2	94.2	96.6	96.6	96.1	96.1	86.2	83.5
Chandpur	100.0	93.7	93.7	97.2	97.2	97.3	97.3	92.5	87.3
Feni	100.0	96.6	96.6	95.6	95.6	95.7	95.7	92.3	88.80
Chittagong Division	98.9	93.3	93.3	94.5	94.5	93.6	93.6	86.1	81.6
Dhaka North City Corporation	100.0	93.1	93.1	92.3	92.3	88.5	88.5	71.1	67.2
Narayanganj City Corporation	97.4	87.0	87.0	90.4	90.4	87.0	87.0	77.3	69.0
Dhaka	99.5	93.6	93.6	89.2	89.2	90.5	90.5	84.2	75.8
Netrokona	98.0	89.5	89.5	94.4	94.4	91.8	91.8	83.9	76.7
Gazipur City Corporation	99.0	94.1	94.1	94.6	94.6	91.7	91.7	82.6	77.5
Gopalganj	99.0	90.5	90.5	94.3	94.3	93.4	93.4	83.6	78.5
Gazipur	99.5	92.7	92.7	93.0	93.0	92.6	92.6	83.1	78.9
Sariatpur	99.5	90.0	90.0	94.5	94.5	92.3	92.3	85.1	79.2
Narsingdhi	99.0	94.9	94.9	93.9	93.9	93.1	93.1	82.5	80.9
Narayanganj	99.0	93.3	93.3	92.8	92.8	93.1	93.1	87.8	81.2
Dhaka South City Corporation	100.0	90.0	90.0	90.6	90.6	90.6	90.6	84.6	81.3
Sherpur	99.5	92.2	92.2	94.4	94.4	94.6	94.6	86.5	81.3
Faridpur	100.0	92.7	92.7	92.7	92.7	92.9	92.9	86.8	82.5
Munshiganj	99.5	93.4	93.4	94.1	94.1	93.1	93.1	89.6	83.5
Madaripur	99.0	95.1	95.1	91.7	91.7	91.6	91.6	88.3	83.6
Manikganj	100.0	92.9	92.9	95.2	95.2	93.0	93.0	88.0	83.9
Mymensingh	99.5	93.4	93.4	94.5	94.5	92.0	92.0	91.1	84.3
Rajbari	100.0	95.7	95.7	97.3	97.3	96.8	96.8	91.7	85.8
Tangail	99.0	92.8	92.8	94.6	94.6	94.2	94.2	90.7	86.6
Jamalpur	100.0	95.1	95.1	95.8	95.8	94.4	94.4	90.3	87.2
Kishoreganj	100.0	98.3	98.3	97.3	97.3	97.4	97.4	91.7	90.1
Dhaka Division	99.4	93.3	93.3	93.7	93.7	92.6	92.6	86.1	81.1

District/City Corporation	BCG	OPV1	PENTA1	OPV2	PENTA2	OPV3	PENTA3	MR	FVC
Jhenaidah	99.0	93.3	93.3	93.4	93.4	92.8	92.8	80.8	74.9
Narail	100.0	92.7	92.7	95.1	95.1	91.5	91.5	81.8	78.3
Magura	99.0	94.6	94.6	93.6	93.6	93.1	93.1	82.2	78.8
Khulna City Corporation	99.0	93.0	93.0	93.4	93.4	92.0	92.0	80.8	79.6
Bagerhat	99.0	92.9	92.9	92.9	92.9	92.9	92.9	86.0	82.8
Jessore	98.5	94.5	94.5	94.5	94.5	93.1	93.1	89.6	82.9
Khulna	99.0	94.4	94.4	92.0	92.0	94.6	94.6	89.6	84.9
Meherpur	100.0	92.6	92.6	95.8	95.8	93.4	93.4	89.9	85.4
Chuadanga	100.0	94.3	94.3	95.4	95.4	92.9	92.9	91.9	85.5
Satkhira	99.5	95.6	95.6	94.6	94.6	95.6	95.6	94.6	87.7
Kushtia	100.0	97.2	97.2	97.2	97.2	98.5	98.5	96.0	92.1
Khulna Division	99.3	94.4	94.4	94.3	94.3	94.1	94.1	88.8	83.6
Nowabganj	99.0	95.3	95.3	94.3	94.3	92.2	92.2	87.6	81.5
Bogra	98.5	97.0	97.0	96.2	96.2	93.6	93.6	85.9	84.3
Sirajganj	98.6	94.5	94.5	93.6	93.6	92.2	92.2	88.5	84.5
Noagoan	100.0	94.7	94.7	95.5	95.5	94.2	94.2	92.0	85.0
Natore	100.0	97.1	97.1	96.5	96.5	96.8	96.8	90.2	86.1
Rajshahi	100.0	93.3	93.3	93.3	93.3	94.9	94.9	92.6	87.3
Rajshahi City Corporation	100.0	100.0	100.0	100.0	100.0	99.4	99.4	91.2	91.2
Pabna	100.0	99.4	99.4	97.7	97.7	98.9	98.9	94.4	92.1
Rajshahi Division	99.4	95.9	95.9	95.5	95.5	94.9	94.9	90.2	86.1
Thakurgoan	100.0	93.8	93.8	92.7	92.7	93.2	93.2	89.9	81.3
Rangpur City Corporation	98.9	96.0	96.0	93.3	93.3	93.2	93.2	87.4	82.2
Lalmonirhat	100.0	90.5	90.5	94.1	94.1	96.3	96.3	89.0	83.5
Panchagharh	97.8	91.6	91.6	93.9	93.9	92.2	92.2	88.9	84.3
Kurigram	100.0	96.4	96.4	96.9	96.9	94.4	94.4	91.5	84.8
Rangpur	100.0	95.6	95.6	97.8	97.8	93.9	93.9	89.9	86.0
Nilphamari	100.0	95.5	95.5	95.5	95.5	95.5	95.5	93.0	89.8
Rangpur Division	99.7	94.9	94.9	95.5	95.5	94.5	94.5	90.1	84.9
Sunamganj	95.6	86.9	86.9	90.0	90.0	88.5	88.5	70.4	64.7
Sylhet City Corporation	99.0	89.8	89.8	91.4	91.4	87.2	87.2	80.0	70.2
Habiganj	98.1	92.2	92.2	94.7	94.7	94.3	94.3	85.6	79.0
Moulvi Bazar	97.6	91.3	91.3	92.6	92.6	91.3	91.3	84.1	81.5
Sylhet	99.0	92.3	92.3	93.9	93.9	92.5	92.5	89.0	82.6
Sylhet Division	97.7	90.7	90.7	92.7	92.7	91.4	91.4	82.6	76.9
National	99.3	93.9	93.9	94.5	94.5	93.6	93.6	87.4	82.5
Rural	99.2	94.0	94.0	94.7	94.7	94.0	94.0	88.4	83.5
Urban	99.4	93.3	93.3	93.4	93.4	91.8	91.8	83.3	78.4
Dhaka City Corporation Slum	99.0	89.6	89.6	85.5	85.5	80.9	80.9	73.8	68.5
Chittagong City Corporation Slum	99.3	96.0	96.0	94.4	94.4	92.0	92.0	76.4	71.8

Table 5: Vaccination Drop-out Rate for Penta1-Penta3 and Penta1-MR by Age of 23 Months by District and City Corporation

District/City Corporation	Dropout rate Penta1 to Penta3			Dropout rate Penta1 to MR		
	Male	Female	Both	Male	Female	Both
Barguna	0	0	0	0	0	0
Barisal	0	0	0	0	0	0
Barisal City Corporation	0	1.1	0.5	0	2.2	1.0
Bhola	0.9	1.1	1.0	3.5	5.3	4.3
Jhalakati	0.9	0.0	0.5	0.9	0.0	0.5
Patuakhali	0.8	3.3	1.9	2.5	5.5	3.8
Perojpur	0.9	0.0	0.5	1.8	1.0	1.4
Barisal Division	0.5	0.8	0.7	1.6	2.3	1.9
Bandarban	2.6	1.2	2.0	6.1	2.4	4.5
Brahmanbaria	0.0	1.0	0.5	1.9	4.9	3.3
Chandpur	0.0	1.9	1.0	1.0	4.8	2.9
Chittagong	1.9	0.0	1.0	3.8	5.2	4.5
Chittagong City Corporation	4.1	9.1	6.2	8.2	8.0	8.1
Comilla	1.8	2.0	1.9	4.5	6.0	5.2
Comilla City Corporation	2.8	1.0	1.9	3.7	3.9	3.8
Cox's Bazar	2.7	4.1	3.3	9.0	7.1	8.1
Feni	1.8	1.0	1.4	4.5	4.0	4.3
Khagrachari	0.9	3.0	1.9	3.7	6.0	4.8
Lakshmipur	1.7	1.1	1.4	5.1	7.5	6.2
Noakhali	0.9	2.0	1.4	7.3	9.0	8.1
Rangamati	2.1	3.6	2.9	5.3	4.5	4.9
Chittagong Division	1.7	2.1	1.9	4.9	6.1	5.4
Dhaka	2.8	1.9	2.4	8.5	6.8	7.7
Dhaka North City Corporation	3.7	8.8	6.2	13.0	14.7	13.8
Dhaka South City Corporation	2.8	4.0	3.3	5.5	5.9	5.7
Faridpur	4.6	4.9	4.8	8.3	7.8	8.1
Gazipur	1.8	3.2	2.4	5.3	4.2	4.8
Gazipur City Corporation	2.8	2.0	2.4	7.3	7.1	7.2
Gopalganj	1.7	1.1	1.4	5.2	6.5	5.8
Jamalpur	1.7	3.2	2.4	6.0	5.4	5.7
Kishoreganj	0.9	1.0	1.0	2.8	5.8	4.3
Madaripur	3.6	2.1	2.9	3.6	3.1	3.4
Manikganj	0.9	1.9	1.4	4.7	4.9	4.8
Munshiganj	1.0	0.9	1.0	6.0	0.9	3.3
Mymensingh	2.0	2.8	2.4	3.0	6.5	4.8
Narayanganj	0.0	7.8	3.8	4.8	10.7	7.7
Narayanganj City Corporation	3.1	6.5	4.9	10.2	14.8	12.6
Narsingdhi	1.9	3.0	2.4	1.9	7.9	4.8
Netrokona	1.0	2.9	1.9	2.0	5.7	3.9
Rajbari	0.0	0.0	0.0	1.8	3.0	2.4
Sariatpur	2.0	0.9	1.4	3.0	0.9	1.9
Sherpur	0.0	1.9	1.0	6.7	4.8	5.7
Tangail	0.9	2.2	1.4	4.3	4.4	4.3
Dhaka Division	2.0	3.2	2.6	5.6	6.7	6.2

