

Combined Report

Assessing EPI service delivery and the status of zero-dose and under-immunized children among Forcibly Displaced Myanmar Nationals and in adjacent host community in Bangladesh

Submitted by:

Dr. Md. Jasim Uddin

Principal Investigator of Bangladesh Country Learning Hub

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Contributors:

Dr. Md. Jasim Uddin, Principal Investigator of Bangladesh Country Learning Hub and Emeritus Scientist, Health Systems and Population Studies Division (HSPSD), icddr,b

Ms. S.S. Tanvir Kaukab, Research Investigator, HSPSD, icddr,b

Mr. Md. Wazed Ali, Field Research Manager, HSPSD, icddr,b

Ms. Zerine Jannat, Assistant Scientist, HSPSD, icddr,b

Ms. Tabita Jannatul, Senior Research Assistant, HSPSD, icddr,b

Mr. Md. Sahriar Sayef, Senior Research Assistant, HSPSD, icddr,b

Ms. Habiba Akter, Senior Research Assistant, HSPSD, icddr,b

Ms. Sohana Akter Moni, Senior Research Assistant, HSPSD, icddr,b

Mr. Hemel Das, Statistician, HSPSD, icddr,b

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List of abbreviations

AHI	Assistant Health Inspector
ATA	Applied Thematic Analysis
BCG	Bacillus Calmette-Guérin
BDHS	Bangladesh Demographic and Health Survey
BeSD	Behavioural and Social Drivers of Vaccination
CES	Coverage Evaluation Survey
CHNW	Community Health and Nutrition Worker
CHW	Community Health Worker
CI	Confidence Interval
CiC	Camp-in-Charge
CS	Civil Surgeon
DGHS	Directorate General of Health Services
DHIS2	District Health Information Software 2
EPI	Expanded Programme on Immunization
FDMN	Forcibly Displaced Myanmar National
FGD	Focus Group Discussion
FIVDB	Friends in Village Development Bangladesh
FVC	Full Vaccination Coverage
Gavi	Gavi, the Vaccine Alliance
GK	Gonoshasthaya Kendra
GoB	Government of Bangladesh
HA	Health Assistant
HFM	Health Field Monitor
HI	Health Inspector
icddr,b	International Centre for Diarrhoeal Disease Research, Bangladesh
IDI	In-depth interview
ILR	Ice Lining Refrigerator
INGO	International non-governmental organization
IPC	Interpersonal Communication
IPV	Inactivated Polio Vaccine
IRB	Institutional Review Board
IRMMA	Identify, Reach, Monitor, Measure, and Advocate
KII	Key Informant Interview
MNC&AH	Maternal Neonatal Child and Adolescent Health
MO-DC	Medical Officer - Disease Control
MOHFW	Ministry of Health and Family Welfare
MSF	Médecins Sans Frontières
MT-EPI	Medical Technologist - EPI
NGO	Non-governmental Organization
OPV	Oral Polio Vaccine
PCV	Pneumococcal Conjugate Vaccine
PHC	Primary Health Care
RA	Research Assistant

RRRC	Refugee Relief and Repatriation Commissioner
SIMO	Surveillance and Immunization Medical Officer
SRA	Senior Research Assistant
TDH	Terre Des Hommes
UH&FPO	Upazila Health and Family Planning Officer
UHC	Upazila Health Complex
UI	Under-immunized
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
VPD	Vaccine Preventable Disease
WHO	World Health Organization
ZD	Zero-dose
ZIP	Zero-dose Immunization Programme

Executive Summary

Background: In August 2017, approximately 720,000 Forcibly Displaced Myanmar Nationals (FDMNs), also known as Rohingya, fled from violence that had erupted in the Rakhine state of Myanmar and sought refuge in Bangladesh. They settled in the camps of Ukhiya and Teknaf upazilas of Cox's Bazar district, which were already populated by 200,000 FDMN refugees prior. Notably, more FDMN refugees have arrived over the years and currently, there are more than a million FDMN residing in Bangladesh.

The FDMN had been deprived of human rights in their own homeland over the years and Expanded Programme on Immunization (EPI) coverage among this ethnic minority was low before they fled to Bangladesh, although exact coverage data was unknown. Given the dire need, the Government of Bangladesh (GoB) in collaboration with other development partners and Non-government Organizations (NGOs), commenced mass vaccination campaigns in 2017 to immunize the FDMN children against Vaccine Preventable Diseases (VPDs). In 2022, the GoB introduced routine immunization programme for these children but data on effectiveness of the programme are unavailable.

There is a dearth of information on migration and immunization history, overall coverage, antigen-wise coverage, status of Zero-dose (ZD) or Under-immunized (UI) in the FDMN community. One study reported that only two-thirds of the FDMN respondents had vaccinated their children according to EPI schedule, but this study did not show antigen-wise EPI coverage. Information on how humanitarian support and services related to EPI are provided to the FDMN populations are also lacking.

It is not known how refugee populations might affect vaccination coverage or access to services in host populations and we aimed to fill that knowledge gap. Literature shows a negative effect on the health of under-five children in host communities, including an increase in infectious diseases due to the influx of FDMN, though there are negative opinions about this. However, the FDMN and host community coexistence is a very complicated dynamic and requires careful consideration of the full social context, including migration and immunization history, variation of health and immunization contexts among the different population segments. District Health Information Software 2 (DHIS2) data on children from host communities living in Teknaf and Ukhiya FDMN showed high coverage of first and third doses of the Pentavalent vaccine (sometimes more than 100%) during 2017-2022, but the presence of ZD and UI children was unknown.

There was also a lack of information on how the settlement of the FDMN affects immunization coverage of children in the host communities and how the host communities were affected in vaccinating their children due to the settlement of FDMN. Considering the above scenario, this study assessed EPI services provided to the FDMN populations and host communities.

Objectives: The specific objectives of the study were to:

- Document the existing programmes for vaccination of FDMN and host communities' children
- Assess the role of partners in programme design, implementation, monitoring and measurement
- Document the immunization supply chain process for both the communities
- Assess the immunization status, including ZD and UI, among FDMN and host communities' children aged 4.5-<24 months, 2-11 years and associated factors
- Assess the level of immunization demand and willingness to vaccinate the FDMN children

Methods: This cross-sectional study used mixed method approaches for collecting data. We conducted social mapping of FDMN communities, household survey, qualitative data collection and validation workshop in this study. The study period was from June 2024 to May 2025.

The study was conducted in Ukhiya and Teknaf upazilas of Cox's Bazar and Bhasan Char of Noakhali districts. The host populations were included from Ukhiya and Teknaf upazilas residing adjacent to FDMN camps. No host community could be selected for Bhasan Char which is an island located in Bangladesh's Bay of Bengal. It is located around 6 kilometres from Sandwip island and 60 kilometres from the mainland, near the shore and thus, there is no existing host community in Bhasan Char.

The study population encompassed: (i) Primary caregivers (above 18 years) of FDMN children aged 4.5-<24 months and children aged 2-11 years in the sample households, (ii) primary caregivers (above 18 years) of children aged 4.5-<24 months living in the nearby host community (i.e., within a two to five kilometres radius of a camp) in selected upazilas, (iii) key stakeholders at the upazila level who are involved in providing humanitarian and primary healthcare services to both FDMN and host communities, (iv) immunization service managers and providers (male and female) in both camps and host communities, and (v) community leaders (male and female) of FDMN and host communities

We gathered data in three methodological steps. The steps were:

- Step 1: The first step to data collection was geographical and social mapping in FDMN camps to identify the target population and immunization activities and validate the mapping gathered information with the community
- Step 2: The next step was a household survey among the FDMN population and the adjacent host community to see the vaccination status, and immunization history
- Step 3: The third step of the data gathering process was qualitative data collection followed by a validation workshop and co-creation of possible solution

Different approaches were used for data analysis.

Results:

Vaccination programme in FDMN camps and host communities: In Ukhiya and Teknaf camp sites, the immunization system is the same as in rest of the Bangladesh. Upazila Health Complexes (UHCs) store vaccines in their Ice Lining Refrigerator (ILR) and later distribute them to the fixed and outreach centres as per the micro-plan. Children are vaccinated from fixed and outreach centres established in the camps. In Bhasan Char camp, EPI is directly controlled by the Civil Surgeon (CS) office, Noakhali. Vaccines are being stored at Bhasan Char 20-bed hospital of Ministry of Health and Family Welfare (MOHFW), which is also the only fixed centre in the camp. Vaccines are distributed to the outreach centres from 20-bed hospital as per requirement.

The provision of vaccination services in camps is a collaborative effort between a range of partners and varies according to the camps; the systems in Bhasan Char is markedly different from that in the other camps. In all cases, the EPI leads the vaccination programme in camps through the relevant CS. In Ukhiya and Teknaf, the programme is implemented under supervision of the UHCs of two upazilas and World Health Organization (WHO) and United Nations Children's Fund (UNICEF) provide technical support. In Bhasan Char, the programme is under the supervision of MOHFW led 20-Bed hospital and United Nations High Commissioner for Refugees (UNHCR) provides technical support.

In regard to vaccination in host community, EPI follows the ‘established’ vaccination programme mechanism used in for rest of the country in camp-adjacent host communities of Ukhiya and Teknaf. Vaccinators facilitate vaccination sessions three days a week (Sunday, Tuesday, and Thursday) and do Interpersonal Communication (IPC) on other three days of the week. Vaccinators said that they work alone in the host community unlike in the FDMN camps, where they work in pairs. Monitoring and supervision is the same as described above for the camps, but WHO has separate Surveillance Immunization Medical Officers (SIMOs) for the host community.

Role of implementing partners in vaccination programme: The GoB plays key role in implementing EPI within the FDMN camps. The Directorate General of Health Services (DGHS) under MOHFW is responsible for the EPI both in Bangladesh and FDMN camps. The government provides vaccines and other required logistics, such as vaccine carriers, cold boxes and ILRs and transports vaccines to vaccination centres, maintaining the cold chain. As we have mentioned earlier, the CS office Noakhali and UHCs of Ukhiya and Teknaf are directly implementing the EPI in FDMN camps. The EPI headquarters distributes vaccines to Noakhali and Cox’s Bazar.

Development partners play a crucial role in implementing the EPI programme within FDMN camps. UNICEF manages vaccine procurement for the FDMN children. They collect and transport the vaccines to GoB and maintain the cold chain. UNICEF also provides logistics such as tables and chairs for outreach centres whereas WHO provides technical support to the EPI programme of FDMN camps. They also monitor and guide the immunization process. They maintain timely arrival and distribution of vaccines, compliance with cold chain guidelines, assisting the vaccinators and mobilizing communities. Along with the government, they develop field implementation plans (micro-plans), provide training to the vaccinators, distribute outreach targets, plan and arrange vaccination campaigns and collect reports from both fixed and outreach centres. In FDMN camps, they also organize monthly coordination meeting to assess the vaccination progress.

NGO/ International Non-governmental Organizations (INGOs) also play an important role in vaccinating the FDMN children. The EPI uses NGO/INGO health facilities as fixed vaccination centres in FDMN camps. They appoint fixed vaccinators for fixed centres. These staff also identify dropout children, making a list that they share with their volunteers and Community Health Worker (CHW) teams for follow-up as well as with WHO in coordination meetings.

Immunization status of children aged 4.5–<24 months: We compared the status of valid Full Vaccination Coverage (FVC) between FDMN and the host communities, across the three study sites. Overall, the host communities consistently show higher percentages of coverage compared to the FDMN group at all sites. In FDMN, the differences of valid FVC status between three study sites were statistically significant (p -value<0.001). Overall, the host community had significantly higher valid FVC (82.6%) compared to the FDMN group (74.8%).

The percentage of ZD among the children in both communities was quite low (FDMN: 0.5%; Host: 0.2%). The low ZD percentage among FDMN children aged 4.5–<24 months might be due to the fact that a vaccination card was required to register the child in the family data card to receive facilities/assistance from the camps. The percentage of UI was more than double among FDMN children (12.5%) than the host children (5.8%). At FDMN sites, the rate of UI was lowest in Teknaf (4.4%).

The most common reason caregivers mentioned for their children being ZD and UI was the child's illness (FDMN: 63.1%; Host: 59.6%) followed by intent to vaccinate later (FDMN: 21.8%; Host: 35.7%). Fear of side effects was the third most common reason for ZD and UI in the FDMN community (15.5%) whereas for the host community, it was 'not knowing when to administer the vaccine' (23.7%). Other reasons cited were vaccine hesitancy (FDMN: 13.0%; Host: 14.2%), parents/caregivers' business (FDMN: 12.5%; Host: 18.1%), inconvenient timing (FDMN: 8.1%; Host: 4.9%), change of residence (FDMN: 7.6%; Host: 2.0%).

Factors associated with use of immunization, including ZD and UI: A range of factors affecting use of immunization were raised by participants. In some cases, the factors were described in similar ways by both caregivers and the service providers, but in other cases, their views were contradictory. The following factors that were raised by multiple respondents about vaccination of FDMN children including ZD and UI: Limited experience of FDMN with immunization, misconceptions, perceived lack of awareness, illness of children, side-effects, migration, involvement of community leaders, gender differences and norms.

How the lived experience of humanitarian crisis affected immunization demand: None of the caregivers mentioned any impact on child vaccination due to the FDMN population's experience of a humanitarian crisis. The participants did not believe that the memories of violence and crisis were connected to vaccination of their children.

Demand for immunization among the FDMN community: The qualitative findings show a mixed picture in regards to demand for immunization. Half of the caregivers interviewed felt that vaccination was widely accepted and encouraged in their communities. They felt most people around them supported and actively participated in vaccination. However, a few of the caregivers mentioned that some community members still had fear and negative attitudes based on past experiences with vaccination. The In-depth Interviews (IDIs) with caregivers suggested that caregivers are interested in having their children vaccinated, at least in so far as they had positive perceptions of vaccination. Perceived benefits were disease prevention and economic relief from the cost of the treatment of VPDs. Two caregivers attributed their children's current illnesses to delay in vaccination and added that vaccinating on time was important for disease prevention.

Increasing vaccination demand over time: According to the service providers who participated, vaccine uptake has been gradually increasing among FDMN children due to the combined efforts of all service providers in the camps. They felt that counselling, awareness raising activities, and involvement of CHWs including FDMN community volunteers have all contributed to this.

Conclusions and recommendations: Although the immunization coverage among FDMN children in Bangladesh is better than refugee children in other countries, the host community had notably higher valid FVC compared (82%) to the FDMN group (74%). Findings also show that ZD/UI is more common and twice as high among FDMN children than host children. Visibly, children of FDMN are more vulnerable to VPDs. Therefore, special attention is required to increase FVC of all children in the FDMN community in Bangladesh. Findings from the qualitative data and co-creation workshops identified a number of factors that affect use of vaccination among the FDMN population and lead to higher rates of UI children in the FDMN communities. These factors are exacerbated by cultural norms and dynamics between the refugees and the systems that supports them. However, the study recommended followings for improving the immunization programme and reducing ZD and UI children in the FDMN community.

Social behaviour change: Health education activities be strengthened for the FDMN community and such efforts should be grounded in a more nuanced understanding of the population that has ZD or UI children and should address the barriers to uptake. Developing a short film regarding vaccination and cartoons on ZD and UI in the FDMN community and the visual materials might be more effective with the FDMN as suggested by frontline service providers and the FGD participants.

Human resources: Given the insufficient supervision and monitoring activities due to extra workload because of the growing population, it was suggested to increase human resources. Training for CHW/Community Health and Nutrition Worker (CHNW) and volunteers are needed to develop their skills.

Coordination: Improved coordination is required given the number of organizations working in the camps, both within the immunization space and further broadly. Engaging partners in a coordinated manner and encouraging integration of EPI with other services, could make it easier for caregivers to receive the range of available services, ensure that they are not missing vaccination due to other competing activities, and can provide additional mechanisms for identifying and reaching ZD and UI children.

Community Involvement: Providers have recommended involvement of FDMN community leaders in EPI activities given that the FDMN are more inclined to trust and be influenced by their own community leaders, including majhees, religious leaders and teachers. They suggested that community leaders can be oriented on the benefits and importance of vaccination including ZD and UI which they can share with their community members during existing communal moments—such as in community gatherings or during *Zummah* (Friday prayers) prayers.

The involvement of both parents, especially fathers, was identified as a key factor by the respondents in improving vaccine uptake within the FDMN community. Effectively engaging fathers in the vaccination programme could be a means to change their opinions, improving vaccination coverage and reducing ZD and UI since they are the household heads.

Health Systems: Service providers from all areas emphasized digitalization of EPI activities in the camps. They said that the whole vaccination system in FDMN camps should be digitalized to help reduce errors in recording and reporting and to aid in identifying targeted children, identifying and reaching ZD and UI children, and recording and reporting EPI performance, including the supply chain.

Most importantly, designing appropriate interventions based on the key findings from co-creation workshops, study recommendations and implementation of interventions are essential for improving child vaccination uptake and reducing UI children in the FDMN communities.

Background

Humanitarian emergencies often disrupt and dismantle routine vaccination programs along with other routine health services. Displaced populations often end up in dismal conditions, living in crowded camps with poor water and sanitation, food scarcity, and poor access to healthcare. Such population are at high-risk of morbidity and mortality due to outbreaks of Vaccine Preventable Diseases (VPDs) (1). This is well-exemplified by the outbreak of diphtheria among Forcibly Displaced Myanmar Nationals (FDMN) that happened between 2017 and 2019 in FDMN camps of Cox's Bazar, Bangladesh (2, 3).

In August 2017, approximately 720,000 Forcibly Displaced Myanmar Nationals (FDMN) also known as Rohingyas fled from violence that had erupted in the Rakhine state of Myanmar (2). They arrived and settled in the camps of Ukhiya and Teknaf sub-districts (upazilas) of Bangladesh's Cox's Bazar district which was already populated by 200,000 FDMN refugees prior (4). Over the years, there were further influx of the FDMN and currently, more than one million FDMN live in Bangladesh. The Government of Bangladesh (GoB) relocated around 26,000 FDMN people to Bhasan Char area under Hatiya upazila of Noakhali district in 2022. These FDMN had been deprived of human rights in their own homeland over the years and Expanded Programme on Immunization (EPI) coverage among this ethnic minority was low before they fled to Bangladesh, although the exact coverage data is unavailable (5, 6). Years of exclusion and poor access to healthcare services had led to low immunity against many diseases in this group and to an outbreak of diphtheria and measles during the period of September-November 2017 (4). One study claimed this to be the largest reported outbreak of diphtheria among refugees worldwide (2). Notably, the FDMN community also faced outbreaks of other diseases including hepatitis A, varicella, and mumps (2). The GoB, in collaboration with other development partners and Non-government Organizations (NGOs), commenced mass vaccination campaigns in 2017 to immunize FDMN children against VPDs including diphtheria and measles (7, 8). In 2022, the GoB introduced routine immunization programme for FDMN children (7, 8). Data on effectiveness of the programme are yet to be available.

Gavi, the Vaccine Alliance and the Global Immunization Agenda 2030, have greatly intensified their emphasis on equity, with a focus on the intent to reach Zero-dose (ZD- missing first dose of Pentavalent vaccine) and Under-immunized (UI- missing third dose of Pentavalent vaccine) children and their communities. Gavi's five-year strategy 5.0 to improve equity in vaccination coverage hinges on five key intervention areas within the Identify, Reach, Monitor, Measure, and Advocate (IRMMA) framework. The use of this framework ensured a more systematic approach to reach ZD children and missed communities. To reduce inequities, including vulnerable population and gender inequities in accessing immunization, the focus of Gavi's support is to build and strengthen immunization services that sustainably reach children and communities who are missed by immunization and other critical health services (9). To support this, Gavi set up "Gavi Zero-dose Country Learning Hubs" in countries including Bangladesh. This hub helps identify and reach ZD children and missed communities. Gavi also launched the Zero-dose Immunization Programme (ZIP) to identify and reach ZD children living in displaced communities and fragile and conflict settings.

There is a dearth of information on migration and immunization history, overall coverage, antigen-wise coverage, status of ZD or UI in the FDMN community. One study reported that only two-thirds of the FDMN respondents had vaccinated their children according to EPI schedule but this study did not depict antigen-wise EPI coverage (10). Information on how humanitarian support and services related to EPI are provided to the FDMN populations are also lacking (11).

It is not known how refugee populations might affect vaccination coverage or access to services in host populations and we aimed to fill that knowledge gap. Literature shows a negative effect on the health of under-five children in host communities, including an increase in infectious diseases due to the influx of FDMN (12), though there are negative opinions about this. However, FDMN and host community coexistence is a very complicated dynamic and requires careful consideration of the full social context, including migration and immunization history, variation of health and immunization contexts among the different population segments. District Health Information Software 2 (DHIS2) data on children living in Teknaf and Ukhiya - the host communities of the FDMN - showed high coverage of first and third doses of the Pentavalent vaccine (sometimes more than 100%) during 2017-2022, but the presence of ZD and UI children was unknown. There was also a lack of information on how the settlement of FDMN affects immunization coverage of children in the host communities and the impacts exerted upon the host community in vaccinating their children due to the settlement of FDMN refugees. Considering the above scenario, this study assessed EPI services provided to the FDMN populations and host communities.

Objectives

The specific objectives of the study were to:

- Document the existing programmes for vaccination of FDMN and host communities' children
- Assess the role of partners in programme design, implementation, monitoring and measurement
- Document the immunization supply chain process for both the communities
- Assess the immunization status, including ZD and UI, among FDMN and host communities' children aged 4.5-<24 months, 2-11 years and associated factors
- Assess the level of immunization demand and willingness to vaccinate the FDMN children

Methods

Study design

This cross-sectional study used mixed method approaches for collecting data. We conducted social mapping of FDMN communities, household survey, qualitative data collection and validation workshop in this study. The study period was June 2024 to May 2025.

Study sites

The study was conducted in Ukhiya and Teknaf upazilas of Cox's Bazar and Bhasan Char of Noakhali districts. There are 969,002 FDMN population living in different camps of Ukhiya and Teknaf upazilas of Cox's Bazar district and 36,673 in Bhasan Char of Noakhali district (13).

With regard to host communities, the 2022 population census reported 333,840 people in Teknaf and 263,143 in Ukhiya residing adjacent to FDMN camps (14). Bhasan Char island is located in Bangladesh's Bay of Bengal. It is located around 6 kilometres from Sandwip island and 60 kilometres from the mainland, near the shore. So, there is no host community in Bhasan Char.

Study population

The study population were:

- i. Primary caregivers (above 18 years) of FDMN children aged 4.5-<24 months and children aged 2-11 years in the sample households
- ii. Primary caregivers (above 18 years) of children aged 4.5-<24 months living in the nearby host community (i.e., within a two to five kilometers radius of a camp) in selected upazilas. We used

this radius because people living within two to five kilometres of the camps are more likely to be affected by the influx of migrants.

- iii. Key stakeholders at the upazila (sub-national) level who are involved in providing humanitarian and primary healthcare services to both FDMN and host communities
- iv. Immunization service managers and providers (male and female) in both camps and host communities
- v. Community leaders (male and female) of FDMN and host communities

In household survey and qualitative data collection, the minimum age of 4.5 months for ZD measurement was selected to provide one month of extended time if the child missed the scheduled third dose of Pentavalent of the routine EPI programme. The age of 24 months is the maximum age limit for the EPI programme.

We also included children aged 2-11 years from the FDMN community in household survey to understand the effect of their lived experiences on vaccination uptake, including vaccination uptake before and after forced migration.

It is important to note that the legal age of marriage in Bangladesh is 18. However, as no documents were verified to confirm the respondents' ages, only verbal information was used to determine eligibility for the survey. If two or more eligible children were found in the selected household, the older child was included in the survey.

Data sources

We gathered data in three methodological steps. The steps were:

- Step 1: The first step was geographical and social mapping in FDMN camps to identify our target population and immunization activities and validate the mapping gathered information with the community
- Step 2: The next step was a household survey among the FDMN population and the adjacent host community to see the vaccination status, and immunization history
- Step 3: The third step of the data gathering process was qualitative data collection followed by a validation workshop and co-creation of possible solution

The details of the methods are described below:

i. Geographical and social mapping of FDMN communities and immunization activities

Mapping, observation and desk review

In areas of FDMN camps and vaccine delivery points, mapping was done through spot-visits by the study team members. In addition to sketch maps, characteristics of the locality/camps, vaccination spots, and estimated number of children below 2 and 2-11 years of age living within each camp were recorded using a record form/listing format ([Annex 1.1](#)). Feedback from local service providers were used to identify strengths and limitations of data gathered through mapping.

The mapping captured important features of migration, which were included time since migration or other factors such as humanitarian aspects from community leaders of FDMN community.

We conducted a desk review as part of the mapping exercise, collecting and reviewing published and unpublished documents on the FDMN and services available to them. The collected and reviewed documents included: lists of International Non-governmental Organizations (INGOs) and NGOs currently working in the camps; vaccination schedule; health and immunization service mapping; EPI micro-plans for camps and the host communities; population size in Ukhiya, Teknaf and Bhasan Char; maps of the camps showing blocks and clusters; contact details of key community personnel, and immunization coverage data on FDMN children. In addition to published and unpublished literature, we also collected and reviewed information available in the camps including number of block in each camp, number of sub-block, population in each camp/block/sub-block, available health and immunization service providers in the camps, type of service provided by the organizations, EPI micro-plan, vaccine supply chain.

Since little was known about the immunization status and immunization service delivery systems among the FDMN population, observations and collection of available information were done to map existing services and problems related to child immunization including ZD and UI. This method helped to understand existing interventions in FDMN and host communities in terms of coverage; ZD and UI; methods for providing services to the FDMN children (availability of appropriate micro-plan, services are provided through routine programme or campaign); partners involved in providing immunization services, role of the partners, supply chain situation.

Discussion with key community members and key community stakeholders were included in mapping exercise, to further enhance the completeness and accuracy of the data. The key community members included the community leaders (male and female) of different groups of FDMN, religious leaders, head of different communities and selected service providers. Information through discussion were collected on migration history (when migrated, support found and received after migration, supported by). A discussion guide was developed and used for collecting data ([Annex 1.2](#) and [Annex 1.3](#)).

Mapping of lived immunization history

Interviewees were asked about whether their children were vaccinated (either before migration or after migration), if all children age under 11 years of age in the family had been vaccinated, how immunization services were provided, perceptions about any immunization services received before or after migration, beliefs about immunization, their demand for immunization services and the availability as well as adequacy of immunization services in the camps where they reside.

Stakeholders consultation

Furthermore, discussions were conducted with frontline service providers such as vaccinators of GoB and NGO and humanitarian actors to know about vaccination programme for FDMN population, availability of micro-plan for FDMN children, acceptance of child immunization among FDMN. The discussion explored barriers in identifying and vaccinating FDMN children, support needed to overcome those problems and the interventions to be considered for future implementation ([Annex 1.4](#)).

Sampling of social mapping

Step 1: Selection of camps

The study team members visited all the camps in the three locations, observed the camps and collected the estimated population size from Camp-in-Charge (CiC) offices. Mentioned prior, the camps in Ukhiya and Teknaf are divided into blocks; each block has an average FDMN population of 3,500. The camp in Bhasan Char is divided into clusters and each cluster has an average of 564 FDMN.

Step 2: Selection of blocks and clusters

i) Selection of blocks in Ukhiya and Teknaf:

The second step was random selection of blocks in Ukhiya and Teknaf. Two blocks from each camp were randomly selected. Thus, a total of 50 blocks from Ukhiya and 12 blocks from Teknaf were selected randomly to complete the social mapping.

ii) Selection of clusters in Bhasan Char:

In Bhasan Char, the camp is divided into 63 administrative clusters with an average of 564 FDMN per cluster. To ensure an equal sample in each district, we randomly selected 14 clusters (equivalent to two blocks) from the 63 clusters in Bhasan Char. We tried to keep same population size between cluster in Bhasan Char and block in Ukhiya/Teknaf.

Step 3: Selection of interviewees

Our initial plan was to select one CiC official and one frontline service provider from all the 32 camps for interview. The frontline service providers included the vaccinators and Community Health Workers (CHWs). We observed a total of 34 EPI sessions from the three sites. One frontline service provider from each observed EPI session was purposively selected for interview.

We also purposively selected three community leaders (one majhee, one imam and one teacher) for interview from each block. However, after completing the mapping in three camps, we achieved data saturation so we opted to interview three community leaders (one majhee, one Imam, and one teacher) per camp instead of per block. Two of the selected CiC officials (one each from Ukhiya and Teknaf) were unavailable for interview.

For Bhasan Char, we sampled one CiC official, three frontline service providers, and 18 community leaders from the selected 14 clusters.