District/City Corporation	Dropout rate Penta1 to Penta3			Dropout rate Penta1 to MR		
	Male	Female	Both	Male	Female	Both
Chuadanga	0.8	4.5	2.4	0.8	5.6	2.9
Jessore	0.0	3.7	1.9	1.0	5.6	3.4
Jhenaidah	0.0	2.2	1.0	2.6	7.7	4.8
Khulna	1.8	2.0	1.9	5.5	4.1	4.8
Khulna City Corporation	1.0	4.6	2.9	8.2	10.1	9.2
Kushtia	1.0	0.9	1.0	2.9	2.8	2.9
Magura	0.9	1.0	1.0	5.5	8.0	6.7
Meherpur	2.6	2.1	2.4	5.2	6.4	5.7
Narail	2.9	3.7	3.3	7.8	11.1	9.5
Satkhira	1.8	0.0	1.0	2.8	0.0	1.4
Khulna Division	1.0	2.1	1.5	3.5	4.9	4.2
Bogra	3.6	3.1	3.4	6.4	8.3	7.3
Joypurhat	1.7	0.0	1.0	2.5	0.0	1.4
Natore	1.8	1.0	1.4	3.6	3.1	3.3
Noagoan	2.7	3.1	2.9	4.5	4.1	4.3
Nowabganj	0.9	2.2	1.4	4.3	4.3	4.3
Pabna	0.0	0.9	0.5	0	1.9	1.0
Rajshahi	0.0	1.0	0.5	0	2.0	1.0
Rajshahi City Corporation	0.0	0.0	0.0	1.7	3.2	2.4
Sirajganj	2.8	2.0	2.4	7.4	7.1	7.2
Rajshahi Division	1.8	1.9	1.9	3.9	4.5	4.2
Dinajpur	0.0	1.0	0.5	0.9	3.1	1.9
Gaibandha	4.6	1.0	2.9	6.4	6.1	6.3
Kurigram	1.1	0.0	0.5	4.2	3.5	3.8
Lalmonirhat	0.0	0.0	0.5	0	0.9	0.5
Nilphamari	0	0	0	2.0	0.9	1.4
Panchagharh	1.1	0	0.5	1.1	2.5	1.9
Rangpur	1.0	5.6	3.3	2.0	9.3	5.7
Rangpur City Corporation	0.9	5.1	2.9	1.8	8.2	4.8
Thakurgoan	0	1.0	0.5	0.9	1.0	1.0
Rangpur Division	1.1	1.5	1.3	2.4	4.0	3.2
Habiganj	0.0	1.8	1.0	2.1	2.7	2.4
Moulvi Bazar	2.9	5.0	3.9	5.8	8.0	6.9
Sunamganj	3.8	2.0	3.0	8.7	6.1	7.4
Sylhet	0.0	4.1	1.9	0.9	8.2	4.3
Sylhet City Corporation	3.8	3.0	3.4	4.8	8.9	6.8
Sylhet Division	1.7	3.2	2.4	4.2	6.4	5.3
National	1.6	2.4	2.0	4.3	5.5	4.9
Rural	1.4	1.9	1.6	3.8	4.9	4.4
Urban	2.3	4.4	3.3	6.3	8.0	7.1
Dhaka City Corporation Slum	8.5	11.1	9.8	16.0	17.2	16.6
Chittagong City Corporation Slum	2.7	4.1	3.3	12.5	12.2	12.4

Table 6: Incidence of Invalid Penta 1, Penta 2, Penta 3, MR Doses by Age of 12 Months by District and City Corporation

District/City Corporation	Invalid Penta1	Invalid Penta2	Invalid Penta3	Invalid MR
Barguna	2.1	3.7	4.8	4.4
Barisal	1.0	2.0	2.4	4.9
Barisal City Corporation	4.7	7.7	10.3	4.5
Bhola	9.6	13.9	16.7	9.4
Jhalakati	1.7	3.4	3.4	1.8
Patuakhali	3.2	4.9	6.1	2.4
Perojpur	1.5	3.6	5.2	2.7
Barisal Division	3.6	5.7	7.1	4.8
Bandarban	6.8	7.6	8.2	2.7
Brahmanbaria	2.9	5.7	10.3	4.9
Chandpur	4.6	5.2	5.8	3.0
Chittagong	3.4	4.6	6.4	5.7
Chittagong City Corporation	3.2	4.7	6.8	5.2
Comilla	4.3	4.3	5.9	1.7
Comilla City Corporation	3.1	6.2	8.4	2.8
Cox's Bazar	3.8	7.1	8.4	3.6
Feni	1.7	3.4	4.6	2.4
Khagrachari	4.8	5.8	6.4	3.5
Lakshmipur	4.8	4.8	6.1	2.0
Noakhali	3.3	3.4	3.4	2.2
Rangamati	2.9	4.0	7.1	3.3
Chittagong Division	3.7	4.8	6.5	3.6
Dhaka	3.0	7.6	9.2	3.5
Dhaka North City Corporation	4.6	6.2	7.3	6.0
Dhaka South City Corporation	5.6	7.1	9.0	4.1
Faridpur	3.4	4.0	4.8	3.8
Gazipur	2.9	4.6	5.3	2.1
Gazipur City Corporation	2.1	3.6	6.6	0.9
Gopalganj	5.4	6.5	6.5	2.5
Jamalpur	2.8	2.8	3.4	1.2
Kishoreganj	0.6	1.7	2.3	0.6
Madaripur	0.7	2.7	3.4	2.2
Manikganj	3.8	4.4	7.8	1.9
Munshiganj	3.3	5.0	7.3	2.4
Mymensingh	3.1	4.7	6.4	0.6
Narayanganj	3.6	5.9	6.8	3.2
Narayanganj City Corporation	7.2	8.8	11.3	3.5
Narsingdhi	0.6	1.2	2.5	6.0
Netrokona	6.0	7.2	9.6	4.9
Rajbari	3.2	4.8	7.5	1.7
Sariatpur	4.5	5.8	7.9	4.4
Sherpur	2.8	3.5	4.7	2.5
Tangail	2.4	3.0	4.2	1.9
Dhaka Division	3.2	4.7	6.2	2.6

District/City Corporation	Invalid Penta1	Invalid Penta2	Invalid Penta3	Invalid MR
Bagerhat	1.6	3.1	3.7	4.2
Chuadanga	3.1	4.7	7.0	1.7
Jessore	3.1	4.7	6.4	3.3
Jhenaidah	3.2	5.8	8.8	5.7
Khulna	2.1	5.3	5.9	3.4
Khulna City Corporation	3.8	4.5	5.2	1.5
Kushtia	1.7	4.0	4.0	1.1
Magura	1.1	2.2	4.0	3.9
Meherpur	4.3	4.3	4.9	1.8
Narail	4.5	5.2	6.0	4.1
Satkhira	2.5	5.4	7.0	1.5
Khulna Division	2.6	4.6	5.9	2.9
Bogra	1.1	1.2	1.2	2.5
Joypurhat	4.7	6.9	7.0	2.2
Natore	1.7	4.1	4.8	3.1
Noagoan	1.8	4.2	6.1	0.7
Nowabganj	2.2	4.4	6.8	0.6
Pabna	0.0	1.7	2.3	2.4
Rajshahi	2.2	3.4	5.2	2.5
Rajshahi City Corporation	0.0	0.0	0.0	2.7
Sirajganj	2.4	3.6	4.2	0.7
Rajshahi Division	1.7	3.2	4.1	1.8
Dinajpur	2.6	5.7	7.8	2.7
Gaibandha	2.8	3.4	4.7	2.6
Kurigram	1.5	3.1	6.3	1.7
Lalmonirhat	5.3	7.4	7.5	4.2
Nilphamari	1.5	3.0	4.5	2.7
Panchagharh	2.9	3.5	5.8	3.8
Rangpur	3.3	4.9	6.8	0.6
Rangpur City Corporation	1.2	4.3	5.0	2.1
Thakurgoan	2.6	6.7	10.0	4.0
Rangpur Division	2.6	4.6	6.6	2.5
Habiganj	4.9	6.8	8.7	6.0
Moulvi Bazar	3.9	4.5	4.6	5.4
Sunamganj	5.2	6.0	8.0	8.9
Sylhet	3.7	4.7	6.5	1.2
Sylhet City Corporation	7.0	8.7	10.7	1.8
Sylhet Division	4.4	5.5	7.0	4.7
National	3.1	4.6	6.1	3.0
Rural	3.0	4.6	6.0	2.9
Urban	3.3	4.8	6.5	3.4
Dhaka City Corporation Slum	3.4	7.9	8.2	1.9
Chittagong City Corporation Slum	1.3	3.4	4.2	4.1

Table 7: Measles Second Dose (MSD) Vaccination Coverage by District and City Corporation

District/City Corporation	Crude MSD	Valid MSD by Age of 18 Months	Valid MSD by Age of 23 Months
Barguna	99.0	89.0	93.1
Barisal	100.0	93.1	95.1
Barisal City Corporation	97.6	81.5	89.9
Bhola	87.1	68.8	77.7
Jhalakati	93.3	82.7	86.6
Patuakhali	85.2	79.9	84.1
Perojpur	96.2	89.5	92.1
Barisal Division	**93.3**	**83.4**	**87.9**
Bandarban	82.9	75.8	77.9
Brahmanbaria	91.4	78.7	84.0
Chandpur	91.9	80.1	84.7
Chittagong	84.3	75.4	79.8
Chittagong City Corporation	72.9	63.7	70.0
Comilla	78.6	67.7	75.2
Comilla City Corporation	91.0	70.5	78.1
Cox's Bazar	80.5	67.6	74.4
Feni	88.1	82.1	83.9
Khagrachari	87.6	79.3	81.7
Lakshmipur	88.1	77.7	82.9
Noakhali	73.8	63.8	68.4
Rangamati	84.8	79.6	83.5
Chittagong Division	**82.9**	**72.7**	**77.8**
Dhaka	81.4	69.8	77.0
Dhaka North City Corporation	73.8	62.8	67.8
Dhaka South City Corporation	86.2	62.8	71.6
Faridpur	81.4	71.2	78.7
Gazipur	80.0	64.3	74.3
Gazipur City Corporation	77.6	72.1	76.7
Gopalganj	91.4	76.0	84.9
Jamalpur	82.9	75.2	78.2
Kishoreganj	84.8	77.9	82.5
Madaripur	84.3	64.0	75.3
Manikganj	90.5	81.0	86.9
Munshiganj	87.1	75.9	79.9
Mymensingh	88.1	80.4	85.1
Narayanganj	78.6	63.9	73.2
Narayanganj City Corporation	80.5	64.1	73.4
Narsingdhi	80.5	65.9	74.8
Netrokona	80.0	67.9	72.4
Rajbari	91.9	81.7	87.1
Sariatpur	86.7	75.7	82.3
Sherpur	84.8	74.0	78.4
Tangail	82.9	76.5	80.0
Dhaka Division	**83.0**	**72.3**	**78.2**

District/City Corporation	Crude MSD	Valid MSD by Age of 18 Months	Valid MSD by Age of 23 Months
Bagerhat	93.3	79.2	85.7
Chuadanga	91.0	84.4	86.6
Jessore	87.1	74.4	82.6
Jhenaidah	88.1	72.2	78.9
Khulna	83.3	76.0	79.9
Khulna City Corporation	63.3	55.2	61.1
Kushtia	90.0	82.1	87.0
Magura	83.8	70.7	79.2
Meherpur	88.6	81.9	84.9
Narail	77.1	63.3	72.5
Satkhira	93.3	86.3	91.6
Khulna Division	**87.2**	**76.8**	**82.7**
Bogra	84.8	71.8	78.9
Joypurhat	94.3	85.4	89.8
Natore	88.1	83.7	85.6
Noagoan	87.6	80.1	85.7
Nowabganj	86.7	80.5	84.4
Pabna	90.5	82.0	86.9
Rajshahi	89.0	79.2	85.3
Rajshahi City Corporation	91.4	84.2	88.5
Sirajganj	83.3	75.2	77.9
Rajshahi Division	**87.3**	**78.6**	**83.4**
Dinajpur	92.9	85.7	89.0
Gaibandha	80.0	74.9	78.3
Kurigram	82.4	75.6	79.3
Lalmonirhat	84.3	78.7	80.4
Nilphamari	90.0	82.5	87.5
Panchagharh	93.3	82.9	87.8
Rangpur	82.4	78.2	82.4
Rangpur City Corporation	81.9	70.1	79.0
Thakurgoan	91.4	83.0	89.0
Rangpur Division	**86.5**	**79.8**	**83.8**
Habiganj	84.3	68.1	75.2
Moulvi Bazar	85.2	77.9	81.3
Sunamganj	73.8	60.3	65.5
Sylhet	91.0	81.8	86.4
Sylhet City Corporation	78.1	64.7	75.0
Sylhet Division	**83.5**	**72.4**	**77.4**
National	85.0	75.3	80.5
Rural	85.9	76.4	81.5
Urban	81.6	70.2	76.4
Dhaka City Corporation Slum	65.2	54.9	61.8
Chittagong City Corporation Slum	70.5	54.6	64.1