Data collection of social mapping

Primary data were collected by a research team consisting of five experienced Research Officers. The team conducted geographic and social mapping of FDMN communities and immunization activities through in-person visits to selected blocks in every camp in Ukhiya and Teknaf and selected clusters in Bhasan Char. Camps and block maps were sketched to identify the characteristics of the camps, such as housing, vaccination centres, and the location of hospitals and health posts. Data were collected through discussion with CiC officials, community leaders, frontline service providers, observation of EPI sessions, and mapping of humanitarian organizations working with FDMN populations. Quantitative data were collected through web version of KoboToolbox.

Table 1 presents the status of respondents and locations covered for data collection. A total of six data collection tools were used for data collection from different group of respondents ([Annex 1](#)).

Table 1: Number of persons consulted and areas visited for data collection during social mapping

Methods of mapping	Areas			Total
	Ukhiya	Teknaf	Bhasan Char	
Consultation with CiC offices ¹	24	5	1	30
Consultation with frontline service providers	25	6	3	34
Interview with community leaders				

Methods of mapping	Areas			Total
	Ukhiya	Teknaf	Bhasan Char	
– Majhee (Community headman of FDMN camps) ²	29	6	6	41
– Imam (Religious leader) ³	28	6	7	41
– School teacher ⁴	29	6	5	40
Observation of camps	25	6	1	32
Observation of EPI sessions	25	6	3	34

¹All are male (All CiCs were male)
² 2 female majhee
³ 2 female religious leaders
⁴ 4 female school teachers

Detailed report on the findings from social mapping can be found in this [link](#).

ii. Household survey

A household survey was conducted with caregivers of children aged 4.5-<24 months from the FDMN and host communities to assess current vaccination coverage. The survey also captured vaccination history among FDMN children aged 2-11 years of the same caregivers and determinants of vaccine uptake. A pre-tested structured questionnaire was used by trained data collectors ([Annex 2](#)). Data were collected on: (i) socio-economic characteristics of households, (ii) availability of vaccination card, (iii) vaccination status of all children aged under 11 years of selected households, (iv) timing of vaccination, (v) vaccination of the children before and after migration, (vi) reasons for not vaccinating the children before and after migration, (vii) status of ZD and UI children, (viii) status of drop-out and left-out. Data were also collected about when the FDMNs arrived and length of time in this camp, family composition, immunization experience, history of services access, perceptions/beliefs about health services. The survey also collected data on key elements of the Behavioural and Social Drivers (BeSD) of vaccination such as perceived disease risk; perceived benefits, safety and trust on vaccine; social norms; availability, affordability, and accessibility of vaccine; intention to get recommended vaccines. Special focus was given on five priority BeSD indicators for routine immunization (e.g. confidence in vaccine benefits, intention to get vaccination, knowing where to get vaccinated) and some additional gender indicators.

Sample size for household survey

The sample size was calculated to estimate the coverage of ZD and UI among children of age 4.5-<12 months (cohort 1) and 12-<24 months (cohort 2) in each FDMN community (Ukhiya, Teknaf and Bhasan Char) and host community in Ukhiya and Teknaf. To estimate the prevalence of ZD and UI among children aged 2-11 years, the vaccination status of children in this age range was recorded by interviewing caregivers of both cohorts.

FDMN community: Reliable estimates of ZD and UI in children aged <24 months were unavailable for FDMN communities. Evidence showed that 63% of the FDMN parents vaccinated their children as per schedule, but no age breakdown was available (10). In the absence of prior estimates, we assumed that 50% of the FDMN children were either ZD or UI, giving an estimated sample size of 384 considering a 5% margin of error and 95% confidence interval (CI). Because children were sampled using random cluster sampling, the required sample size, adjusted for the design effect of 2.0 and 5% non-availability or non-response rate (based on evidence of <2% non-response in a survey conducted by icddr,b in February 2024), was 820 for per cohort. Since the estimated number of infants aged 4.5-<12 months (cohort 1) in two sites (Teknaf and Bhasan Char) was less than 820, the survey covered all

the infants in the two areas. The total sample size for FDMNs was 4,642 for Ukhiya, Teknaf and Bhasan Char (Table 2).

Host community: According to the EPI Coverage Evaluation Survey (CES) 2019, valid Full Vaccination Coverage (FVC) in Cox’s Bazar district was 83% (15). Hence, 17% of the children were ZD or UI in host communities. Considering a 95% CI and a 5% margin of error, the estimated sample size was 220. The required sample size, after adjusting for the design effect of 1.5 and 10% non-availability and non-response rate, was 370 per cohort per site, totalling 1,480 (=370×2 study sites×2 cohorts) for host communities. As stated earlier, no host community exists near the Bhasan Char camp. Table 2 shows the required sample size for the study in each cohort and each site.

Table 2: Number of blocks, FDMN families, and children, estimated sample size per study cohort by study site

Pop ⁿ type	Area	# of camps ¹	# of blocks/ clusters ¹	# of families ¹	# of children ¹		Expected # of children		Sample		
					age < 12 months	aged 4.5- <12 months	aged 12-<24 months	Proportion ²	aged 4.5 -<12 months ³	age 12 - <24 months ³	Total
FDMN	Ukhiya	25	134 blocks	159,636	8,299	5,145	8,299	50%	820	820	1,640
	Teknaf	6	30 blocks	31,908	980	608	980		608	820	1,428
	Bhasan Char	1	63 clusters	7,466	1,216	754	1,216		754	820	1,574
	Total	32	164 blocks & 63 clusters	199,010	10,495	6,507	10,495		2,182	2,460	4,642
Host	Ukhiya	-	-	-	-	-	-	17%	370	370	740
	Teknaf	-	-	-	-	-	-		370	370	740
	Total	-	-	-	-	-	-		740	740	1,480
Grand Total									2,922	3,200	6,122

¹Sources: GoB-UNHCR Joint Registration Exercise as of September 2023 (13)

² for FDMN: In the absence of any prior estimate, 50% of FDMN children are considered either ZD or UI

for Host: Valid Vaccination Coverage at Cox's Bazar from EPI Coverage Evaluation Survey (CES) 2019

³ for FDMN: considered 95% confidence interval, 5% precision of error, design effect 2.0 and 5% non-availability and non-response rate
for Host: considered 95% confidence interval, 5% precision of error, design effect 1.5 and 10% non-availability and non-response rate

Sample selection process

FDMN communities: The study used a two-stage cluster sampling methodology. The FDMN population were housed in 32 camps. The camps in Ukhiya and Teknaf are divided into blocks, which were then divided into sub-blocks. The number of blocks per camp varies from 1 to 9. Bhasan Char is divided into 63 clusters. The FDMN population size per site and the number of blocks per camp varied more widely than cluster size. Furthermore, information on the number of sub-blocks in each block was inadequate. So, the block/cluster was considered as primary sampling unit to capture the sampling units (Table 2). Hence, we followed a similar selection process with different selection probabilities across the three sites.

- In Ukhiya, the FDMN live in 25 camps divided into 134 blocks. Each block houses, on average, 1000-1200 FDMN families. Following EPI cluster sampling methodology, we randomly selected 75 out of 134 blocks to reach 1,640 children (820 children of each cohort). On average, 21~22 families (=1640 children/ 75 blocks) with eligible children per block had to be selected for interview following systematic random sampling methodology
- In Teknaf, FDMN live in 6 camps divided into 30 blocks. Each block houses, on average, 800~1000 FDMN families. To reach our target number of children in Teknaf, we used a take-all approach for

selecting blocks and families with infants aged 4.5 -<12 months. On average, 27~28 families (=820 children/30 blocks) with children aged 12-<24 months needed to be selected for interview following a systematic random sampling technique.

- In Bhasan Char, FDMN live in 63 clusters. The take-all approach for selecting clusters and families with infants aged 4.5-<12 months was followed. On average, 13~14 families (=820 children / 63 clusters) with children aged 12-<24 months were selected following a systematic random sampling approach.

All caregivers of children aged 4.5-<24 months who also had children aged 2-11 years were interviewed about the vaccination status of those children, both before and after they migrated.

Host communities: We collected lists of EPI clusters for the communities adjacent to FDMN camps. There were two unions, Palongkhali and Rajapalong, in Ukhiya upazila, and as two unions, Whykhyang and Hnila, in Teknaf upazila, adjacent to the FDMN camps. A total of 98 clusters were listed across these four unions, with the Whykhyang union having 26 clusters and the remaining unions having 24 clusters each. Since the number of clusters in each union was relatively small, we adopted a "take-all" approach for cluster selection.

According to Bangladesh Demographic and Health Survey (BDHS) 2017-18, the mean number of members per household in Bangladesh was 4.3, and the percentage of children less than two years old was 4.2 (16). Hence, it was expected that 6 ($=1 / (4.3 \times 4.2\%)$) households needed to be visited to identify one eligible child and to reach 740 ($=370 \times 2$ cohort) eligible children, 4,440 ($=6 \times 740$) households needed to visit from each union. Therefore, we purposively selected 30~31 ($=740/24$ EPI cluster) households from the list of eligible households of each cluster starting with the nearest households to the camps.

Data collection of household survey

Data were collected through online platform KoboToolBox, and a TAB-based questionnaire was developed and used for data collection. A total of 37 staff (who had previous experienced in data collection at FDMN population) including 30 data collectors (male:10 and female:20) and seven supervisors were recruited for household survey. Seven teams were formed, each led by one supervisor, and assigned to a specific site. Team size varied based on the estimated sample size for the area of assignment with three teams assigned to Ukhiya, two to Teknaf, and two to Bhasan Char. The data collectors used local dialect during interview and they were assisted by FDMN volunteers where needed. Hard copies of the informed consent and script documents were available in Bangla. Informed consent was obtained prior to data collection, and respondents signed a hard copy before the interview.

Quality assurance of household survey data

Several steps were taken to ensure data quality. First, the data collectors checked their self-completed survey questionnaires for any typing errors, missing information, or inconsistent responses. The data collectors solved any identified issues immediately during the review process. When necessary, the data collectors revisited the households to resolve issues. Afterwards, the supervisors rechecked the survey questionnaire for any inconsistencies. Data collectors later uploaded data to the KoboToolbox server. Two investigators at Dhaka office were designated to ensure data quality check through checking of vaccination cards (photos) and provide feedback to field staff regarding needed improvements. The investigators also rechecked collected data from the KoboToolbox server and documented any

inconsistency using a Microsoft Excel-based reference/inquiry form. Supervisors re-interviewed 2% of total interviews.

The detailed report on findings from household survey can be found in the [link](#).

iii. Qualitative data collection and validation workshop

Key Informant Interviews (KIIs)

We interviewed purposively selected district and upazila-level managers and other relevant national and sub-national level stakeholders who were involved in providing primary healthcare, including immunization services, to obtain insights about immunization service delivery mechanisms in the FDMN camps and the adjacent host community. The KII guideline ([Annex 3](#)) explored how they considered the FDMN’s lived experience and whether it influenced service delivery; service delivery approaches for the FDMN population and host communities, how coverage is measured, and how problems are identified and addressed. A total of 21 KIIs were conducted for this study (**Table 3**). The participants included stakeholders involved in providing humanitarian services such as the United Nations High Commissioner for Refugees (UNHCR), World Health Organization (WHO), United Nations Children's Fund (UNICEF), Médecins Sans Frontières (MSF), Terre Des Hommes (TDH), and Mukti Cox’s Bazar. The mapping activity, community discussions, and household interviews were used to identify relevant humanitarian actors. Each KII took around 45-50 minutes. With the permission of the informants, the whole interviews were noted and recorded simultaneously to get all the information properly.

Focus Group Discussions (FGDs)

Three FGD sessions were conducted in three study sites with vaccinators, supervisors of CHWs and vaccinators working with the NGO/ INGO (**Table 3**). The participants were selected purposively from different camps. A guideline was used for conducting FGDs ([Annex 4](#)). Two experienced qualitative researchers conducted the FGDs, one to facilitate the discussion and other acted as note taker. Each FGD session took around 60 minutes to complete.

In-depth Interviews (IDIs)

Twelve IDIs were conducted with caregivers of ZD, UI, fully vaccinated, and drop-out children in the three study sites to capture their experience with vaccination activities in Myanmar and Bangladesh and the experience of displacement from their home country (**Table 3**). Each interview took approximately 45–60 minutes. An IDI guideline was used for conducting the interviews ([Annex 5](#)).

Table 3: Study participants by method and geographic area

Methods	Upazila and below			District		Total
	Ukhia	Teknaf	Bhasan Char	Noakhali	Cox’s Bazar	
KII	Upazila Health and Family Planning Officer (UH&FPO)	UH&FPO	Additional Refugee Relief and Repatriation Commissioner (RRRC)	Civil Surgeon (CS)	Additional RRRC	21
	Surveillance and Immunization Medical	SIMO, WHO	Hospital Coordinator (Govt.)	District EPI Superintendent	Public Health Officer (UNHCR)	

Methods	Upazila and below			District		Total
	Ukhiya	Teknaf	Bhasan Char	Noakhali	Cox's Bazar	
	Officer (SIMO), WHO					
	Medical Technologist-EPI (MT-EPI)	Health Inspector (HI)	Health Lead (UNHCR)	-	Health Specialist (UNICEF)	
	Nursing Specialist Manager (MSF)	NGO clinic Manager (TDH)	Mental Health and Psychosocial Support (Mukti Cox's Bazar)	-	Health Coordinator (RRRC)	
	HI	-	MT- EPI	-	District EPI Superintendent	
IDI	Caregivers of ZD children (2)	Not found	Not found			12
	Caregivers of UI children (1)	Caregivers of UI children (1)	Caregivers of UI children (1)			
	Caregivers of fully vaccinated children (3)	Caregivers of fully vaccinated children (1)	Caregivers of fully vaccinated children (1)			
	Caregivers of drop-out children (1)	-	Caregivers of drop-out children (1)			
FGD	Vaccinators (1 session)	Vaccinators (1 session)	Vaccinators & CHWs supervisors (1 session)			3

Note: Although RRRC documents report 33 camps, during social mapping it was found that one camp had been dissolved.

Data validation and co-creation workshop

Data validation and co-creation workshops with communities and service providers were held in all three study areas: Ukhiya, Teknaf, and Bhasan Char. A total of ten workshops were conducted in three study sites (**Table 4**), one each with caregivers and parents of ZD and UI children, community leaders, and service providers at sub-district level and one with district level stakeholders. The purpose of the workshops was to:

- Validate the data collected through the social mapping, household survey and qualitative interviews and FGDs
- Engage participants in co-creation of potential solutions to address ZD and UI children in both FDMN and host communities

At each workshop, the findings from the all phases of data collection were shared and feedback was solicited from the participants on collected data.

Using the data as basis for discussion, the facilitators engaged participants (caregivers, community leaders and service providers) in group exercise to co-create potential solutions to address ZD and UI in both FDMN and host communities. The workshops were facilitated by the Research Investigators (RIs); Senior Research Assistants (SRAs) performed as notetakers. A Research Assistant (RAs) level interpreter, who had an excellent understanding of the FDMN language and Bangla and had experience conducting qualitative research and working with FDMN camps, was appointed to communicate with FDMN participants and work as an interpreter between the facilitators and participants during the workshops. Guidelines for each group of workshop participants were used ([Annex 6](#)). After an overview of the study, key results were presented one at a time and each one was discussed in terms of whether or not the participants agreed with the finding and possible solutions to address the issue.

Table 4: Number and type of participants in each category of the workshop

Category	Number and type of participants	Selection	Number of workshops
Caregivers	- Caregivers: 10-12	Purposively selected female caregivers who have children aged under 24 months, especially ZD, UI, dropout and fully vaccinated children from the FDMN camps	3 (1 workshop from each site)
Community leaders	- Majhee (community leader):4-6 - Imam: 4-6 persons - School teacher: 4-6	Purposively selected one of each type from each site (Bhasan Char does not have a host community)	3 (1 workshop from each area)
Service providers	- HIs: 1 - Assistant Health Inspectors (AHIs): 2-3 - WHO: 1-2 - UNICEF: 1-2 - Health Assistant (HA) /Vaccinator/ Volunteer: 5-7 - NGOs/ INGOs: 3-4	Purposively selected	3 (1 workshop from each area)
District level stakeholders	Officials from Ministry of Health and Family Welfare (MOHFW), EPI HQ, Directorate General of Health Services (DGHS), RRRC, development partners, representatives from INGO/NGO	Purposively selected	1
Total			10

The detailed report on findings from qualitative data collection and co-creation workshops can be found in the [link](#).

Data Analysis

We analyzed data on household characteristics of FDMNs. Data on immunization sessions was examined focusing on key metrics such as session start and end times, vaccine arrival time, and the opening time of vaccine carriers and later, analyzed using arithmetic means for each study area. We also analyzed data on management of vaccination centres, logistics available in the sessions, supply

system, cold chain, counselling during vaccination, record-keeping, and session monitoring through frequency distribution at each site. To understand socio-cultural dynamics, we analyzed language patterns both within the community and in interactions with outsiders in the camp. Additionally, descriptive statistics, such as means and counts of community leaders from various occupations within the FDMN community, we calculated to gain insights into societal norms. The sources of income reported by CiC officials and community leaders were evaluated through frequency distributions to explore livelihood options available in the camps. We prepared transcripts and compiled qualitative data (collected for social mapping) manually. We started reading of qualitative data during fieldwork and repeatedly triangulated information across different tools and field teams. Two RAs read the qualitative data and prepared a code list using both inductive and deductive methods. Subsequently we organized the codes under appropriate themes and sub-themes and analyzed the data based on those themes and sub-themes.

Household survey data were analysed using statistical software STATA (v.16). We calculated the base weight and normalized weight at the household level for each area data on the total number of blocks/clusters, households, sub-blocks (for FDMN) and completed interviews in each camp for FDMN and cluster for host community. We calculated the distribution of households, caregivers, and child characteristics by study site and community type. Caregiver characteristics included age, gender, marital status, parity, education, occupation, workplace, ethnicity, religion. Children's characteristics were categorized into two age groups: 4.5-<24 months and 2-11 years; the second age group was only collected for FDMN families. We analyzed vaccination status separately for these two age groups. Crude vaccination was calculated based on age-appropriate vaccination from card or history and valid vaccination coverage was calculated based on card only; this was done for each specific antigen. Comparison between crude and valid coverage enabled us to estimate the percentage of children who get the vaccines on time. FVC was calculated as the percentage of children aged 12-<24 months who took Bacillus Calmette-Guerin (BCG), three doses of Pentavalent (Penta), three doses of Oral Polio Vaccine (OPV), three doses of Pneumococcal Conjugate Vaccine (PCV) and 1st dose of Measles Rubella (MR). Dropout rates for Penta1-Penta3 and Penta1-MR1 were also calculated. A child who received the Penta 1 vaccine but did not return for Penta 3 was considered a dropout from Penta 1 to Penta 3. Similarly, a child who received Penta1 but did not return for MR1 was considered a Penta1-MR1 dropout. A vaccine dose was considered invalid if administered earlier than the minimum recommended age or after less than the recommended interval between doses. For the multi-dose vaccine (Penta, OPV, PCV, IPV), if the vaccine card indicates that one dose in a sequence was invalid but that it was followed by valid doses, then only the later dose was considered as valid. Two important indicators, prevalence of ZD and UI were also measured in the study. ZD was defined as children who missed the 1st dose of Pentavalent and UI was defined as the children who received the 1st dose of Pentavalent but missed the 3rd dose of Pentavalent. Access to a vaccination service center, reasons for ZD and UI, information on side-effects after vaccination and recommendations of caregivers on children vaccination were also analyzed for the children aged 4.5-<24 months. For the children aged 2-11 years, we analyzed the distribution of vaccination status, place of vaccination, reason for ZD or UI and the experience of their caregivers with healthcare services and migration as well as their opinions about the attitude of host communities towards FDMN.

Descriptive statistics (e.g., percentages, frequencies, mean) were computed. Identifying relationships of independent variables with outcome variables (ZD and UI) were analyzed at 5% level of significance using Chi-square test and two-proportion test. Multivariate analysis was done to estimate ZD and UI adjusting for clustering and confounding factors.

Qualitative data including proceedings from the workshops were transcribed immediately after data collection. A 5-member team that had been part of data collection contributed to the analysis. The same interpreter noted above transcribed and translated the interviews with caregivers. The team reviewed each other's transcripts for quality and accuracy check and to become familiar with the data. We used Applied Thematic Analysis (ATA) to analyze the data, combining inductive and deductive methods. A list of themes from the study objectives and interview guidelines was supplemented with themes that emerged from the data. The findings from the co-creation workshops were triangulated with the results of the qualitative interviews and FGDs; the results are presented together in the detailed report ([link](#)).

Ethical considerations

The protection of all potential participants was ensured when they were invited to participate the study. For each in-person survey interview, KIIs and FGDs, the informed consent of the informants/ participants was respectfully requested before collecting information, taking notes and recording the entire session. All respondents provided written consent after fully informed about the study and the consequences of their participation. The decision to participate was entirely voluntary for respondents, ensuring their autonomy was respected. It was ensured that the respondents faced no harmful consequences on termination. All the interviews and FGDs were conducted by experienced field researchers who have a social science background with training on qualitative research. Before implementation of the study, ethical approval was obtained from the Institutional Review Board (IRB) at icddr,b.

Results

(a) Existing programmes in FDMN camps and host communities

Vaccination programmes in FDMN camps

In Ukhiya and Teknaf campsites, the immunization system is the same as in the rest of Bangladesh. Upazila Health Complexes (UHCs) store vaccines in their ILR and later distribute them to the fixed and outreach centres as per the micro-plan. Children are vaccinated from fixed and outreach centres established in the camps or through campaigns that are organized per necessity. Ukhiya UHC sends vaccines in vaccine carriers to Kutupalong Community Clinic and Balukhali union sub-centre. Vaccinators of different camps collect vaccine carriers from these points and return the carrier to these points at the end of the day. In Teknaf, Teknaf UHC delivers vaccine carriers to some specific points (usually roadside stalls) and concerned vaccinators collect the vaccine carriers from the points, returning them at the end of the day. The UHCs also maintain buffer boxes of extra vaccine to meet emergencies.

In Bhasan Char camp, EPI is directly controlled by the CS office, Noakhali. Vaccines are being stored at Bhasan Char 20-bed hospital of MOHFW, which is also the only fixed centre in the camp. Vaccines are distributed to the outreach centres from 20-bed hospital as per requirement.

Routine EPI in FDMN camps

Provision of vaccination services in the camps is a collaborative effort between a range of partners and varies by camp; the systems in Bhasan Char is markedly different from that in the other camps. In all cases, the EPI of the GoB leads the vaccination programme in the camps through the relevant CS. In Ukhiya and Teknaf, the programme is implemented under the supervision of the UHCs of the two upazilas and WHO and UNICEF provide technical support. In Bhasan Char, the programme is under the supervision of the MOHFW led 20-Bed hospital and UNHCR provides technical support.

In all camps, vaccination services are provided from both fixed centers and outreach sites. Each camp has one or more fixed centers and 4-5 outreach centers. The RRRC determines the number of each based on the area and population of the camp. In Cox's Bazar, EPI fixed centers are located in Primary Health Care (PHC) centers and health posts run by INGOs/NGOs such as Gonoshasthaya Kendra (GK), TDH, Friendship, and MSF, who are the implementing partners and the GoB EPI conducts the outreach centers except in six camps in Ukhiya where MSF, an INGO conducts the outreach vaccination programme.

In Bhasan Char, the vaccination programme is implemented entirely by GoB vaccinators. This is true at both the fixed centre at the 20-bed government hospital and the four outreach centers. The outreach centers are located at NGO-run health posts, but the vaccinators are GoB staff. The development partners and other INGOs such as WHO, UNICEF, UNHCR in Bhasan Char provide CHWs and monitoring support.

Service Delivery: Fixed EPI centers in the FDMN camps in Ukhiya and Teknaf conduct vaccination sessions 4-6 days per week based on the PHC's schedule. According to a service provider of the RRRC office, a PHC is generally established to serve a population of 30,000, while a health post is established for 10,000 people. In Bhasan Char, the only fixed site is a 20-bed government hospital that operates six days a week from 8:00 am to 2:00 pm.

Teams of two vaccinators offer vaccination at outreach centers, circulating between centers so that they offer one session monthly at each center. In two upazilas of Cox's Bazar, the 132 government vaccinators (108 in Ukhiya and 24 in Teknaf) provide vaccination services three days a week and conduct Interpersonal Communication (IPC) in the community on the other three days a week. For IPC they share information on the day, time and location of services and conduct households to all eligible households and identify ZD and UI children. A similar schedule is followed in Bhasan Char. Three vaccinators and one supervisor provide vaccinations in all outreach sites in Bhasan Char. The PHCs and health posts are the outreach sites and the health workers at those sites collaborate with the vaccinators and provide IPC support. The MT-EPI remains at the fixed site and vaccinates children who are brought there for services. visit fixed site.

Routine services are complemented by campaigns when an outbreak of a specific vaccine-preventable disease is expected or identified. In that case, a committee in the CS office plans the campaign and informs the EPI headquarters about the need for vaccine supply. Then the routine service providers (government or NGO) initiate the campaign. Volunteers and CHWs/Community Health and Nutrition Workers (CHNWs) are responsible for contacting eligible households and bringing them to the vaccine centers (fixed or outreach) for vaccination under the campaign. In some cases, the UHC assigns vaccinators from the host community to support the campaign in the camps.

Micro-plans: Although the UHC oversees vaccination services in both the host community and the camp, separate EPI micro-plans are developed for the camps. These micro-plans contain yearly targets and a schedule for IPC/vaccination in outreach centers. Respondents (front line vaccinators and a sub-national manager) said that the outreach center's vaccinators submit their micro-plan to the Upazila Health & Family Planning Officer's (UH&FPO) office who sends it to the district CS office. In the CS office, the micro-plan committee consisting of the District EPI Superintendent, Medical Officer Disease Control (MO-DC), and SIMO, compiles all the micro-plans within the district and finalizes them. The way that the micro-plan targets are set appears to vary. Some EPI service providers said that they determined the target based on the highest antigen use last year, but another said that they took help

from the CiC office regarding the number of newborn children in a year. Micro-plans for campaigns are set separately because they are ad hoc.

IPC: IPC is a key component of outreach activities. On the day before each outreach vaccination session, IPC is conducted to mobilize caregivers. While the vaccination team often leads the IPC and CHW/CHNW appointed by the NGOs/INGOs also conduct IPC in FDMN camps. UNICEF has also collaborated with Friends in Village Development Bangladesh (FIVDB) and appointed community volunteers from the FDMN community to support IPC. These community volunteers visit door-to-door and list the newborns and drop out children, counsel the caregivers, and help the vaccinators in communicating with caregivers.

Record keeping and reporting: Data on vaccination service delivery is recorded by the vaccinators in the EPI register, which is kept at the vaccination centre (fixed or outreach), and on the vaccination card that is held by the caregiver. Each day the vaccinators summarize the data in the registers and share it with their supervisors (AHI or HI) who review the data and forward it to the statistician at the UHC. The statistician enters the data into the national DHIS2 on a regular basis—ideally weekly. In Bhasan Char, the supervisors report directly to the CS Noakhali where the data are entered into DHIS2. There are concerns about the quality of the data recorded, in part because of differences between the information found in the vaccine cards and EPI register books. This was a finding of the household survey that the service providers in the KIIs and FGDs confirmed; WHO has also identified this through their monitoring.

Challenges in record keeping and reporting were a topic raised in the co-creation workshops. Participants discussed that vaccinators are not properly trained on these tasks, which, along with communication challenges due to the language barrier, leads to errors in recording service provision in the register and the vaccination cards. This was believed to be exacerbated by having a paper system that relies on the caregiver's memory if the card is not available, a particular challenge given that older children often bring infants for vaccination in the camps.

Monitoring: According to the EPI service providers, a multi-layer monitoring system operates in the FDMN camps (**Figure 1**) that monitors vaccination service provision, including number of ZD/UI children, number of drop outs, etc. This information is used to inform service delivery and provide feedback to the UH&FPO on day to day activities. The service providers who supervise the sessions in the FDMN camps and the host community claimed that the FDMN vaccination programme had stronger monitoring than the host community because of the multi-layer monitoring system.

UHCs of Ukhiya and Teknaf monitor vaccination in FDMN camps under the supervision of the CS Office of Cox's Bazar. The AHIs, who are based in the UHC, monitor all vaccination services in the upazila, whether in FDMN or the host community, through visits to sites. HIs also monitor vaccination activities, but they visit less frequently than the AHIs. Between the AHI and HI, each vaccination center is scheduled to have at least one visit per month. Moreover, the MO-DC and the UH&FPO sometimes visit the camps to monitor EPI as second-line supervisors. The EPI team monitors the cold chain, IPC activities, and vaccination services. One of the EPI staff mentioned that they do not use any tools or forms for monitoring.

In Bhasan Char, EPI is monitored directly from the CS office, Noakhali [KII-Hospital Coordination-Bhasan Char].

In addition, the District EPI Superintendents of Cox's Bazar and Noakhali monitor the EPI programme in the FDMN camps, visiting every two to three months.