Table 8: Crude TT Vaccination Coverage among Mothers with Children 0-11 Months Old Children by District and City Corporation

District/City Corporation	Crude TT1	Crude TT2	Crude TT3	Crude TT4	Crude TT5
Barguna	100.0	99.5	95.7	81.4	66.7
Barisal	100.0	100.0	95.7	79.5	62.9
Barisal City Corporation	100.0	100.0	92.9	81.0	67.6
Bhola	96.2	91.4	78.1	71.0	59.5
Jhalakati	100.0	99.0	91.4	81.0	68.6
Patuakhali	98.1	95.7	90.0	72.4	56.7
Perojpur	100.0	99.0	91.9	78.6	56.2
Barisal Division	**98.8**	**97.1**	**89.9**	**76.6**	**61.2**
Bandarban	92.9	89.5	87.1	80.0	73.3
Brahmanbaria	99.0	98.6	93.8	89.0	80.0
Chandpur	99.5	98.6	94.8	81.4	66.7
Chittagong	99.0	98.1	93.3	79.0	68.1
Chittagong City Corporation	96.7	93.8	75.2	55.2	41.4
Comilla	99.5	99.0	93.8	81.4	64.3
Comilla City Corporation	99.5	99.0	95.7	87.6	74.3
Cox's Bazar	99.0	98.6	94.8	89.5	75.2
Feni	99.0	97.6	93.3	86.2	72.4
Khagrachari	95.7	94.3	86.7	73.8	61.0
Lakshmipur	98.6	97.6	91.4	78.1	60.0
Noakhali	98.1	95.7	86.7	68.1	57.6
Rangamati	93.8	92.9	83.8	68.1	52.9
Chittagong Division	**98.6**	**97.4**	**91.1**	**78.6**	**65.3**
Dhaka	94.8	94.3	81.9	71.4	51.9
Dhaka North City Corporation	91.9	90.5	79.0	63.3	50.0
Dhaka South City Corporation	84.3	83.8	75.2	66.2	51.9
Faridpur	99.0	96.7	88.1	77.6	60.0
Gazipur	96.7	93.8	84.8	76.2	63.8
Gazipur City Corporation	97.6	96.2	85.7	70.0	51.9
Gopalganj	96.2	94.8	82.9	71.4	56.7
Jamalpur	99.5	99.0	90.0	76.7	59.0
Kishoreganj	97.6	95.2	91.4	78.6	62.9
Madaripur	98.1	96.7	87.6	72.4	60.5
Manikganj	95.2	95.2	88.1	69.0	51.9
Munshiganj	93.3	92.9	89.0	75.7	61.4
Mymensingh	98.1	96.7	89.0	76.7	62.9
Narayanganj	97.1	94.3	84.3	70.0	56.2
Narayanganj City Corporation	94.8	92.4	81.0	68.1	52.9
Narsingdhi	99.5	96.7	84.8	67.1	53.3
Netrokona	97.6	97.1	88.1	74.3	57.6
Rajbari	98.6	98.1	90.0	79.0	61.0
Sariatpur	98.6	97.1	91.9	81.9	72.9
Sherpur	98.1	97.6	94.8	84.8	62.9
Tangail	98.6	97.1	88.1	78.1	63.8
Dhaka Division	**96.2**	**94.9**	**86.0**	**73.3**	**57.7**

District/City Corporation	Crude TT1	Crude TT2	Crude TT3	Crude TT4	Crude TT5
Bagerhat	98.6	97.6	93.3	79.5	67.1
Chuadanga	99.0	98.1	93.8	80.0	64.3
Jessore	98.6	97.6	93.8	81.0	65.2
Jhenaidah	97.6	94.8	81.4	69.5	49.5
Khulna	97.6	93.8	86.2	71.9	51.0
Khulna City Corporation	96.7	94.8	81.4	65.7	50.0
Kushtia	99.5	98.1	90.0	71.9	55.7
Magura	98.6	96.7	91.4	81.9	69.5
Meherpur	98.6	95.7	87.1	74.3	60.5
Narail	97.6	95.2	85.2	71.0	57.1
Satkhira	100.0	98.6	92.4	74.8	56.2
Khulna Division	**98.6**	**96.7**	**89.6**	**75.3**	**58.8**
Bogra	99.5	97.6	91.0	78.1	63.3
Joypurhat	98.6	97.1	90.5	84.3	68.1
Natore	99.0	98.1	93.8	85.7	68.1
Noagoan	99.0	98.6	94.3	83.8	67.1
Nowabganj	98.1	97.1	92.4	78.1	59.0
Pabna	100.0	100.0	91.9	81.0	67.1
Rajshahi	98.6	97.1	91.4	72.4	56.7
Rajshahi City Corporation	100.0	99.5	97.1	88.6	72.9
Sirajganj	98.6	97.1	87.1	74.3	57.6
Rajshahi Division	**99.0**	**98.0**	**91.5**	**79.3**	**63.2**
Dinajpur	98.1	97.6	91.0	74.8	59.5
Gaibandha	99.0	98.1	91.0	76.2	58.6
Kurigram	99.5	99.0	92.4	77.6	64.3
Lalmonirhat	98.1	95.7	90.0	79.5	61.4
Nilphamari	98.6	97.1	88.6	75.2	60.5
Panchagharh	100.0	99.0	95.2	84.8	65.7
Rangpur	99.5	99.0	93.3	82.4	68.6
Rangpur City Corporation	99.0	97.6	91.4	83.3	66.7
Thakurgoan	98.1	97.1	92.4	80.5	62.9
Rangpur Division	**98.8**	**97.9**	**91.6**	**78.3**	**62.5**
Habiganj	96.2	95.2	90.5	77.6	62.9
Moulvi Bazar	97.6	97.1	94.3	85.2	77.6
Sunamganj	93.8	91.4	82.9	74.3	62.9
Sylhet	97.6	94.8	88.1	73.3	62.9
Sylhet City Corporation	94.3	91.4	89.0	76.7	60.5
Sylhet Division	**96.2**	**94.3**	**88.5**	**76.9**	**65.6**
National	**97.7**	**96.4**	**89.1**	**76.3**	**61.3**
Rural	98.2	96.9	90.1	77.3	62.3
Urban	96.0	94.5	85.0	72.4	57.1
Dhaka City Corporation Slum	94.8	90.0	80.0	64.3	46.2
Chittagong City Corporation Slum	96.7	94.8	85.7	71.4	56.7

Table 9: Valid TT Vaccination Coverage among Mothers with Children 0-11 Months Old Children by District and City Corporation

District/City Corporation	Valid TT1	Valid TT2	Valid TT3	Valid TT4	Valid TT5
Barguna	100.0	99.5	93.3	71.9	51.0
Barisal	100.0	100.0	95.2	75.7	55.7
Barisal City Corporation	100.0	100.0	88.6	70.5	46.7
Bhola	96.2	90.5	74.3	60.5	42.4
Jhalakati	100.0	99.0	90.0	78.6	58.6
Patuakhali	98.1	95.7	84.3	62.9	34.3
Perojpur	100.0	99.0	91.0	75.7	49.0
Barisal Division	**98.8**	**96.9**	**87.3**	**69.7**	**47.4**
Bandarban	92.9	89.0	85.7	77.6	66.7
Brahmanbaria	99.0	98.6	91.9	82.9	68.1
Chandpur	99.5	98.6	92.4	72.9	45.2
Chittagong	99.0	98.1	91.0	74.3	53.8
Chittagong City Corporation	96.7	93.3	67.1	41.9	26.2
Comilla	99.5	99.0	88.6	68.1	41.4
Comilla City Corporation	99.5	99.0	94.3	80.5	60.5
Cox's Bazar	99.0	98.6	94.8	86.7	60.0
Feni	99.0	97.6	91.4	81.9	62.4
Khagrachari	95.7	94.3	82.4	69.5	48.6
Lakshmipur	98.6	97.1	87.6	74.3	45.7
Noakhali	98.1	95.7	82.4	59.0	42.9
Rangamati	93.8	92.9	81.4	55.2	38.6
Chittagong Division	**98.6**	**97.4**	**87.7**	**70.7**	**49.2**
Dhaka	94.8	93.8	77.1	63.8	42.9
Dhaka North City Corporation	91.9	90.5	70.0	46.7	29.5
Dhaka South City Corporation	84.3	83.8	72.9	62.4	50.0
Faridpur	99.0	96.7	84.8	71.0	49.5
Gazipur	96.7	93.8	81.0	70.0	51.4
Gazipur City Corporation	97.6	96.2	80.5	59.0	35.7
Gopalganj	96.2	94.3	77.1	57.1	37.1
Jamalpur	99.5	99.0	82.9	61.0	44.3
Kishoreganj	97.6	95.2	83.8	66.2	46.2
Madaripur	98.1	96.7	82.4	66.2	48.6
Manikganj	95.2	95.2	85.7	64.8	43.8
Munshiganj	93.3	92.9	87.6	71.9	52.4
Mymensingh	98.1	96.7	88.1	71.4	49.5
Narayanganj	97.1	94.3	79.0	61.0	40.5
Narayanganj City Corporation	94.8	92.4	77.6	62.9	42.4
Narsingdhi	99.5	96.7	82.9	60.0	41.9
Netrokona	97.6	97.1	86.7	69.0	45.7
Rajbari	98.6	98.1	88.1	76.7	49.5
Sariatpur	98.6	97.1	90.5	78.6	63.3
Sherpur	98.1	97.6	90.5	71.4	48.6
Tangail	98.6	96.7	85.7	69.5	51.9
Dhaka Division	**96.2**	**94.8**	**81.9**	**64.8**	**45.1**

District/City Corporation	Valid TT1	Valid TT2	Valid TT3	Valid TT4	Valid TT5
Bagerhat	98.6	97.6	91.9	76.7	55.2
Chuadanga	99.0	98.1	88.1	71.0	51.0
Jessore	98.6	97.6	92.4	75.2	50.0
Jhenaidah	97.6	94.8	77.1	59.0	35.7
Khulna	97.6	93.8	85.2	68.1	45.7
Khulna City Corporation	96.7	94.8	80.0	61.0	45.2
Kushtia	99.5	98.1	88.6	68.1	46.2
Magura	98.6	96.7	88.6	76.7	63.3
Meherpur	98.6	95.7	81.9	64.8	40.0
Narail	97.6	95.2	81.9	65.7	49.0
Satkhira	100.0	98.6	90.0	67.6	40.0
Khulna Division	**98.6**	**96.7**	**87.1**	**69.2**	**46.9**
Bogra	99.5	97.6	89.0	76.2	58.6
Joypurhat	98.6	97.1	90.0	82.9	63.8
Natore	99.0	98.1	92.4	77.1	55.2
Noagoan	99.0	98.6	89.5	71.9	48.1
Nowabganj	98.1	97.1	89.5	70.5	41.9
Pabna	100.0	99.5	89.5	75.2	59.5
Rajshahi	98.6	97.1	87.1	66.7	40.5
Rajshahi City Corporation	100.0	99.5	97.1	87.6	71.9
Rajshahi Division	**99.0**	**97.9**	**88.6**	**71.7**	**50.2**
Sirajganj	98.6	97.1	83.3	59.0	36.2
Dinajpur	98.1	97.6	88.6	69.5	50.0
Gaibandha	99.0	98.1	87.1	66.7	40.0
Kurigram	99.5	99.0	87.6	60.5	35.7
Lalmonirhat	98.1	95.7	85.2	67.1	39.0
Nilphamari	98.6	97.1	87.1	70.0	50.5
Panchagharh	100.0	99.0	90.0	72.4	47.1
Rangpur	99.5	99.0	92.4	75.2	58.1
Rangpur City Corporation	99.0	97.6	90.0	78.6	57.6
Thakurgoan	98.1	97.1	84.3	72.4	53.3
Rangpur Division	**98.8**	**97.9**	**88.1**	**69.4**	**47.4**
Habiganj	96.2	95.2	87.1	72.9	54.3
Moulvi Bazar	97.6	97.1	92.4	77.6	64.8
Sunamganj	93.8	91.4	80.5	67.6	52.4
Sylhet	97.6	94.8	85.7	67.6	52.4
Sylhet City Corporation	94.3	91.4	82.9	66.2	47.1
Sylhet Division	**96.2**	**94.3**	**85.9**	**70.6**	**54.9**
National	**97.7**	**96.3**	**85.8**	**68.5**	**47.8**
Rural	98.2	96.8	86.9	69.6	48.7
Urban	96.0	94.5	81.1	64.2	44.4
Dhaka City Corporation Slum	94.8	90.0	68.1	47.6	30.0
Chittagong City Corporation Slum	96.7	94.3	75.7	53.8	38.6

Table 10: Protected of Birth against Tetanus among Mothers with Children 0-11 Months Old Children by District and City Corporation

District/City Corporation	Protected at birth
Barguna	100.0
Barisal	99.5
Barisal City Corporation	97.6
Bhola	90.5
Jhalakati	95.7
Patuakhali	93.8
Perojpur	96.2
Barisal Division	95.8
Bandarban	85.2
Brahmanbaria	92.4
Chandpur	91.9
Chittagong	93.3
Chittagong City Corporation	91.9
Comilla	94.8
Comilla City Corporation	97.6
Cox's Bazar	95.7
Feni	90.5
Khagrachari	85.7
Lakshmipur	94.3
Noakhali	91.9
Rangamati	85.2
Chittagong Division	**92.8**
Dhaka	91.0
Dhaka North City Corporation	85.2
Dhaka South City Corporation	83.8
Faridpur	91.4
Gazipur	87.6
Gazipur City Corporation	94.3
Gopalganj	87.1
Jamalpur	88.1
Kishoreganj	83.8
Madaripur	86.2
Manikganj	86.7
Munshiganj	88.1
Mymensingh	90.0
Narayanganj	91.0
Narayanganj City Corporation	92.4
Narsingdhi	91.4
Netrokona	92.9
Rajbari	92.4
Sariatpur	94.3
Sherpur	89.0
Tangail	91.4
Dhaka Division	**89.3**

District/City Corporation	Protected at birth
Bagerhat	94.3
Chuadanga	93.3
Jessore	95.7
Jhenaidah	91.0
Khulna	87.6
Khulna City Corporation	87.1
Kushtia	93.3
Magura	88.1
Meherpur	92.4
Narail	89.5
Satkhira	96.7
Khulna Division	**92.6**
Bogra	92.9
Joypurhat	93.3
Natore	96.2
Noagoan	95.2
Nowabganj	92.4
Pabna	96.2
Rajshahi	96.2
Rajshahi City Corporation	98.6
Sirajganj	93.3
Rajshahi Division	**94.5**
Dinajpur	89.0
Gaibandha	91.9
Kurigram	94.8
Lalmonirhat	92.4
Nilphamari	89.5
Panchagharh	92.4
Rangpur	92.9
Rangpur City Corporation	93.8
Thakurgoan	89.5
Rangpur Division	**91.5**
Habiganj	87.6
Moulvi Bazar	90.5
Sunamganj	85.2
Sylhet	88.1
Sylhet City Corporation	82.4
Sylhet Division	87.5
National	91.5
Rural	91.7
Urban	90.8
Dhaka City Corporation Slum	80.5
Chittagong City Corporation Slum	92.9

Table 11: Crude TT Vaccination Coverage among Child Bearing Age Women by District and City Corporati

District/City Corporation	Crude TT1	Crude TT2	Crude TT3	Crude TT4	Crude TT5
Barguna	95.7	93.8	86.2	75.2	62.4
Barisal	99.5	99.5	96.7	89.0	74.8
Barisal City Corporation	100.0	100.0	94.8	85.2	69.0
Bhola	100.0	100.0	97.1	91.9	77.1
Jhalakati	100.0	99.5	92.4	76.2	60.5
Patuakhali	100.0	99.0	95.7	87.1	61.9
Perojpur	99.5	97.1	92.9	75.7	56.7
Barisal Division	**99.4**	**98.6**	**94.5**	**84.8**	**67.8**
Bandarban	93.8	93.3	90.5	84.8	75.7
Brahmanbaria	99.0	97.6	94.8	84.8	65.7
Chandpur	99.5	99.0	92.9	78.1	59.5
Chittagong	96.2	95.2	90.0	81.0	69.0
Chittagong City Corporation	90.5	89.0	75.2	56.7	40.5
Comilla	97.6	96.7	88.1	71.9	56.2
Comilla City Corporation	99.5	97.1	92.4	82.9	65.7
Cox's Bazar	93.3	91.9	90.0	84.3	70.0
Feni	94.8	94.3	89.5	81.4	65.7
Khagrachari	97.6	92.4	77.1	55.2	38.1
Lakshmipur	100.0	100.0	96.2	80.5	63.8
Noakhali	92.4	91.0	78.6	62.4	50.5
Rangamati	93.8	91.0	81.0	62.9	42.9
Chittagong Division	**96.1**	**94.9**	**87.9**	**74.9**	**59.7**
Dhaka	85.2	81.4	71.0	60.0	49.5
Dhaka North City Corporation	93.3	91.0	75.7	62.9	47.6
Dhaka South City Corporation	86.7	85.7	77.1	64.8	45.7
Faridpur	97.6	96.2	85.2	72.4	53.3
Gazipur	91.0	87.1	76.2	63.3	47.6
Gazipur City Corporation	94.8	93.3	80.0	66.2	49.0
Gopalganj	98.1	97.6	91.9	74.8	51.4
Jamalpur	96.2	93.8	81.4	64.8	50.0
Kishoreganj	91.4	89.0	83.3	72.4	55.7
Madaripur	90.0	87.6	79.0	65.7	53.8
Manikganj	95.2	90.5	79.5	65.7	47.6
Munshiganj	91.0	88.6	80.5	66.2	51.0
Mymensingh	97.6	94.3	85.7	74.3	55.2
Narayanganj	98.1	94.3	82.4	62.4	41.0
Narayanganj City Corporation	81.0	79.5	70.0	61.4	51.9
Narsingdhi	96.2	92.9	82.4	59.5	43.8
Netrokona	91.9	88.6	79.5	68.1	52.9
Rajbari	100.0	100.0	91.0	65.7	41.0
Sariatpur	98.1	97.6	93.8	82.4	68.6
Sherpur	98.6	96.7	91.9	81.0	59.5
Tangail	91.0	88.1	81.9	65.2	53.8
Dhaka Division	**93.1**	**90.5**	**81.0**	**67.0**	**50.8**

District/City Corporation	Crude TT1	Crude TT2	Crude TT3	Crude TT4	Crude TT5
Bagerhat	96.7	96.2	90.0	81.0	61.0
Chuadanga	97.1	94.8	86.2	63.3	47.1
Jessore	99.0	98.6	95.7	81.0	59.5
Jhenaidah	99.5	98.6	90.0	73.8	52.4
Khulna	94.8	93.3	86.7	73.8	57.1
Khulna City Corporation	90.5	89.0	74.3	55.7	41.4
Kushtia	99.0	98.6	92.9	80.0	54.8
Magura	99.5	99.0	92.9	80.0	68.6
Meherpur	96.7	91.9	76.2	53.8	37.6
Narail	93.8	88.6	79.0	64.8	48.6
Satkhira	100.0	99.5	87.6	72.4	51.4
Khulna Division	**97.7**	**96.5**	**88.9**	**73.9**	**54.4**
Bogra	97.1	91.9	82.9	71.0	57.6
Joypurhat	99.5	97.1	90.0	81.0	60.5
Natore	98.1	97.1	88.1	75.2	60.0
Noagoan	99.5	97.6	91.9	77.1	60.5
Nowabganj	98.6	96.2	92.4	76.7	58.1
Pabna	97.1	95.7	92.4	77.1	63.3
Rajshahi	99.0	96.2	83.8	71.9	53.8
Rajshahi City Corporation	98.1	98.1	94.8	88.6	72.9
Sirajganj	94.8	92.9	81.9	64.3	50.0
Rajshahi Division	**97.7**	**95.2**	**87.4**	**73.5**	**57.9**
Dinajpur	99.0	96.7	90.5	77.1	62.4
Gaibandha	98.6	98.1	94.3	82.4	71.9
Kurigram	100.0	97.6	90.0	72.9	57.6
Lalmonirhat	99.5	98.6	87.6	73.8	55.7
Nilphamari	98.6	98.1	87.1	70.0	53.8
Panchagharh	99.0	96.7	91.4	81.0	64.3
Rangpur	100.0	99.5	96.2	89.0	71.9
Rangpur City Corporation	97.1	96.7	89.0	74.8	58.6
Thakurgoan	100.0	96.7	86.2	76.2	64.3
Rangpur Division	**99.3**	**97.8**	**90.9**	**78.2**	**63.3**
Habiganj	96.2	93.8	86.2	71.0	55.2
Moulvi Bazar	97.1	95.7	90.0	81.9	70.5
Sunamganj	92.9	90.5	84.8	77.6	59.5
Sylhet	98.6	98.1	94.3	85.7	71.0
Sylhet City Corporation	83.3	80.0	73.8	61.9	52.9
Sylhet Division	**95.6**	**94.0**	**88.4**	**78.7**	**63.8**
National	**96.0**	**94.2**	**86.4**	**73.2**	**57.1**
Rural	96.6	94.8	87.4	74.4	58.1
Urban	93.8	91.7	82.3	68.6	53.3
Dhaka City Corporation Slum	93.3	87.1	69.5	51.9	41.4
Chittagong City Corporation Slum	95.2	92.4	85.2	64.8	53.8

Table 12: Valid TT Vaccination Coverage among Child Bearing Age Women by District and City Corporation

District/City Corporation	Valid TT1	Valid TT2	Valid TT3	Valid TT4	Valid TT5
Barguna	95.7	93.8	82.9	66.7	50.5
Barisal	99.5	99.5	96.2	87.6	68.1
Barisal City Corporation	100.0	100.0	94.3	79.5	60.5
Bhola	100.0	100.0	94.8	79.5	57.6
Jhalakati	100.0	99.5	89.5	71.0	54.3
Patuakhali	100.0	99.0	92.4	74.3	41.0
Perojpur	99.5	97.1	92.9	73.8	51.4
Barisal Division	**99.4**	**98.6**	**92.7**	**77.7**	**55.3**
Bandarban	93.8	93.3	90.0	79.0	66.2
Brahmanbaria	99.0	97.6	92.4	75.2	45.7
Chandpur	99.5	99.0	91.9	71.4	49.0
Chittagong	96.2	95.2	89.0	78.1	55.7
Chittagong City Corporation	90.5	89.0	67.1	49.0	27.1
Comilla	97.6	95.7	85.7	64.3	42.9
Comilla City Corporation	99.5	97.1	90.5	74.8	52.4
Cox's Bazar	93.3	91.9	88.6	77.6	54.8
Feni	94.8	94.3	83.8	69.5	53.8
Khagrachari	97.6	92.4	76.2	52.4	32.9
Lakshmipur	100.0	100.0	95.7	75.2	50.5
Noakhali	92.4	90.5	72.9	57.6	35.2
Rangamati	93.8	91.0	76.7	55.7	36.7
Chittagong Division	**96.1**	**94.7**	**85.1**	**68.5**	**46.0**
Dhaka	85.2	81.0	69.5	55.7	45.2
Dhaka North City Corporation	93.3	91.0	71.4	56.2	38.6
Dhaka South City Corporation	86.7	85.7	73.8	60.5	40.0
Faridpur	97.6	96.2	84.3	68.1	43.3
Gazipur	91.0	87.1	74.8	58.6	40.0
Gazipur City Corporation	94.8	92.9	75.2	59.5	40.0
Gopalganj	98.1	97.6	88.1	65.2	41.0
Jamalpur	96.2	93.8	76.7	56.2	39.0
Kishoreganj	91.4	88.6	77.1	61.9	41.4
Madaripur	90.0	87.6	74.8	61.4	43.8
Manikganj	95.2	90.5	75.7	54.3	32.4
Munshiganj	91.0	88.1	79.0	63.8	47.1
Mymensingh	97.6	94.3	82.4	68.6	46.2
Narayanganj	98.1	93.8	75.2	56.7	36.7
Narayanganj City Corporation	81.0	79.5	69.5	59.5	48.6
Narsingdhi	96.2	91.4	79.0	52.9	32.4
Netrokona	91.9	88.1	75.2	63.8	43.8
Rajbari	100.0	100.0	89.5	63.8	36.2
Sariatpur	98.1	97.6	92.4	79.5	59.0
Sherpur	98.6	96.7	91.0	77.6	54.3
Tangail	91.0	88.1	77.6	56.2	42.4
Dhaka Division	**93.1**	**90.3**	**77.5**	**61.0**	**42.2**