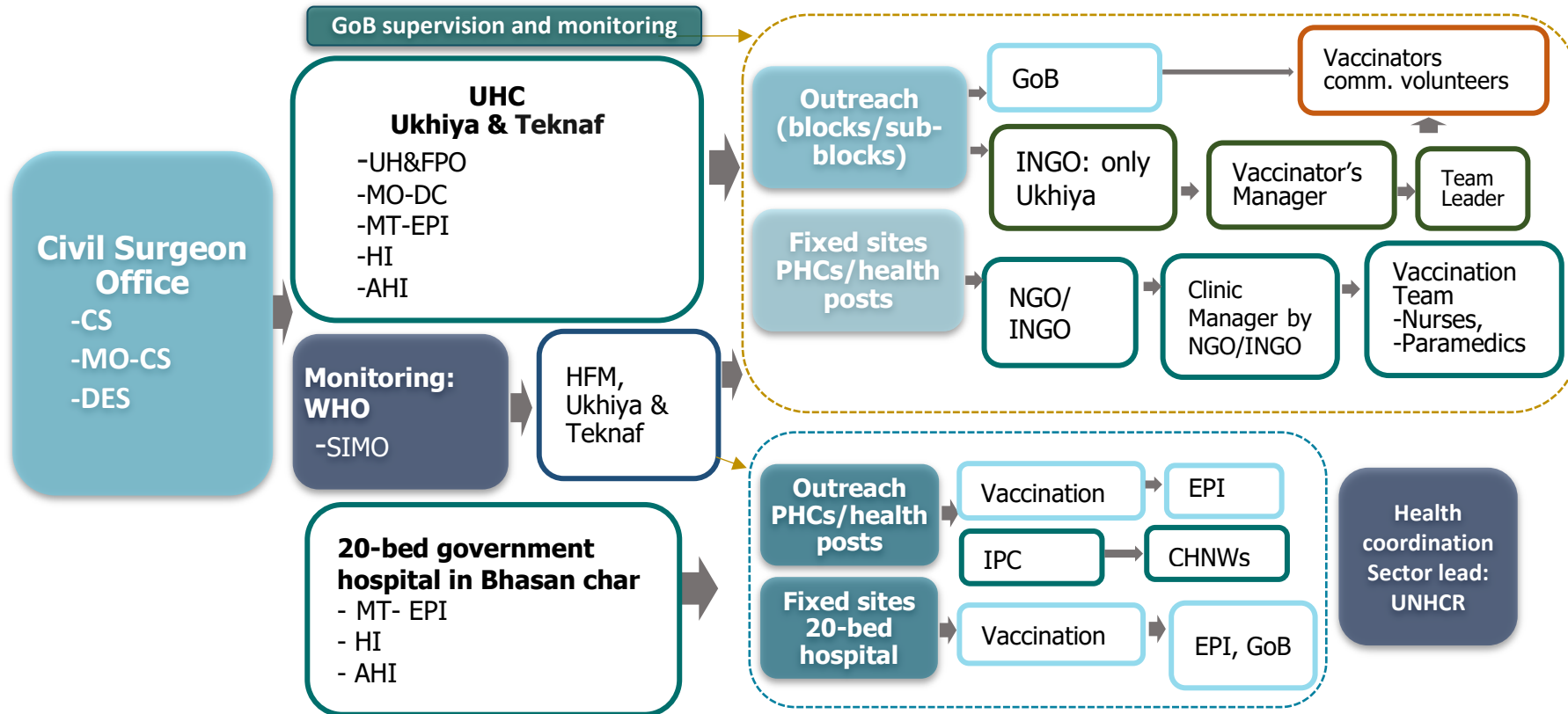
The WHO provides another layer of programme monitoring. WHO Health Field Monitors (HFMs) are posted in each camp and they monitor both fixed and outreach sites. There is also a SIMO assigned camps in each area: Ukhiya, Teknaf and Bhasan Char. The SIMOs use an online monitoring tool to monitor fixed and outreach sites in the FDMN camps and they provide monitoring feedback to the EPI personnel at the upazila level.

In addition to the above, the INGOs/NGOs providing vaccination services have their own monitoring systems in place. They assign someone to monitor their vaccinators and vaccination programmes.

Vaccination programme in host communities

EPI follows the 'established' vaccination programme mechanism used in the rest of the country in the camp-adjacent host communities in Ukhiya and Teknaf. Vaccinators facilitate vaccination sessions three days a week (Sunday, Tuesday, and Thursday) and do IPC on the other three days of the week. Vaccinators said that unlike in the FDMN camps, they work alone in the host community rather than in pairs. Monitoring and supervision is the same as described above for the camps, but WHO has separate SIMOs for the host community.

Figure 1: Supervision and monitoring of the EPI system in the FDMN camps



(b) Role of implementing partners in vaccination programme in FDMN camps

The GoB introduced the EPI in Ukhiya and Teknaf camps in 2018 and at Bhasan Char in 2022. Development partners and various INGO/NGOs are supporting the government in implementation of the EPI for FDMN children. The specific roles that different partners are playing in implementation of the EPI in FDMN camps are described below:

The GoB: The GoB plays the key role in implementing the EPI in FDMN camps. DGHS under the MOHFW is responsible for the EPI in Bangladesh and in the FDMN camps. The government provides vaccines and other required logistics, such as vaccine carriers, cold boxes and ILRs and transports vaccines to vaccination centres, maintaining the cold chain. As we mentioned earlier, CS office Noakhali and UHCs of Ukhiya and Teknaf are directly implementing the EPI in FDMN camps. EPI headquarters, distributes vaccines to Noakhali and Cox's Bazar.

Development partners: Development partners play a crucial role in implementing the EPI programme within FDMN camps. UNICEF manages vaccine procurement for the FDMN children. They collect and transport the vaccines to the GoB and maintain the cold chain. UNICEF also provides logistics such as tables and chairs for outreach centres.

WHO provides technical support to the EPI programme of FDMN camps. They also monitor and guide the immunization process. They maintain timely arrival and distribution of vaccines, compliance with cold chain guidelines, assisting the vaccinators and mobilizing communities. Along with the government, they develop field implementation plans (micro-plans), provide training to the vaccinators, distribute outreach targets, plan and arrange vaccination campaigns and collect reports from both fixed and outreach centres. In FDMN camps, they also organize monthly coordination meeting to assess the vaccination progress.

NGOs/INGOs: NGO/INGOs also play an important role in vaccinating FDMN children. The EPI uses NGO/INGO health facilities as fixed vaccination centres in FDMN camps. They appoint fixed vaccinators for fixed centres. These staff also identify dropout children, making a list that they share with their volunteers and CHW teams for followup as well as with WHO in coordination meetings.

Moreover, their volunteers and CHW teams check vaccination status of children, do IPC with the caregivers of dropout children and encourage them to vaccinate their children. They also do follow-ups and pre-session IPC, inform caregivers about the day of vaccination, and sometimes bring children to vaccination centre by themselves when the caregivers are sick or busy with another emergency.

(c) Supply chain and logistics management in FDMN camps and host communities

According to the EPI service providers, the standard national EPI infrastructure is being used as the supply chain for the FDMN camps. UNICEF procures the vaccines for the FDMN camps and the host community, although with different funding, and delivers all vaccines together to EPI headquarters. The vaccines are then distributed from the EPI headquarters throughout the country through the district-level vaccine storage under the supervision of the EPI superintendent. The District EPI superintendents of Cox's Bazar and Noakhali submit requisition the number of vaccines and related supplies needed for the district, including the camps, through the CS office and receives the supplies according to the submitted requisition. The Upazila level requisition is submitted by the UHCs (Ukhiya, Teknaf, and Hatiya) to the CS Offices of Cox's Bazar and Noakhali.

Once the vaccines arrive at the district, they are stored in walk-in coolers (WIC) for up to three months, with the supplies for the camps stored alongside those for the rest of the district. The UHCs in Ukhiya and Teknaf have ILR for cold storage. Respondents in KII noted that an additional ILR was built in Ukhiya before the influx of FDMN's in Cox's Bazar, but it has never been opened because staff to support it have not been hired. co-creation workshops participants said that there was not even sufficient space for a month.

A substantial difference between the camps and the host communities is that in the host community, there is only one fixed site for each upazila, i.e. the UHC while in the camps there is at least one fixed site per camp. In Ukhiya and Teknaf camps there are more than 40 fixed sites serving the population in the camps, compared to just two UHCs serving the population outside of the camps. The KII, respondents said that this led to wastage of vaccine as few children are seen at each fixed site each day.

The vaccines are sent to distribution points each day; the distribution points for the host and the FDMN communities are separate. The supply for each site is based on the vaccines the needs of each community as detailed in the microplan. According to the key informants:

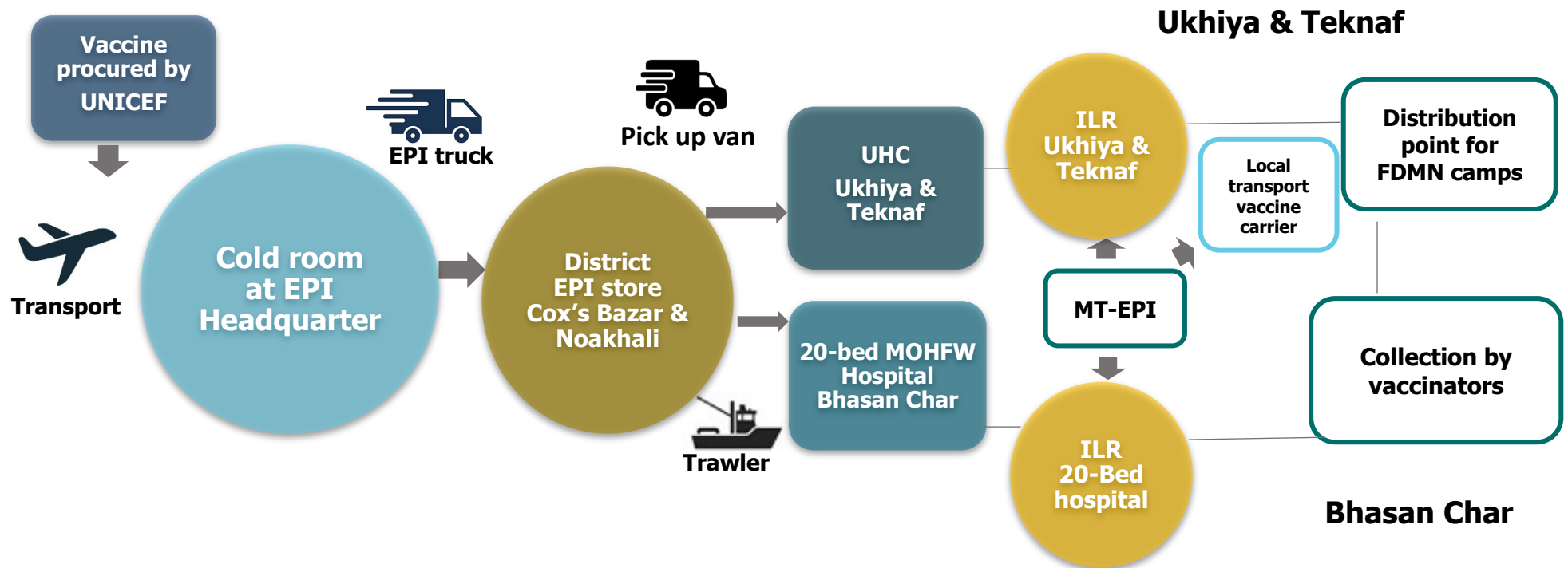
- *The vaccines arrive together. The demand is submitted according to the camps' needs.* [KII-UN service providers-Ukhiya]
- *Although the quantity of vaccines for camps is separate, they are procured together with the vaccines for the host community.”* [KII-UN service providers-Ukhiya]

Vaccinators are responsible for collecting the carrier for their outreach site from the distribution point and returning it there at the end of the day.

In Cox's Bazar, a van from the CS office transports vaccines from the district level to upazila level storage at UHCs. During the validation and co-creation workshops, participants said that having only one vehicle for transport in Cox's Bazar is not enough to transport the vaccines for the camps and the host community. The lack of adequate transport was blamed for delays in vaccine supply and temporary vaccine shortages. They use local transports to distribute the vaccine to the distribution points and to the vaccine centres in Ukhiya and Teknaf for the FDMN and the host community.

In Bhasan Char, the CS office arranges a local trawler boat to transport vaccines from Noakhali to Bhasan Char. Since there is no extra budget for water transportation to Bhasan Char, they accept the boat owners' generosity to transport the vaccines free of cost. The vaccinators use local transport to carry the vaccines to each vaccination center. In the co-creation workshops participants noted that transportation options are limited inside the camps because outside transport cannot enter. **Figure 2** presents the vaccine supply chain FDMN camps.

Figure 2: Vaccine supply chain in FDMN camps



(d) Immunization status of children

Immunization status among the children aged 4.5-<24 months

Table 5 presents the crude and valid vaccination coverage among children aged 12-<24 months by study site and community type. The valid coverage of 1st dose of Pentavalent, PCV, OPV and IPV was similar in both FDMN and host communities. Differences in coverage between the FDMN and host communities were more apparent with subsequent doses of Pentavalent, PCV, OPV, IPV and MR1. Among FDMN camps, coverage was lowest in the Ukhiya and highest in Bhasan Char.

In the routine immunization system, it is expected that all 1st doses of mentioned vaccines will be given at or after age 42 days with exceptions only in the case of vaccine shortages. But we went through several cards and found that the day of 1st dose of these vaccines of a child is not same in FDMN community. This is because multiple NGO/INGOs provide vaccine in the camp which created the opportunity for the caregiver of FDMN to administer vaccine to their child at their comfortable date and time. However, it also increased the chance of invalid doses.