District/City Corporation	Valid TT1	Valid TT2	Valid TT3	Valid TT4	Valid TT5
Bagerhat	96.7	96.2	90.0	78.1	52.4
Chuadanga	97.1	94.8	80.0	55.2	40.0
Jessore	99.0	98.6	94.8	78.1	46.7
Jhenaidah	99.5	98.6	85.2	69.5	40.0
Khulna	94.8	93.3	86.2	72.9	53.8
Khulna City Corporation	90.5	89.0	70.0	51.9	32.9
Kushtia	99.0	98.6	91.4	74.3	46.7
Magura	99.5	99.0	91.4	74.8	57.1
Meherpur	96.7	91.9	66.7	41.4	26.7
Narail	93.8	88.6	75.2	61.0	39.0
Satkhira	100.0	99.5	86.2	67.1	44.8
Khulna Division	**97.7**	**96.5**	**86.5**	**69.4**	**45.3**
Bogra	97.1	91.9	82.9	70.5	53.8
Joypurhat	99.5	97.1	90.0	78.1	54.8
Natore	98.1	97.1	87.1	72.9	51.9
Noagoan	99.5	97.6	83.8	59.0	34.3
Nowabganj	98.6	96.2	91.9	70.0	48.1
Pabna	97.1	95.7	91.4	71.0	53.3
Rajshahi	99.0	95.7	79.0	63.8	36.2
Rajshahi City Corporation	98.1	98.1	94.8	88.1	71.9
Sirajganj	94.8	92.9	77.6	51.4	35.7
Rajshahi Division	**97.7**	**95.1**	**84.7**	**65.9**	**45.7**
Dinajpur	99.0	96.7	89.0	72.9	56.2
Gaibandha	98.6	98.1	91.0	64.8	46.2
Kurigram	100.0	97.6	85.7	63.3	44.3
Lalmonirhat	99.5	98.6	80.0	60.0	38.6
Nilphamari	98.6	98.1	84.8	65.7	46.2
Panchagharh	99.0	95.7	87.6	74.8	52.9
Rangpur	100.0	99.5	94.3	77.1	54.3
Rangpur City Corporation	97.1	96.7	88.6	71.9	54.3
Thakurgoan	100.0	96.7	82.9	68.6	52.4
Rangpur Division	**99.3**	**97.7**	**87.8**	**68.9**	**49.7**
Habiganj	96.2	93.3	84.3	64.8	46.2
Moulvi Bazar	97.1	95.7	88.6	75.7	57.1
Sunamganj	92.9	90.5	84.3	74.3	49.5
Sylhet	98.6	98.1	92.4	81.0	62.9
Sylhet City Corporation	83.3	80.0	69.0	55.2	40.5
Sylhet Division	**95.6**	**93.9**	**86.8**	**73.6**	**53.8**
National	**96.0**	**94.0**	**83.6**	**66.7**	**46.1**
Rural	96.6	94.6	84.8	67.7	46.5
Urban	93.8	91.6	78.5	62.9	44.6
Dhaka City Corporation Slum	93.3	86.7	63.3	45.2	32.4
Chittagong City Corporation Slum	95.2	91.4	75.2	50.5	35.7

APPENDIX D:

QUESTIONNIARE

People's Republic of Bangladesh
Expanded Program on Immunization (EPI)
Coverage Evaluation Survey, 2015

Child Form

PROJECT	**EPI Coverage Evaluation Survey (Form-1: Child Form)**				CENTRE						
Cluster No		**Type of Cluster**	**Urban = 1 Rural = 2**		**Name of Dist:**			**Name of Upazila:**			
Hard-to-reach area	**Yes = 1 No = 2**				**Time required to reach the cluster from Upazila HQ. (Min.)[1]**			**Mode of transport to reach the cluster from Upazila HQ[2]**			
District Code		**Upazila Code**									
Area	**Village/Para: Mouza/Mohallah:**				**INTERVIEW TIME**						
	Union:				**START**			**END**			
LANDMARKS											
NAME OF INTERVIEWER		**Code**									
CHECK DETAILS	**Code**	**Accompany**			**Back Check**			**Scrutiny**			
		Code	**Sign**	**Date**	**Code**	**Sign**	**Date**	**Code**	**Sign**	**Date**
NAME OF FS		**1**			**2**			**3**		
NAME OF FC		**1**			**2**			**3**		
NAME OF OTHER OFFICIAL		**1**			**2**			**3**		

[1]Time required to go to the Cluster from upazila headquarter
[2]Transport used to go to the cluster from Upazila Headquarter – walk-01, Bus-02, Rickshaw/van-03, Boat/Traller-04, Tempu-05, Others (specify)

I hereby oath that all the information of this interview true and correct. I followed the survey methodology and did not take any unfair means while collecting data of this questionnaire.

Signature of Interviewer

Introduction

Salam/Adab. My name is ----------. I am from Center for Social and Market Research (CSMR) Bangladesh a research firm of Bangladesh on behalf of EPI. Currently we are conducting a survey on mother and child vaccination. I would be grateful to you if you help me in this regard. Your information will be kept confidential and will be used for the development of EPI programme.

CHILD FORM

Applicable for those children who born in between *01-07-2013* and *30-06-2014* (Applicable for those children born in between 17 Ashar 1419 and 16 Ashar 1420)	
1. Cluster No	
2. Date	
3. Survey Area	

		Skip to	1	2	3	4	5	6	7
4. Sl no. of sample (to be filled in by office)									
5. Sl no. of children in this cluster									
6. Household number/ G R number and name of house head									
7. Name of the child									
8. Sex of the child :Male –1 Female—2									
9. Name of the father of the child									
10. Name of the mother of the child									
11. Date of the birth of the child (Day/Month/Year)									
11.1 Where was the child born?	Health care center : 1								
	Home : 2								
12. Academic qualification of the mother: Illiterate -1, Primary-2, Secondary-3, SSC/Dhakil/ O level-4, HSC/Alim/ A level-5, Degree/Fazil-6, Masters/Kamil-7									
13. Academic qualification of the father of the child: Illiterate -1, Primary-2, Secondary-3, SSC/Dhakil/ O level-4, HSC/Alim/ A level-5, Degree/Fazil-6, Masters/Kamil-7									
14. Occupation of the mother: Housewife-01, Government employee-02, Non-government employee-03, Household works/day labour-04, Small business-05, Large business-06, Teacher-07, Professional -08, others									
15. Occupation of the father: Agriculture-01, Government employee-02, Non-government employee-03, Day labor/rickshaw/van puller-04, Small business-05, Large business-06, Teacher-07, Professional -08, driver (truck/bus/car)-09,others									
16. Number of family members									
17. Has the baby ever received vaccine?	Yes: 1	**17.1**							
	No: 2	**17.4**							
17.1 Does the child has card for vaccination?	Yes: 1	**18**							
	No: 2	**17.2**							
17.2. If s/he doesn't have card, then ask, Were you ever given a card?	Yes: 1	**17.4**							
	No: 2	**18**							
17.3. If the answer for the question 17.2 is yes, then ask Why didn't you preserve the card? (please mention)									

			Skip to	1	2	3	4	5	6	7
17.4. 17.1 Does the child has birth registration card?		Yes: 1 No: 2								
18. Would you please tell me, at least how many times the child should be taken to the vaccination center to complete all the vaccines? (write the number or 'don't know')										
19 BCG		(Date/+/0)								
19.1. BCG Scar (notice the upper side of the left arm)		Yes: 1 No: 2								
19.2. BCG -Source(from where BCG has taken)	GOB Outreach	1								
	NGO	2								
	All GOB Hospital	3								
	Private	4								
20. pentavalent 1	(Date/+/0)									
20. 1. pentavalent 1 Source	GOB Outreach	1								
	NGO	2								
	All GOB Hospital	3								
	Private	4								
21. OPV 1	(Date/+/0)									
22. pentavalent 2	(Date/+/0)									
23. OPV 2	(Date/+/0)									
24 pentavalent 3	(Date/+/0)									
25. OPV 3	(Date/+/0)									
26. OPV 4	(Date/+/0)									
27. MR	(Date/+/0)									
28. How many times did the worker come to you to remind about completing vaccination?										
29. What are the side effects may occur if the child is vaccinated? [Multiple response possible]	Fever : 01 Abscess : 02 Don't know : 99 Others (specify):									
30. After giving vaccine to your child, has there been any abscess at the place of vaccine?	Yes : 1 No : 2		**31.1** **32**							
31.1 If the answer is yes in Q30, then ask, Where did he has the abscess? (multiple answers can be recorded) (please code)	Right thigh : 1 Left thigh : 2 Left arm : 3 Others (specify):		**31.2**							
31.2 Did you feel discourage to give his/her rest of the vaccines due to abscess or any other problem?	Yes : 1 No : 2									

32. Have you ever given money for vaccination of your child? (please code)	Yes : 1	**32.1**							
	No : 2	**33**							
32.1 If yes, how much money did you pay?		**32.2**							
32.2 (If yes, then ask) As you given money, did you abstain yourself from giving rest vaccine to your child?	Yes : 1								
	No : 2								
33. What is the monthly income of your family? (include all sources)									

Vaccination Code Date - Record date from vaccination card	Source codes:	
+ - History that the child was vaccinated	GOB Outreach = Community household, Satellite clinic, Community Clinic, Club	NGO = Hospital, Clinic, Outreach
0 - The child was not vaccinated	All GOB Hospital = District, UHC etc.	Private = Chamber, clinic and hospital

Reasons for Vaccination Failure

34. The children who never/partially vaccinated ask the mothers or guardians "Why was the child not vaccinated or why the child was not fully vaccinated?" (Accept most important answer and circle the appropriate code)