Table 5: Crude and valid vaccination coverage among the children aged 12-<24 months by study site and community type

Antigen	Crude coverage							Valid coverage						
	FDMN community				Host community			FDMN community				Host community		
	Ukhiya	Teknaf	Bhasan Char	Total	Ukhiya	Teknaf	Total	Ukhiya	Teknaf	Bhasan Char	Total	Ukhiya	Teknaf	Total
	n=824	n=809	n=825	n=2458	n=381	n=403	n=784	n=824	n=809	n=825	n=2458	n=381	n=403	n=784
	%	%	%	%	%	%	%	%	%	%	%	%	%	%
BCG	100.0	99.9	100.0	100.0	100.0	100.0	100.0	98.7	98.6	97.2	98.2	97.1	98.6	97.9
Penta1	99.2	99.9	99.4	99.5	100.0	100.0	100.0	96.8	97.3	94.5	96.2	94.6	96.9	95.8
Penta2	96.2	98.8	96.6	97.2	98.6	99.5	99.0	94.7	96.2	93.1	94.7	94.6	97.3	96.0
Penta3	88.5	96.8	90.1	91.8	96.9	97.9	97.4	87.2	95.6	86.9	89.8	93.7	96.4	95.0
PCV1	98.7	99.7	98.4	98.9	99.7	99.9	99.8	95.9	97.2	93.6	95.5	94.3	97.2	95.8
PCV2	92.7	98.0	95.3	95.3	97.8	99.1	98.4	91.0	96.1	90.3	92.4	93.8	97.1	95.5
PCV3	82.7	96.2	89.9	89.6	96.5	96.3	96.4	81.1	95.0	85.5	87.2	91.2	95.0	93.1
OPV1	99.2	99.3	99.4	99.3	100.0	100.0	100.0	96.9	96.9	94.4	96.1	93.5	97.1	95.3
OPV2	96.7	99.0	96.6	97.4	97.9	99.5	98.7	95.4	97.2	92.2	94.9	94.9	97.2	96.1
OPV3	91.5	97.3	90.3	93.0	96.8	97.9	97.3	89.8	96.1	87.1	91.0	93.5	96.6	95.1
IPV1	98.2	99.2	98.2	98.5	99.3	99.6	99.5	95.6	96.7	93.3	95.2	94.5	96.9	95.8
IPV2	84.2	96.7	90.0	90.2	96.7	97.4	97.1	79.6	93.7	87.2	86.8	92.1	94.3	93.2
MR1	81.8	89.6	82.9	84.7	92.6	90.5	91.5	80.7	87.3	80.2	82.7	88.5	88.2	88.4
FVC ¹	74.2	88.8	82.3	81.7	91.9	90.3	91.1	69.1	82.5	72.9	74.8	80.0	85.1	82.6
ZD	0.8	0.1	0.6	0.5	0.0	0.0	0.0	-	-	-	-	-	-	-
UI	10.7	3.2	9.2	7.7	3.1	2.1	2.6	-	-	-	-	-	-	-

¹FVC: A child is considered to be fully vaccinated if s/he received one dose of BCG, 3 doses of Pentavalent, 3 doses of OPV, 3 doses of PCV, and one dose of MR vaccine

Figure 3 compares the status of valid FVC between FDMN and host communities, across the three study sites. Overall, the host communities consistently show higher percentages compared to the FDMN group in all sites. In FDMN, the differences of valid FVC status between three study sites were statistically significant (p -value <0.001). Overall, the host community had significantly higher valid FVC (82.6%) compared to the FDMN group (74.8%).

Figure 3: Status of valid FVC among the children aged 12-<24 months by study site and community type

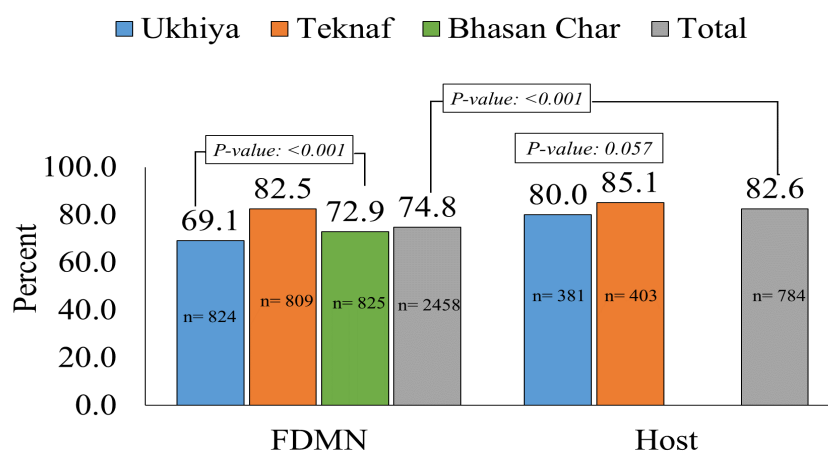


Table 6 shows the percentage of children aged 4.5-<24 months who are ZD and UI by study site and community type. The percentage of ZD among the children in both communities was quite low (0.5% in FDMN and 0.2% in host). The low ZD percentage among FDMN children aged 4.5-<24 months might be due to the fact that a vaccination card was required to register the child in the family data card to receive facilities/assistance from the camps. The percentage of UI was more than double among FDMN children (12.5%) than the host children (5.8%). At FDMN sites, the rate of UI was lowest in Teknaf.

Table 6: Status of zero-dose and under-immunization among children aged 4.5-<24 months by study site and community type

Study site	Sample size		FDMN		Host		p-value*
	FDMN	Host	Frequency	Percent	Frequency	Percent	
ZD¹							
Ukhiya	1642	756	14	0.8	1	0.2	0.062
Teknaf	1514	800	2	0.2	2	0.3	0.659
Bhasan Char	1314	-	8	0.6	-	-	-
Total ZD	4470	1556	24	0.5	3	0.2	0.103
UI²							
Ukhiya	1642	756	260	16.8	49	6.5	<0.001
Teknaf	1514	800	64	4.2	42	5.2	0.276
Bhasan Char	1314	-	220	16.8	-	-	-
Total UI	4470	1556	560	12.5	91	5.8	<0.001
ZD/UI							
Ukhiya	1642	756	274	17.6	50	6.7	<0.001
Teknaf	1514	800	66	4.4	44	5.5	0.246
Bhasan Char	1314	-	228	17.4	-	-	-

Study site	Sample size		FDMN		Host		p-value*
	FDMN	Host	Frequency	Percent	Frequency	Percent	
Total ZD/UI	4470	1556	584	13.0	94	6.0	<0.001
* p-value is obtained from two proportion test for comparison between FDMN and host communities							
¹ ZD: Children aged 4.5-<24 months and missed the 1 st dose of Pentavalent							
² UI: Children aged 4.5-<24 months and received the 1 st dose of Pentavalent but missed the 3 rd dose of Pentavalent							

Table 7 presents the drop-out rate and the percentage of invalid doses among the children aged 12-<24 months by study site and community type. The drop-out rate for any dose of BCG, Pentavalent, PCV, OPV and MR dose 1 in FDMN community was double that in the host community (18.3% vs. 8.9%). Moreover, more than 14% of the FDMN children aged 12-<24 months received 1st dose of Pentavalent vaccine but missed 1st dose of MR vaccine, compared to around 9.0% in the host community. Moreover, approximately 6% of children in the FDMN community and 7% in the host community received at least one invalid dose of Pentavalent, PCV, OPV, or MR first dose.

Table 7: Drop-out rate (%) and incidence of invalid doses among the children aged 12-<24 months by study site and community

Indicators	FDMN community				Host community		
	Ukhiya	Teknaf	Bhasan Char	Total	Ukhiya	Teknaf	Total
	n=824	n=809	n=825	n=2458	n=381	n=403	n=784
	%	%	%	%	%	%	%
Drop-out¹	25.8	11.2	17.7	18.3	8.1	9.7	8.9
Drop-out rate							
Penta1-Penta3	10.8	3.2	9.3	7.8	3.1	2.1	2.6
Penta1-MR1	17.5	10.3	16.6	14.8	7.4	9.5	8.5
Incidence of Invalid Dose							
Invalid Penta1	1.2	1.2	2.2	1.5	2.5	1.7	2.1
Invalid Penta2	0.4	1.7	1.1	1.1	1.4	0.9	1.2
Invalid Penta3	0.6	0.6	1.4	0.9	1.3	0.3	0.8
Invalid MR1	0.7	1.7	1.0	1.1	2.2	1.1	1.6
Invalid any dose ²	4.7	5.7	7.6	6.0	10.0	4.0	6.9
¹ Missed any dose of BCG, Pentavalent, PCV, OPV and the first dose of MR							
² any dose of BCG, Pentavalent, PCV, OPV and the first dose of MR							
Calculation of drop-out rate (according to CES 2019):							
Penta1-Penta3 drop-out rate= $\frac{\text{Crude Penta1 coverage} - \text{Crude Penta3 coverage}}{\text{Crude Penta1 coverage}} \times 100$							
Penta1-MR1 drop-out rate= $\frac{\text{Crude Penta1 coverage} - \text{Crude MR1 coverage}}{\text{Crude Penta1 coverage}} \times 100$							

Side-effects after vaccination

About 68% of caregivers in the FDMN community and 78% of caregivers in the host community reported no side effects after vaccinating their children (**Table 8**). Fever was more commonly reported in the FDMN community (30.5%), compared to the host community (21.0%).

Table 8: Information on side-effects after vaccination by study site and community

Information on side-effects*	FDMN community				Host community		
	Ukhiya	Teknaf	Bhasan Char	Total	Ukhiya	Teknaf	Total
	n=1642	n=1513	n=1314	n=4469	n=756	n=800	n=1556
	%	%	%	%	%	%	%
No side effect	72.1	74.2	57.1	68.4	84.9	72.3	78.4
Fever	26.2	24.8	42.3	30.5	14.8	26.8	21.0
Abscess	4.0	1.8	1.5	2.5	0.6	1.1	0.8
Others ¹	0.9	1.3	0.4	0.9	0.3	0.3	0.3

*Multiple responses
¹Cold, Rashes, Diarrhoea, Swollen legs, Convulsion

Reasons for ZD and UI

Table 9 presents the reasons caregivers mentioned for their children being ZD and UI by study site and community. The most common reason reported was the child's illness (63.1% in FDMN community and 59.6% in host community) followed by intent to vaccinate later (21.8% in FDMN and 35.7% in host community). Fear of side effects was the third most common reason for ZD and UI in the FDMN community (15.5%) whereas for the host community (23.7%), it was 'not knowing when to administer the vaccine'. Other reasons given were vaccine hesitancy (FDMN: 13.0%; Host: 14.2%), parents/caregivers' business (FDMN: 12.5%; Host: 18.1%), inconvenient timing (FDMN: 8.1%; Host: 4.9%), change of residence (FDMN: 7.6%; Host: 2.0%).

Table 9: Reasons for ZD and UI among children aged 4.5-<24 months by study site and community

Reasons*	FDMN community				Host community		
	Ukhiya	Teknaf	Bhasan Char	Total	Ukhiya	Teknaf	Total
	n=290	n=66	n=228	n=584	n=50	n=43	n=94
	%	%	%	%	%	%	%
Child's illness	66.8	58.0	60.0	63.1	54.9	65.1	59.6
Thought of getting vaccinated later	20.1	34.7	20.3	21.8	28.7	43.8	35.7
Fear of side effects	16.4	23.4	12.1	15.5	14.7	12.2	13.5
Did not know when to give vaccines	14.9	15.6	14.8	14.9	31.9	14.2	23.7
Reluctance towards vaccine	11.8	10.3	15.4	13.0	13.3	15.4	14.2
Parents/caregivers business	10.6	21.3	12.3	12.5	18.8	17.2	18.1
Inconvenient timing	5.4	10.9	10.8	8.1	6.3	3.2	4.9
Change of residence	4.5	16.6	9.0	7.6	0.0	4.4	2.0
The session is not timed	4.3	4.5	10.6	6.8	1.6	2.5	2.0
Vaccine shortage	11.4	6.2	1.0	6.7	6.3	0.0	3.4
Family members were against it	3.6	2.3	2.8	3.1	6.5	8.9	7.7
Caregiver not present at home	2.6	0.0	0.5	1.5	9.1	1.6	5.6
Caregivers' sickness	2.2	3.0	0.0	1.5	1.4	2.3	1.8
No one has contacted yet	1.7	0.0	0.4	1.0	0.0	0.0	0.0
Others ¹	2.5	10.9	1.3	3.0	5.7	1.1	3.6

* Multiple response
¹ Vaccination center was closed, Conflict in Myanmar, did not get data card, Center far way, Lost the vaccine card.

Factors associated with use of immunization, including ZD and UI

Table 10 shows the adjusted odds ratio (AOR) of ZD/UI from binary logistic regression adjusting for cluster (block) effects. The logistic regression results reveal that none of the household and caregiver characteristics were associated with ZD/UI in FDMN community. As expected, the odds of being ZD/UI was 66% lower among the children aged 12-<24 months compared to those aged 4.5-<12 months ($p<0.01$). Contrary to our expectation, the children of the household located farther from the EPI center was less likely to be ZD/UI compared to those lived closest to the center (AOR: 0.64; 95% CI: 0.44-0.95; $p<0.05$). Furthermore, the children living in the camps where vaccination services were provided by only NGO/INGO (AOR: 0.23; 95% CI: 0.07-0.75) or by jointly GoB and NGO (AOR: 0.35; 95% CI: 0.14-0.89), had lower odds of ZD/UI compared to the camp where only GoB provided vaccination services ($p<0.05$).

In host communities, the children of younger caregivers (18-24 years), caregiver from a polygynous family and caregivers involved in earnings activities were more than twice as likely to be ZD/UI compared to the children of middle-aged caregivers (25-34 years) (AOR: 2.69; 95% CI: 1.32-5.50), caregiver from monogynous family (AOR: 2.06; 95% CI: 1.14-3.71) and caregivers involved in household chores (AOR: 2.84; 95% CI: 1.18-6.84), respectively. In addition, the children of caregiver who had completed secondary or higher education had 64% lower odds of being ZD/UI compared to children of caregivers with no educations (AOR: 0.36; 95% CI: 0.13-0.99). The children aged 12-<24 months also had lower odds of ZD/UI compared to children aged 4.5-<12 months (AOR: 0.23; 95% CI: 0.13-0.41). Notably, the odds of ZD/UI were approximately three times higher among the children living in the EPI cluster where both GoB and NGO/INGO provided vaccination services compared to those living in the clusters where only GoB provided the service. All the mentioned results for host community were statistically significant at 5% level of significance.