Sl. no. of the baby in this cluster	**1**	**2**	**3**	**4**	**5**	**6**	**7**
1. Lack of information							
i. Didn't know that my child should be given vaccine	1	1	1	1	1	1	1
ii .Didn't know when to go for the second/third dose	2	2	2	2	2	2	2
iii. Didn't know when to go for vaccine of measles	3	3	3	3	3	3	3
iv. Didn't know where to go for vaccine	4	4	4	4	4	4	4
V. Fearing side effects	5	5	5	5	5	5	5
vi. Rumor (Please mention)	6	6	6	6	6	6	6
2. Lack of Motivation							
vii. Don't believe in vaccination	21	21	21	21	21	21	21
viii. Was busy and so couldn't give vaccine to child	22	22	22	22	22	22	22
ix. Will give vaccine in future	23	23	23	23	23	23	23
x. There was a long queue in the vaccination centre	24	24	24	24	24	24	24
xi. Don't remember	25	25	25	25	25	25	25
3. Obstacles							
xii. There was no vaccine in the center	40	40	40	40	40	40	40
xiii. There was no vaccinator in the center	41	41	41	41	41	41	41
xiv. Vaccine centre was too far	42	42	42	42	42	42	42
xv. Injection was too painful for the child	43	43	43	43	43	43	43
xvi. Was abscess at the place of vaccine	44	44	44	44	44	44	44
xvii. Faced difficulty after receiving vaccine	45	45	45	45	45	45	45
xviii. Vaccinator was not friendly	46	46	46	46	46	46	46
xix. The child was sick, so was not taken to the vaccination center	47	47	47	47	47	47	47
xx. The child was sick, so the vaccinator didn't give vaccine	48	48	48	48	48	48	48

xxi. Mother was sick	49	49	49	49	49	49	49
xxii.I thought the vaccinator would come home	50	50	50	50	50	50	50
xxiii. They charge money to take vaccine	51	51	51	51	51	51	51
xxiv. The session time was inconvenient	52	52	52	52	52	52	52
4. Others (please specify)							

	Sl. no. of the baby in this cluster		**Skip to**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
35.	Source of drinking water? Pipe water inside the house- 01 Pipe water outside the house -02, Tube well-03 Deep Tube well - 04, Sallow well - 05, Well- 06, Pond/canal/lake -07, River/Fountain - 08, Tara Pump -09, Rain water -10									
36	Type of latrine? Sanitary latrine/ septic tank - 1, Water seal/ slub latrine- 2, Pit latrine - 3, Open latrine - 4, Hanging latrine - 5, No latrine/ open place – 6									
37	Household durables?									
37.1	Almirah/Wardrobe	Yes-1 No – 2								
37.2	Table	Yes-1 No – 2								
37.3	Chair/bench	Yes-1 No- 2								
37.4	Clock	Yes-1 No- 2								
37.5	Khat/Bed	Yes-1 No 2								
37.6	Radio	Yes-1 No- 2								
37.7	Television	Yes-1 No- 2								
37.8	Bicycle	Yes-1 No- 2								
37.9	Motor Cycle	Yes-1 No- 2								
37.10	Sewing Machine	Yes-1 No- 2								
37.11	Telephone	Yes-1 No- 2								
37.12	Mobile phone	Yes-1 No- 2								
37.13	Refrigerator	Yes-1 No- 2								
37.14	Car/Truck	Yes-1 No- 2								
37.15	Boat	Yes-1 No- 2								
37.16	Rickshaw/Van	Yes-1 No- 2								
37.17	Electricity	Yes-1 No- 2								
38	Observe materials of the floor concrete -1, soil-2, Bamboo-3, wood-4									
38.1	Observe materiasl of the wall concrete -1, soil-2, Bamboo-3, wood-4, Ply wood-5 Tin-6, Brick-7									
38.2	Observe materials of the roof Concrete-1, Tin-2, Bamboo/wood-3, straw-4, Tally-5, No roof-6									
39	Is it take more tha half an hour to reach to the nearest vaccination center from your home on foot? Yes 1, No 2									

MSD FORM

Applicable for those children who born in between *01-01-2013* and *31-12-2013*	
1. Cluster No	
2. Date	
3. Survey Area	

		Skip to	1	2	3	4	5	6	7
4. Sl no. of sample (to be filled in by office)									
5. Sl no. of children in this cluster									
6. Household number/ G R number and name of house head									
7. Name of the child									
8. Sex of the child :Male –1 Female—2									
9. Name of the father of the child									
10. Name of the mother of the child									
11. Date of the birth of the child (Day/Month/Year)									
11.1 Where was the child born?	Health care center : 1								
	Home : 2								
12. Academic qualification of the mother: Illiterate -1, Primary-2, Secondary-3, SSC/Dhakil/ O level-4, HSC/Alim/ A level-5, Degree/Fazil-6, Masters/Kamil-7									
13. Academic qualification of the father of the child: Illiterate -1, Primary-2, Secondary-3, SSC/Dhakil/ O level-4, HSC/Alim/ A level-5, Degree/Fazil-6, Masters/Kamil-7									
14. Occupation of the mother: Housewife-01, Government employee-02, Non-government employee-03, Household works/day labour-04, Small business-05, Large business-06, Teacher-07, Professional -08, others									
15. Occupation of the father: Agriculture-01, Government employee-02, Non-government employee-03, Day labor/rickshaw/van puller-04, Small business-05, Large business-06, Teacher-07, professional -08, driver (truck/bus/car)-09,others									
16. Number of family members									
17. Has the baby ever received vaccine?	Yes: 1	**17.1**							
	No: 2	**17.4**							
17.1 Does the child have card for vaccination?	Yes: 1	**18**							
	No: 2	**17.2**							
17.2. If s/he doesn't have card, then ask, Were you ever given a card?	Yes: 1	**17.4**							
	No: 2	**18**							
17.3. If the answer for the question 17.2 is yes, then ask Why didn't you preserve the card? (please mention)									
18. Would you please tell me, at least how many times the child should be taken to the vaccination center to complete all the vaccines? (write the number or 'don't know')									

			Skip to	1	2	3	4	5	6	7
19 BCG		(Date/+/0)								
19.1. BCG Scar (notice the upper side of the left arm)		Yes: 1								
		No: 2								
19.2. BCG -Source(from where BCG has taken)	GOB Outreach	1								
	NGO	2								
	All GOB Hospital	3								
	Private	4								
20.1 Measles-Rubella		(Date/+/0)								
20.2 Measles 2nd Dose		(Date/+/0)								

Reasons for Vaccination Failure

21. The children who never/partially vaccinated ask the mothers or guardians "Why was the child not vaccinated or why the child was not fully vaccinated?" (Accept most important answer and circle the appropriate code)

Sl. no. of the baby in this cluster	1	2	3	4	5	6	7
1. Lack of information							
i. Didn't know that my child should be given vaccine	1	1	1	1	1	1	1
ii .Didn't know when to go for the second/third dose	2	2	2	2	2	2	2
iii. Didn't know when to go for vaccine of measles	3	3	3	3	3	3	3
iv. Didn't know where to go for vaccine	4	4	4	4	4	4	4
V. Fearing side effects	5	5	5	5	5	5	5
vi. rumor (Please mention)	6	6	6	6	6	6	6
2. Lack of Motivation							
vii. Don't believe in vaccination	21	21	21	21	21	21	21
viii. Was busy and so couldn't give vaccine to child	22	22	22	22	22	22	22
ix. Will give vaccine in future	23	23	23	23	23	23	23
x. There was a long queue in the vaccination centre	24	24	24	24	24	24	24
xi. Don't remember	25	25	25	25	25	25	25
3. Obstacles							
xii. There was no vaccine in the center	40	40	40	40	40	40	40
xiii. There was no vaccinator in the center	41	41	41	41	41	41	41
xiv. Vaccine centre was too far	42	42	42	42	42	42	42
xv. Injection was too painful for the child	43	43	43	43	43	43	43
xvi. Was abscess at the place of vaccine	44	44	44	44	44	44	44
xvii. Faced difficulty after receiving vaccine	45	45	45	45	45	45	45
xviii. Vaccinator was not friendly	46	46	46	46	46	46	46
xix. The child was sick, so was not taken to the vaccination center	47	47	47	47	47	47	47
xx. The child was sick, so the vaccinator didn't give vaccine	48	48	48	48	48	48	48
xxi. Mother was sick	49	49	49	49	49	49	49
xxii.I thought the vaccinator would come home	50	50	50	50	50	50	50

xxiii. They charge money to take vaccine	51	51	51	51	51	51	51
xxiv. The session time was inconvenient	52	52	52	52	52	52	52
4. Others (please specify)							

			Skip to	1	2	3	4	5	6	7
22.	Source of drinking water? Pipe water inside the house- 01 Pipe water outside the house -02, Tube well-03 Deep Tube well - 04, Sallow well - 05, Well- 06, Pond/canal/lake -07, River/Fountain - 08, Tara Pump -09, Rain water -10									
23	Type of latrine? Sanitary latrine- 1, Water seal/ slub latrine- 2, Pit latrine - 3, Open latrine - 4, Hanging latrine - 5, No latrine - 6									
24	Household durables?									
24.1	Almirah	Yes-1 No – 2								
24.2	Table	Yes-1 No – 2								
24.3	Chair/bench	Yes-1 No- 2								
24.4	Clock	Yes-1 No- 2								
24.5	Khat/Bed	Yes-1 No 2								
24.6	Radio	Yes-1 No- 2								
24.7	Television	Yes-1 No- 2								
24.8	Bicycle	Yes-1 No- 2								
24.9	Motor Cycle	Yes-1 No- 2								
24.10	Sewing Machi	Yes-1 No- 2								
24.11	Telephone	Yes-1 No- 2								
24.12	Mobile phone	Yes-1 No- 2								
24.13	Refrigerator	Yes-1 No- 2								
24.14	Car/Truck	Yes-1 No- 2								
24.15	Boat	Yes-1 No- 2								
24.16	Rickshaw/Van	Yes-1 No- 2								
24.17	Electricity	Yes-1 No- 2								
25	Observe materials of the floor concrete -1, soil-2, Bamboo-3, wood-4									
25.1	Observe materiasl of the wall concrete -1, soil-2, Bamboo-3, wood-4, Ply wood-5 Tin-6, Brick-7									
25.2	Observe materials of the roof Concrete-1, Tin-2, Bamboo/wood-3, straw-4, Tally-5, No roof-6									
26	Is it take more tha half an hour to reach to the nearest vaccination center from your home on foot? Yes-1, No-2									
27	What is your monthly family income?									

Maternal and Neonatal Health Form
Applicable for those women who gave birth to live or dead child between 01-07-2014 and 30-06-2015

1. Cluster no	
2. Date	
3. Survey area	

		Skip to	1	2	3	4	5	6	7
4. Sl number of sample (to be filled in by office)									
5. Sl number of woman in this cluster									
6. Household number/GR number/Name of the house head									
7. Name of the respondent									
8. Name of the husband									
9. Date of birth of the child born at the latest (still or live)									
10. Age of the respondent (write in year)									
11.Academic qualification of the respondent Illiterate -1, Primary-2, Secondary-3, SSC/Dhakil/ O level-4, HSC/Alim/ A level-5, Degree/Fazil-6, Masters/Kamil-7									
12. Academic qualification of the husband Illiterate -1, Primary-2, Secondary-3, SSC/Dhakil/ O level-4, HSC/Alim/ A level-5, Degree/Fazil-6, Masters/Kamil-7									
13. Occupation of the respondent Housewife-1, Government employee-2, Non-government employee-3, Household works/day labour-4, Small business-5, Big business-6, Teacher-7, Professional -8, others									
14. Occupation of the husband Agriculture-1, Government employee-2, Non-government employee-3, Day labor/rickshaw/van puller-4, Small business-5, Big business-6, Teacher-7, professional -8, driver (truck/bus/car)-9,others									
15 Number of family members of the family									
16. How many times have you given birth to child? (live and dead)	Live								
	Dead								
	Total								
16.1 Was the last born baby alive or dead?	Alive : 1	**17**							
	Died : 2	**16.2**							
	Still birth : 3	**17**							
16.2. (If the child was dead) Within how many days after birth, did the child die?									