Table 10: Adjusted odds ratio of ZD/UI among the children aged 4.5-<24 months from binary logistic regression model

Characteristics	FDMN (n=4,401)		Host (n=1,528)	
	AOR (95% CI)	P-value	AOR (95% CI)	P-value
Household characteristics				
Number of family members				
<5	Ref.		Ref.	
5-10	0.90 (0.67-1.22)	0.507	1.74 (1.02-2.95)	0.042
>10	1.44 (0.71-2.89)	0.308	1.10 (0.37-3.30)	0.865
Decides to take family member to health care facility				
By male	Ref.		Ref.	
By female and male	0.95 (0.68-1.33)	0.764	0.69 (0.28-1.72)	0.421
Wealth tertile				
Low	Ref.		Ref.	
Middle	1.15 (0.91-1.46)	0.237	1.00 (0.55-1.79)	0.987
High	0.67 (0.27-1.71)	0.404	0.58 (0.30-1.14)	0.113
Polygynous				
Yes	1.11 (0.81-1.52)	0.528	2.06 (1.14-3.71)	0.017
No	Ref.		Ref.	
Caregivers' characteristics				
Age of caregivers				
18-24	1.10 (0.87-1.39)	0.434	2.69 (1.32-5.50)	0.007
25-34	Ref.		Ref.	
35+	0.67 (0.42-1.07)	0.094	1.53 (0.57-4.11)	0.394

Characteristics	FDMN (n=4,401)		Host (n=1,528)	
	AOR (95% CI)	P-value	AOR (95% CI)	P-value
Parity				
1	Ref.		Ref.	
2	1.12 (0.79-1.57)	0.526	1.56 (0.87-2.79)	0.133
3	1.14 (0.83-1.56)	0.427	1.39 (0.65-2.96)	0.389
4+	0.92 (0.63-1.34)	0.645	1.04 (0.39-2.81)	0.934
Education of caregivers				
No education	Ref.		Ref.	
Primary	1.02 (0.79-1.33)	0.858	0.51 (0.21-1.21)	0.127
Secondary or higher	1.67 (0.99-2.82)	0.052	0.36 (0.13-0.99)	0.047
Informal education	1.21 (0.95-1.55)	0.127	0.86 (0.31-2.44)	0.781
Occupation of caregivers				
Household chores	Ref.		Ref.	
Service/ business/worker	0.66 (0.34-1.28)	0.215	2.84 (1.18-6.84)	0.021
Children characteristics				
Child's gender				
Male	Ref.		Ref.	
Female	1.01 (0.84-1.22)	0.919	1.11 (0.68-1.80)	0.675
Child's age				
4.5-<12 months	Ref.		Ref.	
12-<24 months	0.34 (0.27-0.44)	<0.001	0.23 (0.13-0.41)	<0.001
Relationship with the caregiver				
Mother	Ref.		Ref.	
Other than mother	1.65 (0.76-3.60)	0.204	0.47 (0.05-4.08)	0.487
Health care services				
Distance to EPI center				
≤ 1 km	Ref.		Ref.	
> 1 km	0.64 (0.44-0.95)	0.027	0.87 (0.43-1.76)	0.690
Vaccination service providers				
Only GoB	Ref.		Ref.	
Only NGO/INGO	0.23 (0.07-0.75)	0.015	-	
Both GoB and NGO/INGO	0.35 (0.14-0.89)	0.028	2.92 (1.04-8.22)	0.042
* Adjusted for cluster / block effects				
Note:				
– Sample size for regression model reduced due to inclusion of parity				
– Some categories of the variable were merged due to their low frequency				
– The study sites were excluded because they were highly correlated with vaccination service providers, as Bhasan Char has all GoB vaccination service providers				
– Caregivers' gender dropped due to high correlation with relationship with the caregiver				

A range of factors affecting use of immunization were raised by participants from qualitative interviews. In some cases, the factors were described in similar ways by both caregivers and the service providers, but in other cases, their views were contradictory. The following factors that were raised by multiple respondents about vaccination of FDMN children including ZD and UI.

Limited experience with immunization

One factor identified with regard to use of vaccination and that is specific to the FDMN's is that vaccination was new to most of the population when they came to Bangladesh. In the voice of a caregiver of a UI child:

“...my children, who were born in Myanmar, were not vaccinated. There was no vaccination in Myanmar. [IDI-UI caregiver-Ukhiya]

The EPI service providers shared that uptake among the FDMN was affected by the fact that the FDMN community did not have access to vaccines or healthcare services in Myanmar. One respondent said:

“We started their (FDMN) health, nutrition, vaccination service, maternal and child healthcare service from zero status. Because they were unfamiliar with these in Myanmar and were astonished by vaccination activities, they used to ask what is immunization? We faced huge challenges when we started to provide these services to them.” [KII-RRRC-Cox’s Bazar]

An FGD participant in Teknaf said:

“They have come to a new environment. They were not familiar with these things (Vaccines) before. They will take time to adapt here after a sudden displacement.” [FGD-frontline service providers-Teknaf]

Service providers also talked about the lack of exposure to structured health programmes, including immunization in Myanmar. Many FDMNs had never been treated by a doctor in their home country and a few of them had never seen western medicine. The respondents noted that the sudden introduction of vaccination when they arrived in Bangladesh made it difficult for them to trust and accept the vaccine immediately. In the voice of a key informant,

“As far as we have contacted them after the influx, they have not had any exposure to any health interventions like vaccination programmes before. They used to do agricultural work, fishing, and other such activities. But these kinds of things (vaccinations) to prevent diseases were not done there.” [KII-EPI service provider-Teknaf]

The service providers did note that the situation was changing, at least for some members of the FDMN community:

“They didn’t have this practice back in Myanmar. So, it’s a new thing for them, a new beginning. That’s why they have the unwillingness. Even though they’ve been here for six or seven years, I see that many are still not interested, while some are. From my supervision of the CHNWs, I’ve seen that many are interested now—they understand that these vaccines are necessary. Still many of the FDMNs aren’t interested on vaccine and have prejudices on the vaccine.” [FGD-Vaccinator & CHW Supervisor-Bhasan Char]

The providers attributed the vaccine hesitancy on the part of the FDMN to their lack of exposure to it in Myanmar. One respondent shared that some caregivers questioned the safety and necessity of vaccines because they had never heard of being vaccinated in their childhood in Myanmar and it was not something their parents had done. According to a service provider from RRRC, who has been working with the FDMN population since the beginning:

“They think, ‘Our parents (FDMN parents) didn’t give us this (vaccines). Would my child get sick without it? Or will it cause serious harm to them? What if we don’t give it to them?’” [KII-RRRC office-Cox’s Bazar]

The lack of experience with and knowledge of vaccination also left an opening for fear and misconceptions. Specific concerns, which continue today for at least some FDMN (see Misconceptions below), included fears that vaccination causes infertility and concerns that vaccination violated religious law or was a way to convert FDMN Muslims to Christianity.

Misconceptions

Many of the caregivers (n=7) stated that they were scared of vaccination when they first moved to the camps. They were scared that vaccination went against their religious beliefs and might convert them from Muslim to Christian. They believed that the vaccine mark on the skin was a sign of religious conversion, and it could lead to illness.

Caregivers said that they had believed that receiving vaccines could damage their ability to give birth and lead to permanent infertility. Service providers echoed this. One respondent stated:

“At first, they thought that we were giving vaccines to prevent their reproductive ability. They also thought that we were giving these vaccines to reduce the population (FDMN).” [KII-EPI service provider-Teknaf]

These misconceptions were not repeated by the caregivers as current beliefs. They did, however, express concern that poor quality of immunization services was leading to fever, swelling, and abscess following vaccination and believed vaccination was causing children to get:

“Vaccination increases the sickness in my son, so I will not get him vaccinated. There is no benefits if they vaccinate my child. If they push the vaccine in his thighs, it's painful. Therefore, I will not get him vaccinated anymore.” [IDI-UI caregiver-Ukhiya]

At least one provider shared that misconceptions are still circulating but are less common. Which misconceptions prevail was not specified:

Many people still have misconceptions, but they have decreased compared to the past. [KII-EPI service providers-Teknaf]

Perceived lack of awareness

Some of the service providers who participated in KII (n=4) cited the low level of education of the FDMN population and lack of awareness about the benefits of vaccines as reasons for people not wanting to vaccinate their children. One service provider's response was typical of this:

“They have little interest in EPI. They tend not to vaccinate their children; they actually do not want to vaccinate their children. If they had education and understanding on why children need to be vaccinated, then it would be better.” [KII-UN service provider-Ukhiya]

The service providers also felt that the FDMN lack understanding about the importance of vaccinating their children. Both of these sentiments were echoed in the co-creation workshops, when participants discussed the finding that ZD and UI were double among FDMN.

Despite this perception among service providers, in fact all of the IDI participants stated that they had some knowledge of vaccines and vaccination and of the benefits of vaccination. Moreover, all the caregivers of fully vaccinated child (FVC) said that they knew about the benefits of complete vaccination of the children and saw vaccination as necessary to keep every child healthy and this was also true of caregivers of ZD/UI children.

Illness and allergies

A factor raised by all groups was the effect of illness on vaccination—mainly that a current illness was seen as a reason to delay vaccination. Some caregivers of UI children noted that their child had dropped out due to illness, but they also said they wanted to complete the vaccination of their child as soon as the child was better. The fact that they had not yet done so, despite the availability of services at fixed sites, suggests this may not be the sole factor in the delay. One mother of a ZD child had positive

perceptions regarding vaccination, believing that vaccination would protect her child from disease, but said she was unable to vaccinate her child due to severe allergies that had lasted for some months. The FGD and KII participants also reported children suffering from fever as a primary reason for the FDMN community not vaccinating their children and participants in the co-creation workshops both confirmed this and said that the severity of illness was greater among FDMN and their that nutritional status and immunity were compromised. It was also suggested that some caregivers might use illness as an excuse for not getting their child vaccinated because vaccinators and health care providers are unlikely to insist on vaccinating a sick child.

Side effects

Most of the service providers mentioned that concerns about side effects such as fever and pain discourage the FDMN community from vaccinating their children. They mentioned that if children get sick with fever or swelling in the vaccinated area [*Bacillus Calmette-Guerin* (BCG) or Penta 1], the caregivers are afraid to get them vaccinated again. The providers said this made both interpersonal communication (IPC) and attempts to vaccinate very difficult for them. One of the FGD participants in Bhasan Char mentioned,

“Their (FDMN) point is that they would get vaccines, but children cannot get a fever, and they cannot cry. If a child catches a fever, it is very difficult for us to bring them. (The vaccinator) brought them to the hospital and sent them upstairs to the vaccination room, but they left and directly went home. It happens like this!” [FGD-frontline Service providers-BC]

Again, this was cited in the co-creation workshops as a reason for poorer performance of the immunization programme in the camps. In addition to leading to doubts about vaccination, participants noted that side effects can also interfere with caregivers’ activities like work and accessing services.

Practical considerations

In addition to the above, both caregivers and service providers noted a number of practical considerations that may lead to delayed or missed doses. In addition to the illness of the child to be vaccinated, caregivers of UI children said that illness among family members, scheduling conflicts (with chores or obtaining other services) led to children being UI. One mother of an UI child shared that her child had missed a dose because she was not at home at the time that vaccinators visited:

“I wasn't at home, I went to the hospital. I was a little sick, so I had to go to get medicine. It took time to get in the waiting line there. Here, the vaccinators come and give the vaccines and leave. My elder children didn't know where I kept the vaccine card. That's why they couldn't get a vaccine (for my youngest child).” [IDI-UI caregiver-Ukhiya]

The FGD and KII participants also noted that sometimes caregivers do not remember the due dates for their children and that some fixed vaccination centres are a bit far away from the blocks. The IPC system in place in the camps is meant to avoid this sort of situation but service providers shared and that some caregivers miss IPC and some vaccinators do not follow the standard operating procedures (SOPs) for IPC. One example was provided by a KII participant:

“Primarily, the reason is fever; they (caregivers) do not remember sometimes. Besides this, it may occur that the outreach session could not conduct the IPC properly or find them. The IPC is usually conducted the day before the vaccine session; therefore, if the mother is not home, then they miss it.... Since she did not get the IPC, she did not know that there was a vaccination session next to her home at Majhee's house. Hence, they became dropouts for a month.” [KII-UN service providers-Ukhiya]

This was also reported in the co-creation workshops when participants said IPC was sometimes not done appropriately. Vaccinators do not spend enough time providing the information regarding how vaccines can prevent their children from diseases and side effects of vaccines or what needs to be done if the children get a fever or sore arms because of vaccination.

Moreover, if a caregiver forgets the due date, in FDMN camps they can vaccinate their children in any of the vaccination centers at any time. A service provider said,

“If someone misses, suppose someone missed the vaccination date today in Friendship (PHC). Nothing to worry about, they can go to the 20-bed hospital. If they again miss the 20-bed hospital’s one (vaccination day), no problem; they will go to GK. I mean, we vaccinate at all of the centers.”
[FGD-frontline service providers-Bhasan Char]

At the same time, the participants in co-creation workshops felt that many UI children would be vaccinated in the next session and viewed UI as a temporary status.

Migration

The KII participants reported that a very small number of children were left out including ZD and UI in the host community. According to the EPI data (internal), last year's coverage was 99.80%. They did, however, say that there are still children left out in the FDMN community albeit fewer children than in the past. A reason given for missed doses was the frequent internal and external migration from the camps. One participant said:

“And FDMN has some left-out children...The biggest issue we face is that they do not stay inside the camps. They are migrating out. Therefore, I believe the number of children missing vaccinations is increasing.” [KII-Teknaf-EPI service providers]

In the co-creation workshops, participants shared that sometimes a father may force their wife and children out but the vaccination care stays with the father; this can lead to a child missing dose. At the same time, participants mentioned that some children migrate to the host community and may receive subsequent vaccinations there. Migration was also mentioned as a reason that children who live in areas with NGO providers had lower rates of ZD/UI; the participants attributed this to lower rates of migration in those camps. Similarly, those noted that higher rates of migration from Ukhiya and Bhasan Char were a reason that there were high rates of ZD/UI in these camps.

An additional issue with regard to the effect of migration on ZD and UI in the camps is specific to the timeframe of this study. There was a new influx of migrants from Myanmar from August to December of 2024. The status of these children may have influenced service providers perceptions and may have led to overestimation of coverage because of the addition of new children to the population of the camps. These recent migrants may have different views than those who migrated following the violence in 2017 although, as noted elsewhere, vaccination services have improved in Myanmar since then.

Community leaders

Another factor influencing immunization is the involvement of community leaders, including the imams (religious leaders). The key informants felt that purposeful engagement of the FDMN community by the Office of RRRC at Cox’s Bazar and the Office of CiC in three areas improved faith in vaccination. Service providers talked about the importance of community leaders in building trust with the community and two caregivers echoed this, reporting that they were more willing to get their child vaccinated after imams recommended the vaccination programme. In Teknaf, participants in co-creation specified increasing inclusion of Majhees in the vaccination programme.

Gender differences and norms

A number of factors were raised with regard to gender. In co-creation, participants noted women's potentially limited capacity for decision-making as a reason for higher prevalence of ZD/UI. They also suggested that religious norms that limit women's movement, especially that of young mothers, and early marriage of girls as additional factors leading to higher prevalence of ZD and UI among caregivers under age 25 years.