Antenatal Care (ANC)

		Skip to	1	2	3	4	5	6	7
17. Did you see any health worker for Antenatal Check-up when you were pregnant with (NAME) (during pregnancy)? Interviewer: make sure that you make the respondent understand that you mean all levels of health worker including doctors.		Yes 1 No: 2 >22a							
18. To whom did you visit for Antenatal Check-up? Do not read out the answers. Circle & Write down all the answer ASK: Anything else?	MBBS doctor .....01 Nurse/midwife.....02 Paramedic .....03 FWV.....04 SACMO .....05 CSBA.....06 HA.....07 FWA.....08 CHCP .....09 NGO Health Worker .....10 TTBA.....11 TBA(Dai).....12 Homeopath.....13 Village doctors.....14 Spiritual person.....15 Don't know/ can't say.....99 Others……(Specify)								
19. From where did you receive Antenatal Check-up during last pregnancy?	At home .....01 Government Medical College .....02 Government Hospital.....03 District Hospital.....04 MCWC.....05 UHC .....06 Sub Center .....07 UH&FWC.....08 Satellite clinic.....09 Community Clinic.....10 NGO Static Clinic.....11 NGO Satellite Clinic.....12 Private Hospital/ Clinic.....13 MBBS Doctor.....14 Village Doctor .....15 Pharmacy .....16 Don't know / can't remembers 99 Others……(Specify)								
20. How many times did you visit for Antenatal Check-up?									

		Skip to	1	2	3	4	5	6	7
21. As part of your antenatal care during last pregnancy, were any of the following done at least once? Ask about each item.	Were you weight?	Yes:1 No : 2							
	Was your blood pressure measured?	Yes:1 No : 2							
	Did you give a urine sample?	Yes:1 No : 2							
	Did you give a blood sample?	Yes:1 No : 2							
	Did you have an ultra sonogram?	Yes:1 No : 2							
	Did you have an abdominal examination?	Yes:1 No : 2							
	Were you given advise on danger sign of pregnancy	Yes:1 No : 2							

		Skip to	1	2	3	4	5	6	7
22. Were you given advice on danger sign of pregnancy during your last pregnancy?		Yes:1 No : 2							
22a. Did any health worker/field worker give you advice for medical checkup visiting your home?		Yes:1 No : 2 > 23							

22b. Who gave you advice?	HA.....1 FWA.....2 FWV.....3 CHCP .....4 NGO health worker 5								
22c. Did any of the following done while visit your home? Ask about each item.	Were you weight?	Yes:1 No : 2							
	Was your blood pressure measured?	Yes:1 No : 2							
	Did you give a urine sample?	Yes:1 No : 2							
	Did you give a blood sample?	Yes:1 No : 2							
	Were you given advise on danger sign of pregnancy	Yes:1 No : 2							
22d. How many times did the worker visit your home during your last pregnancy?									
23. Did you take iron tablet during last pregnancy?		Yes:1 No : 2 > 26							
24. How long did you take iron tablets during your last pregnancy?	Days Don't know /can't remember.....99								

25. Where did you get iron tablets?	Satellite clinic.....01 Community clinic .....02 U&FWC .....03 UHC .....04 Doctor's chamber .....05 Clinic.....06 Hospital.....07 Pharmacy .....08 Union Sub-Center.....09 Don't know / can't remembers.....99 Others (Specify)								
26. Did you take Calcium supplement during last pregnancy?		Yes:1 No : 2 > 26							
27. How long did you take Calcium supplement during your last pregnancy?	Months Don't know /can't remember.....99								
28. Where did you get Calcium supplement?	Satellite clinic.....01 Community clinic .....02 U&FWC .....03 UHC .....04 Doctor's chamber .....05 Clinic.....06 Hospital.....07 Pharmacy .....08 Union Sub-Center.....09 Don't know / can't remembers.....99 Others (Specify)								

Delivery

		Skip to	1	2	3	4	5	6	7
29. Who assisted your delivery?	MBBS doctor ..... 01 Nurse/midwife..... 02 Paramedic ..... 03 FWV..... 04 CSBA..... 05 SACMO ..... 06 HA..... 07 FWA..... 08 CHCP ..... 10 NGO Health Worker.....11 TTBA..... 12 TBA(Dai/Dhorni/Chauni)..... 13 Village doctors ..... 14 Relatives..... 15 Neighbor or friend..... 16 None..... 17 Don't know..... 99 Others (specify)								

			1	2	3	4	5	6	7
30. Where did the delivery (NAME)/ take place?	At home ..... 01 Government Medical College ..... 02 Government Hospital..... 03 District Hospital..... 04 MCWC ..... 05 UHC ..... 06 Sub Center ..... 07 UH&FWC..... 08 Community Clinic..... 09 NGO Static Clinic..... 10 Private Hospital/ Clinic..... 11 Others……(Specify)								
31 How long after (Name) was delivered did you stay there?	Hours Day Don't know 999								
32. Was (Name) delivered by caesarean operation?	Yes:1 No : 2								
33. If caesarean then ask, Why caesarean operation was required?	It was convenient..... 01 To avoid labor pain ..... 02 Child was not in right position..... 03 Premature child ..... 04 Cord problem..... 05 More than one child ..... 06 In sufficient labor pain..... 07 Pre-eclampsia..... 08 Diabetic ..... 09 There is history of caesarean ..... 10 Low pressure on head ..... 11 Delivery complication..... 12 Others (specify)----------								

34. When (Name) was born, was he/she very large, larger than average, average, smaller than average, or very small?	Very large ..... 1 larger than average ..... 2 Average ..... 3 smaller than average..... 4 very small ..... 5 Don't know..... 9								

If delivery conducted at home then ask the followings (35-39) else skip to 40

		Skip	**1**	**2**	**3**	**4**	**5**	**6**	**7**
35. Was a clean delivery kit used during the delivery of (NAME)?	Yes..... 1 > 36 No 2> 36 Don't know 3> 38 Others----------								
36. What was used to cut the cord?	Blade from delivery kit ..... 1 Blade from other sources ..... 2 Bamboo strips..... 3 Scissor..... 4 Did not cut cord ..... 5 Don't know..... 9 Others----------								

37. Was the ---------- (instrument) boiled before the cord was cut??	Yes.....1 No.....2 Don't know 9								
38 Was anything applied to the cord immediately after cutting and tying it?	Yes.....1 No..... 2								
39. What was applied to the cord after it was cut and tied?									
40. How long after delivery was (Name) bathed for the first time? If less than one day record in hour, if less than one week record in day	Hour Day Don't know								
41. How long after birth was (Name) wrapped?	Less than 5 minutes ..... 1 5-9 minutes..... 2 10* minutes..... 3 Not dried..... 4 Don't know..... 5								

Postnatal Care

		Skip	1	2	3	4	5	6	7
42. After the birth of your last child (NAME) did you visit any health worker for Postnatal Care?	Yes.....1 No.....2 Don't know----------9								
43. To whom did you visit for Postnatal care?	MBBS doctor ..... 01 Nurse/midwife..... 02 Paramedic ..... 03 FWV..... 04 CSBA..... 05 SACMO ..... 06 HA..... 07 FWA..... 08 CHCP ..... 09 NGO Health Worker .....10 TTBA.....11 TBA(Dai/Dhorni/Chauni)..... 12 Village doctors ..... 13 Don't know..... 99 Others (specify)								
44. From where did you receive Postnatal Check-up during last pregnancy?	At home .....01 Government Medical College .....02 Government Hospital.....03 District Hospital.....04 MCWC.....05 UHC .....06 Sub Center .....07 UH&FWC.....08 Satellite clinic.....09 Community Clinic.....10 NGO Static Clinic.....11 NGO Satellite Clinic.....12 Private Hospital/ Clinic.....13 MBBS Doctor.....14 Village Doctor .....15 Pharmacy .....16 Don't know / can't remembers 99 Others……(Specify)								

45. How many days after last delivery did you visit a health worker for the **first Postnatal Care for yourself**?	Hours after ....|____| Days after ....|____| can't remember.....998							
46. Did you see anyone within two days of delivery?	Yes.....1 No.....2 Don't know---------- 3							
47. Did your child receive postnatal check up within two days of birth?	Yes.....1 No.....2 Don't know---------- 3							
48. How many days after last birth did you visit a health worker for the **first Postnatal Care for your child**?	Hours after ....|____| Days after ....|____| can't remember.....998							
49. To whom did you visit for Postnatal care for your child?	MBBS doctor .....01 Nurse/midwife.....02 Paramedic .....03 FWV.....04 CSBA.....05 SACMO .....06 HA.....07 FWA.....08 CHCP .....09 NGO Health Worker .....10 TTBA.....11 TBA(Dai/Dhorni/Chauni).....12 Village doctors .....13 Don't know.....99 Others (specify)							

		1	2	3	4	5	6	7
50. Where did you visit at first for Postnatal Check-up of your child ?	At home .....01 Government Medical College .....02 Government Hospital.....03 District Hospital.....04 MCWC.....05 UHC .....06 Sub Center .....07 UH&FWC.....08 Satellite clinic.....09 Community Clinic.....10 NGO Static Clinic.....11 NGO Satellite Clinic.....12 Private Hospital/ Clinic.....13 MBBS Doctor.....14 Village Doctor .....15 Pharmacy .....16 Others……(Specify)							

51. Did your child face any illness within one month of birth?	Yes.....1 No 2> 55 Don't know 3> 55							
52. Did you visit anywhere to seek treatment?	Yes.....1 No 2> 55 Don't know 3> 55							

		1	2	3	4	5	6	7
53. Where did you seek treatment	Government Medical College .....02 Government Hospital.....03 District Hospital.....04 MCWC .....05 UHC .....06 Sub Center .....07 UH&FWC.....08 Satellite clinic.....09 Community Clinic.....10 NGO Static Clinic.....11 NGO Satellite Clinic.....12 Private Hospital/ Clinic.....13 MBBS Doctor.....14 Village Doctor .....15 Pharmacy .....16 Others……(Specify)							
54. Whom did you seek treatment?	MBBS doctor .....01 Nurse/midwife.....02 Paramedic .....03 FWV.....04 CSBA.....05 SACMO .....06 HA.....07 FWA.....08 CHCP .....09 NGO Health Worker .....10 TTBA.....11 TBA(Dai/Dhorni/Chauni).....12 Village doctors .....13 Don't know.....99 Others……(Specify)							

		1	2	3	4	5	6	7
55. How long after birth did you first put (Name) to the breast	Immediately after birth---------- 000 Less than 1 Hours after -------00 Hour …..|____| Days ..... …..|____| Don't know.....998							

56. In the first three days after delivery was (name) given anything to drink other than breast milk?	Yes.....1> 57 No 2> 58 Don't know 9> 58							
57. What was given to drink? Anything else?	Milk (not breast milk) .....02 Only water .....03 Suat or close water.....04 Ripe water/salt water/solution.....05 Fruit JUice .....06 Infant formula.....07 Tea/Infusions .....08 Coffee .....09 Honey 10							
58. Are you still breast feeding?	Yes.....1> 60 No 2> 59							
59. For how many months did you breast fed?	Months .....|____| Don't know.....99							

Tetanus Toxoid Vaccination

			Skip	1	2	3	4	5	6	7
60. Have you ever received any TT vaccination?	Yes :1	: 1	**36**							
	No :2	: 2	**52**							
61. Do you have card for TT vaccination?	Yes :1	: 1	**38**							
	No :2	: 2	**37**							
62. (If the respondent does not have any card then ask) were you ever given a card for TT vaccination?	Yes :1	: 1	**37.1**							
	No :2	: 2	**38**							
62.1 If the answer for 37 is yes, then ask - Why didn't you preserve the card?										

Instruction: Record the answers for Q 38-48 from a card or history

		Skip	1	2	3	4	5	6	7
63 TT1	(Date/+/0)								
63. 1. What is the source of TT1 vaccination?	GOB Outreach -1								
	NGO – 2								
	All GOB Hospital-3								
	Private- 4								
64. TT2	(Date/+/0)								
64. 1.From where did you receive TT2 vaccine?	GOB Outreach -1								
	NGO – 2								
	All GOB Hospital-3								
	Private- 4								

		Skip	1	2	3	4	5	6	7
64.2 Interval between TT-1 and TT-2	(write in weeks)		..... Week	..... Week	..... Week	..... Week	..... Week	..... Week	..... Week
65. TT3	(Date/+/0)								
65. 1 Interval between TT-2 and TT-3	(write in month)		..... Month	..... Month	..... Month	..... Month	..... Month	..... Month	..... Month
66. TT4	(Date/+/0)								
66.1 Interval between TT-3 and TT-4	(write in month)		..... Month	..... Month	..... Month	..... Month	..... Month	..... Month	..... Month
67. TT5	(Date/+/0)								
65. 1. Interval between TT-4 and TT-5	(write in month)		..... Month	..... Month	..... Month	..... Month	..... Month	..... Month	..... Month
68. TT6	(Date/+/0)								
68. 1. Interval between TT-5 and TT-6	(write in month)		..... .Month	..... Month	..... Month	..... Month	..... Month	..... Month	..... Month
69. TT7	(Date/+/0)								
69. 1. Interval between TT-6 and TT-7	(write in month)		..... Month	..... Month	..... Month	..... Month	..... Month	..... Month	..... Month
70. TT8	(Date/+/0)								
70.1 Interval between TT 7 and TT8	(write in month)		..... Month	..... Month	..... Month	..... Month	..... Month	..... Month	..... Month
71. TT9	(Date/+/0)								
71.1 Interval between T8 and T9	(write in month)		..... Month	..... Month	..... Month	..... Month	..... Month	..... Month	..... Month
72. TT10	(Date/+/0)								
72.1 Interval between TT9 and TT10	(write in month)		..... Month	..... Month	..... Month	..... Month	..... Month	..... Month	..... Month
73. Last TT vaccination	(Date/+/0)								
73.1. Interval between TT 10 and last TT injection	(write in month)		..... Month	..... Month	..... Month	..... Month	..... Month	..... Month	..... Month
74. Interval between latest TT injection and date of birth of the last child	(write in Weeks)		..... Month	..... Month	..... Month	..... Month	..... Month	..... Month	..... Month
75. Question numbers of TT vaccination received in the last pregnancy									
75a. Was the child protected at birth?	Yes-1, No-2								

Vaccination Code:
Date- Record date from vaccination card
+ History that the child was vaccinated
0 Was not vaccinated

Sources Code:
Gob Outreach: Community Hospital, Community Clinic, Satellite clinic, club
All GoB Hospital= District, UHC etc
NGO= Hospital, Clinic, Outreach, Private= Chamber, Clinic and hospital

Adverse Effect Following Immunization

		Skip to	1	2	3	4	5	6	7
76. Have you ever had an abscess after receiving a TT vaccine?	Yes : 1	**76.1**							
	No : 2	**77**							
	Don't know/Can't remember :9								
76.1 Were you discouraged to take the next TT vaccine due to abscess or any other problem?	Yes :1								
	No :2								
77. Did the health worker ask you about TT vaccine When you took your child for vaccination?	Yes :1								
	No :2								
	Not applicable: 3								
	Don't know : 9								
78. (Check Q60: Those who did not receive TT injection ask them) Why didn't you receive TT vaccine? [single response]									
79. How many doses a woman should receive TT vaccination to be protected against for the rest of her reproductive life? (write number or 'don't know')									
80. Did you take vitamin A capsule within six weeks/42 days of your last delivery?	Yes :1 : 1	**80.1**							
	No :2 : 2								
80.1. If yes, then tell us from where have you taken Vitamin A?	At home :1								
	Vaccination center : 2								
	Hospital : 3								

Water, Sanitation and Household Items,

			Skip to	1	2	3	4	5	6	7
81	Source of drinking water? Pipe water inside the house- 01 Pipe water outside the house -02, Tube well-03 Deep Tube well - 04, Sallow well - 05, Well- 06, Pond/canal/lake -07, River/Fountain - 08, Tara Pump -09, Rain water -10									
82	Type of latrine? Sanitary latrine- 1, Water seal/ slub latrine- 2, Pit latrine - 3, Open latrine - 4, Hanging latrine - 5, No latrine - 6									
83	Household durables?									
83.1	Almirah	Yes-1 No - 2								
83.2	Table	Yes-1 No - 2								
83.3	Chair/bench	Yes-1 No- 2								
83.4	Clock	Yes-1 No- 2								
83.5	Khat/Bed	Yes-1 No 2								
83.6	Radio	Yes-1 No- 2								
83.7	Television	Yes-1 No- 2								
83.8	Bicycle	Yes-1 No- 2								
83.9	Motor Cycle	Yes-1 No- 2								
83.10	Sewing Machine	Yes-1 No- 2								

83.11	Telephone	Yes-1 No- 2								
83.12	Mobile phone	Yes-1 No- 2								
83.13	Refrigerator	Yes-1 No- 2								
83.14	Car/Truck	Yes-1 No- 2								
83.15	Boat	Yes-1 No- 2								
83.16	Rickshaw/Van	Yes-1 No- 2								
83.17	Electricity	Yes-1 No- 2								
84	Materials of the floor concrete -1, soil-2, Bamboo-3, wood-4									
84.1	Materials of the wall concrete -1, soil-2, Bamboo-3, wood-4, Ply wood-5 Tin-6, Brick-7									
84.2	Materials of the roof Concrete-1, Tin-2, Bamboo/wood-3, straw-4, Tally-5, No roof-6									
85	Is it take more tha half an hour to reach to the nearest vaccination center from your home on foot? Yes-1, No-2									
91	What is your monthly family income?									

Thank You

TT 5 Form
Applicable for 18-49 years old women

1. Cluster No.									
2. Household Number/GR number and name of house head									
3. Date									
4. Survey Area									
5. Name of respondent									
6. Father's Name/Husband's Name									
7. SI number of sample (to be filled in by office)									
8. SI number of woman in this cluster		Skip to	1	2	3	4	5	6	7
9. Age of the respondent? (in years)									
10.Marital Status of respondent	Married/ divorce/ separated - 1								
	Unmarried - 2								
11. Educational Qualification of the respondents: Illiterate -1, Primary-2, Secondary-3, SSC/Dhakil/ O level-4, HSC/Alim/ A level-5, Degree/Fazil-6, Masters/ Kamil-7									
12. Occupation of the respondents: Housewife-1, Government employee-2, Non-government employee-3,Household works-4, Small business-5, Large business-6, Student-7 Teacher-8, Professional -9, Others									
13. Total family member									
14. Have you ever received TT vaccine?	Yes : 1	15							
	No : 2	28							
15. Do you have card for TT vaccination?	Yes : 1	16							
	No : 2	15.1							
15.1 (If the respondent does not have any card) were you ever given a card for TT vaccination?	Yes : 1	15.2							
	No : 2	16							
15.2 (if yes) Why did you not preserve the card?									

Instruction: 16-26 record the answer from card or history									
		Skip to	**1**	**2**	**3**	**4**	**5**	**6**	**7**
16. TT 1	(Date/+/0)								
16.1 Source of TT1?	(O/H/N/P)								
17. TT2	Date/+/0								
17.1 Source of TT2?	(O/H/N/P)								

17.2 Interval between TT-1 and TT-2?	(write in weeks)		---------- Weeks	---------- Weeks	---------- Weeks	---------- Weeks	---------- Weeks	---------- Weeks	---------- Weeks
18. TT 3	(Date/+/0)								
18.1 Interval between TT2 and TT3	(Write in months)		..... months	..... months	..... months	..... months	..... months	..... months	..... months
19. TT4	(Date/+/0)								
19.1 Interval between TT3 and TT4	(Write in months)		..... months	..... months	..... months	..... months	..... months	..... months	..... months
20. TT5	(Date/+/0)								
20.1 Interval between TT 4 and TT5	(Write in months)		..... months	..... months	..... months	..... months	..... months	..... months	..... months
21.TT6	(Date/+/0)								.
21.1 Interval between TT5 and TT6	(Write in months)		..... months	..... months	..... months	..... months	..... months	..... months	..... months
22. TT 7	(Date/+/0)								
22.1 Interval between TT 6 and TT7	(Write in months)		..... months	..... months	..... months	..... months	..... months	..... months	..... months
23. TT8	(Date/+/0)								
23.1 Interval between TT 7 and TT8	(Write in months)		..... months	..... months	..... months	..... months	..... months	..... months	..... months
24. TT9	(Date/+/0)								
24.1 Interval between T8 and T9	(write in months)		..... months	..... months	..... months	..... months	..... months	..... months	..... months
25. TT10	(Date/+/0)								
25.1 Interval between TT9 and TT10	(write in months)		..... months	..... months	..... months	..... months	..... months	..... months	..... months
26. Last TT vaccine	(Date/+/0)								
26.1 Interval between TT 10 and last TT injection	(write in months)		..... months	..... months	..... months	..... months	..... months	..... months	..... months

		Skip to	**1**	**2**	**3**	**4**	**5**	**6**	**7**
27. Have you ever had an abscess after receiving a Tetanus vaccine?	Yes : 1	27.1							
	No : 2	28							
27.1Are you discouraged to take the rest TT injection due to abscess or any other problem?	Yes : 1								
	No : 2								
28. How many doses a woman should receive TT vaccine to be protected for the rest of her reproductive life? (write number or 'don't know')									
29. Why did you not take any TT vaccine? (ask those who have never taken any TT injection)									
30. What was your monthly family income?									

Thank you

Vitamin A
(6 to 59 month children applicable)
1. Applicable for those children aged 6-11 Months who born in between 02/5/2014 and 28/10/2014
2. Applicable for those children aged 12-59 months who born in between 23/5/2010 and 01/05/2014

1.Cluster number	
2. Date	
3. Survey area	

			6-11 months							12-59 Months						
4. Sl. no. of the child in this cluster		Skip to	1	2	3	4	5	6	7	8	9	10	11	12	13	14
5. Name of the child																
6.Name of the child's father																
7. Name of the child's mother																
8. Sex: Male –1 Female—2																
9. Date of birth of the child (Day/Month/Year)																
9a. Age in Month																
10. **Ask mother/guardian**: Was your child (6-59 months) fed vitamin A during the Vitamin A Plus Campaign held April 25, 2014 (22 choitra ,1421)	Yes: 1	11														
	No: 2	10.1														
10.1 If the child (6-59 months) was not fed Vitamin A during the Vitamin A Plus Campaign held April 25, 2014 then ask, Why the child wasn't fed Vitamin A during the Vitamin A Plus Campaign held April 5, 2014) (If there come multiple answers, ask which one is more important and code accordingly)	Didn't know	99														
	Was very busy : 01	01														
	Went on traveling	02														
	Don't believe in Vitamin A	03														
	The child was fed in the previous time	04														
	The child was sick, so didn't take him to the vaccination centre	05														
	The child was sick , so the health worker didn't give vaccine	06														
	Vitamin A was not available	07														
	Health worker was not available: 08	08														
	There was a long queue	09														
	The centre was too far	10														
	The session time was inconvenient	11														
	Was afraid of side effects	12														
	Was waiting to come back home with vitamin A	13														
	Religious/Social obstacles	14														
	Was not at home	15														
	Others (specify)															

			1	2	3	4	5	6	7	8	9	10	11	12	13	14
11. How did you learn about the Vitamin A Plus Campaign held April 25 , 2014 (Multiple answer)	GOB/ City corporations FW visit	01														
	City Corporation's Health Worker:	02														
	NGO worker Visit	03														
	Teacher visit	04														
	Other volunteers Visit	05														
	Family/neighbor/friends	06														
	Television	07														
	Radio	08														
	Poster	09														
	Newspaper	10														
	Mobile Miking	11														
	Mosque Miking	12														
	Health Workers' home visit	13														
	Told during first round	14														
	Mobile SMS	15														
	Others (specify)															

Thank you