In the qualitative data collection, both caregivers and providers felt that in some cases, the fathers of children were negatively affecting vaccine uptake. Caregivers of ZD children said that their husbands' negative attitudes towards vaccination and neglect of health issues more generally were the main reasons for their children being ZD. In some cases, they attributed this to their husband experiencing the side effects of the vaccine. According to the mother of a ZD child:

"After getting it BCG, it would create pain, it would swell, and then it would decrease, but his father would not tolerate it. He gets angry with me. He will not vaccinate again because of all these things. He does not let me go and get vaccinated again." [IDI-ZD caregiver-Ukhiya]

Some caregivers said both that their husbands are unwilling to vaccinate their children and that they prohibit their wives from doing so. A few husbands threatened their wives with divorce if they attempted to vaccinate their children. A young mother from Ukhiya was terrified of her husband, who forbade her from visiting any health facility. During her second pregnancy, she had visited the health clinic with her mother for childbirth but her husband dragged her back from the clinic and forced her to give birth at home. He also attempted to assault his mother-in-law for taking his wife to the clinic. The respondent was eager to get her children vaccinated and sought a chance without her husband's knowledge. She felt that her husband would never be convinced that their children should get vaccinated:

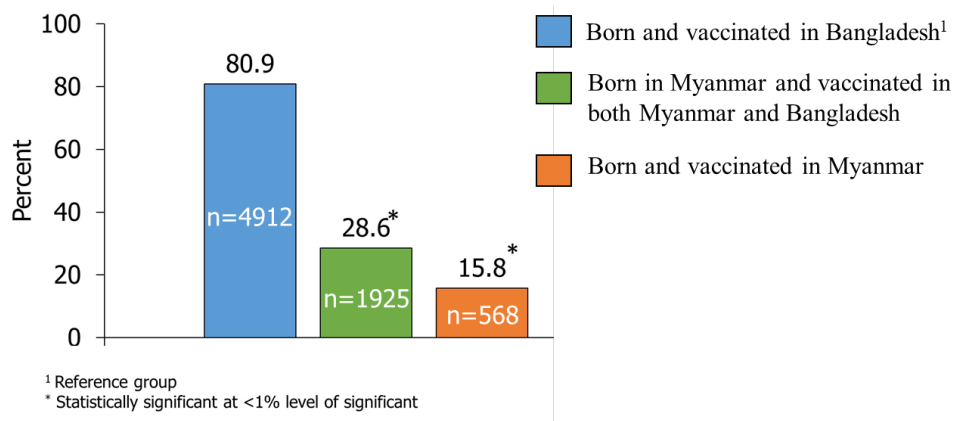
"He will never listen and does only what he wants to do. He lacks and doesn't have knowledge. If I say too much, he becomes violent. He hits me a lot." [IDI-UI caregiver-Ukhiya]

This was echoed by the providers, who also noted that male caregivers were problematic when the vaccinators go door-to-door to conduct IPC.

Immunization status among the FDMN children aged 2-11 years

Figure 4 shows the vaccination status of children aged 2-11 years by age and place of birth. Among children who were born in Myanmar and left the place after completing 2 years of age, only 16% of them were fully vaccinated. For children who born in Myanmar and came to Bangladesh before completing 2 years, 29% of them were fully vaccinated. It ultimately indicates a higher proportion of unvaccinated children in this cohort. In contrast, children of this age group born in Bangladesh had the highest rate of full vaccination at 81%. These findings suggest that children of age group 2-11 years born in Bangladesh had better vaccination rates compared to those born in Myanmar, regardless of the age at displacement and the difference was statistically significant at 1% level of significant.

Figure 4: Crude FVC (history only) of FDMN children aged 2-11 years by birth place



(e) Immunization demand and willingness to vaccinate children

How the lived experience of humanitarian crisis affected immunization demand

To understand how the experience of the humanitarian crisis and their displacement may have affected demand for immunization, we asked caregivers about their journey from Myanmar and their experience of life in the camps. We also asked directly whether they felt that their experience impacted vaccination of their child or other children in the camps. None of the caregivers mentioned any impact on child vaccination due to the FDMN population’s experience of a humanitarian crisis. The participants did not believe that the memories of violence and crisis were connected to the vaccination of their children. A typical response was:

“No, those incidents did not have any impact on my child’s vaccination. No, there is no impact. The vaccination has nothing to do with those incidents. These are separate issues.” [IDI-UI caregiver-BC]

Demand for immunization among the FDMN community

The qualitative findings show a mixed picture in regards to demand for immunization. Half of the caregivers interviewed felt that vaccination was widely accepted and encouraged in their communities. They felt most people around them supported and actively participated in vaccination.

“They don't have any negative attitude. They say it will be better if the child is vaccinated. They told me to vaccinate my child whenever they recovered. My mother was also telling her to vaccinate her child.” [IDI-ZD caregiver-Ukhiya]

However, a few of the caregivers mentioned that some community members still had fear and negative attitudes based on past experiences with vaccination. For example, one caregiver shared:

“Some say the vaccination is good. Some say it is bad... A child from our next door had to undergo surgery (after vaccination) ... That is why some say the vaccination is good, some say it is bad.” [IDI-UI caregiver-Ukhiya]

The IDIs with caregivers suggested that caregivers are interested in having their children vaccinated, at least in so far as the had positive perceptions of vaccination. Perceived benefits were disease prevention and economic relief from the cost of the treatment of VPDs.

Two caregivers attributed their children’s current illnesses to delay in vaccination and added that vaccinating on time was important for disease prevention. According to a mother from Teknaf:

“I think he is (elder child) getting so many diseases because he was not vaccinated on time, while he was born in Myanmar.” [IDI-UI caregiver-Teknaf]

Caregivers also said that by reducing illness in children, vaccination reduces the cost of treatment. One caregiver compared the experience raising unvaccinated children in Myanmar to vaccinated children in the camps. She said:

“In Myanmar, the children had to be treated a lot. They got sick frequently. My husband could work there, we had money, so we could get them treated. But here (in camp), there is no work. The children born here need less medicine since we have vaccinated them. My three elder children, who born in Myanmar, had to be treated more.” [IDI-UI caregiver-Ukhiya]

Increasing vaccination demand over time

According to the service providers who participated, vaccine uptake has been gradually increasing among FDMN children due to the combined efforts of all service providers in the camps.

“Their interest is growing day by day. Earlier, it was less, but now adequate counselling is being done, and adequate support is being given. The interest is increasing a little more than before. Now they are coming on their own.... coming to our centers or going to the centers outside when the CHNW holds sessions. The interest is increasing slowly now.” [KII-service provider-Bhasan Char]

They felt that counselling, awareness raising activities, and involvement of CHWs including FDMN community volunteers have all contributed to this.

(f) Challenges in implementing the EPI programme in the camps

The respondents mentioned a number of challenges faced in implementing the EPI programme in FDMN camps. These included:

Identifying ZD and UI children: The FGD participants, the frontline service providers, mentioned that identifying ZD children is very challenging, in part because there are not many such children, though they said that there were more UI than ZD children in the camps. Ideally, they use government forms for ZD and 1st, 2nd, and 3rd dose of Penta and MR 1st and 2nd dose to identify children scheduled for vaccination and to see whether or not they were vaccinated. If they identify a child who has not been vaccinated or has missed a dose, they then go door-to-door to find the child and ask around the neighbourhood to try to find the children. Since, there is no list of ZD/UI children shared between the service providers, vaccinators face difficulties.

Reaching dropout children: In one FGD with frontline service providers from EPI and NGO/INGO, all eight participants agreed that children’s names are a tricky issue in FDMN camps. Caregivers provide a name when the vaccine card is issued, but the child is known by a different name in the family and that name may be used when they come to the facility to receive services. Moreover, if the mother dies, the child may take on another family member’s name. Because of these challenges, vaccinators may not be able to find a child who needs vaccination. Respondents also suggested that residents in the camp may purposefully misrepresent the names of children in order to get more rations:

“For example, the mother died. After that, they hid the mother’s and father’s names and provided a name as a sister or an aunt. In order to get an extra ration, they use those tricks.” [FGD-Vaccinator-Ukhiya]

Conducting IPC: The frontline and community level service providers shared a range of challenges that they face in mobilizing caregivers in the camps to bring their children for vaccination. This included

families refusing to open the door to vaccinators doing IPC, feigning interest in vaccination only to fail to seek services, and taking actions to avoid both the vaccinators and getting vaccination services. For example, one respondent said:

“They show they are very motivated, as if they are ready instantly. When CHWs send them towards the vaccine centres, and they come half the way. The CHWs had to go back to knock on other doors. The CHWs see that they are going but escape to the lanes to the sides.” [FGD-frontline service providers-BC]

They also noted that some caregivers are not willing to have their children vaccinated regardless of how many times the vaccinators try to counsel them.

Reaching the FDMN is also challenging because the FDMN language is not spoken by most frontline service providers, although many local (greater Chattogram) service providers understand the FDMN language.

Inconsistency of information recorded in the register and the vaccination card: Service providers agreed that there are some inconsistencies in the information recorded on vaccination cards and in the registers due to lack of proper attention. Discrepancies attributed to vaccinators included mismatched dates in card and register of a child.

Denominator issue and vaccine shortage: One of the service providers mentioned that incorrect estimates of the denominator (number of eligible children) is another reason for the vaccine shortage in the host community and FDMN camps. The national target population is determined by the population data of the last census, and the last census was conducted in 2022, not done in every year. For the camps, the denominator is estimated using UNHCR data that is 2 years old.

Restriction from male caregivers: The service providers shared that another challenge is the unwillingness of the male caregivers. Even though mothers want to vaccinate their children, the fathers force them not to get vaccinated and threaten the mothers with divorce if they vaccinate their children. They also misbehave with the vaccinators when they go door-to-door for conducting IPC. The respondents attributed the concerns of fathers to their experience of side effects following vaccination, noting that when children get sick with fever or swelling following BCG or Penta 1 vaccination the male caregivers are upset and become adamant about not getting their children. They are also less receptive to IPC when this occurs and respondents noted that sometimes they may even change their mind after coming to the vaccination center.

Link between vaccination and other services: The frontline service providers’ felt that most FDMN did not want to have their children vaccinated but did so because many people believe that proof of BCG vaccination (a vaccine card) is necessary in order to obtain an FCN and receive rations and other services. They said that caregivers will continue to come for vaccination if the card is delayed, but stop coming as soon as the child has a card. One FGD participants said:

“There is not much of a problem in the case of the first dose; they get the first dose most of the time.... They get it in due time. Nevertheless, they delayed the second doses after getting the first doses.” [FGD- frontline service providers-Teknaf]

The vaccinators said these challenges were more common in the camps than in the host community:

“The host (community) completes the vaccination within 3 months and 10 days. Here (in camps), you will find children who are 3 years old but have only received the BCG,” [FGD-frontline service providers- Ukhiya]

Shortage of vaccines: The service providers, including the sub-national level managers and frontline service providers, shared that vaccine shortage is a challenge for them in Ukhiya and Teknaf. Bhasan Char camp usually does not face a shortage of vaccines, although Noakhali district does. The district office pays special attention to Bhasan Char in terms of vaccine supply. All of the frontline service providers who participated in FGD agreed that vaccine shortage is a big challenge for EPI in the camps. In particular, they noted that if a FDMN caregiver brings their child at the time of a shortage of one or more vaccines, it is very difficult to bring them back for the dose. They find it challenging to make the caregivers understand why they need to make an extra visit to the vaccination centre to complete doses.

Shortage of logistics: The frontline service providers (FGD participants) mentioned that shortage of other logistics for the FDMN camp is a challenge when implementing the outreach sessions in the camps. They usually conduct outreach sessions in the home of someone in the camps, usually majhees’s home in the sub-blocks, however, community members often do not want to provide a place for the sessions and request financial compensation to host sessions. The providers also noted a shortage of chairs and tables for setting up a vaccination centre, although they said that these had been provided when the routine EPI services began in the camps. They had worn out over the years. There is no privacy at outreach EPI centres. The situation was the same in the host community as well, that the providers noting lack of locations for outreach sessions and insufficient logistics.

Lack of resources: One of the service providers mentioned that vaccination activities of the outreach centres were postponed for three months (December 2024 through February 2025) due to lack of funding. The vaccinators only received payment for that period after going through the justice system. Providers in Ukhiya also mentioned a number of vacant posts at the UHC (technician, storekeeper and security guard). These vacancies have made it difficult to secure and maintain the vaccines.

Wastage of vaccines: The service providers noted that vaccine wastage is an issue at the fixed sites in FDMN camps. They felt that this was due in part to the relatively high number of fixed sites in the camps, particularly in comparison to the host community which has the UHC as the sole fixed site. Because, vaccination services are available at multiple sites, a site may seem very few children on a given day. For example, if only one child comes who needs the BCG vaccine, the service provider will open the 20-dose vial and the remaining 19 doses will be wasted.

Security concerns in FDMN camps: All the FGD participants in Teknaf thought that safety is a concern in some camps there, for both vaccinators and the community at large. This was particularly problematic in hilly areas. Reports of kidnapping of NGO workers, the host community and the FDMN people by criminals led to fear about their safety when working in the camps.

Caregivers in all three areas shared stories of violence, fear, and intimidation fueled by local FDMN political groups. At least five respondents in IDIs (n=5) reported either direct or indirect experiences with armed or gang-affiliated factions, including threats, extortion, beatings, killings and kidnapping. A caregiver from Ukhiya described how her brother-in-law who was affiliated with a political group, became involved in a violent attack. When she tried to intervene, she and her family were threatened with deadly retaliation. In her words,

“They wanted to kill my husband... He has left the block for that incident... it has been three months since my husband left.” [IDI-UI caregiver-Ukhiya]

Another participant from Ukhiya talked about killings by those groups at her camp. A community leader (Majhi), who was suspected of loyalty to an opposing party, was killed.

A caregiver in Bhasan Char also shared an example of violence by a local FDMN political party, the Alekin group. She said:

“The people from the Alekin group torture people a lot. They take money from those who have money. They kidnap and tie them up and they demand money. If the victim does not give them money, they slaughter the victims. Then they put them in the bathroom tank. I saw a dead body at bathroom tank at our block.” [IDI-FVC caregiver-Bhasan Char]

In addition to concerns over personal safety, these inter-community issues can also affect immunization directly. For example, some service providers recommended, based on feedback from the community, that outreach sites be moved from the homes of Majhees to a neutral location.

Discussion

The study findings show that immunization coverage is relatively high among the FDMN, but is lower than in the host community (74% vs 82%) and there is a higher proportion of ZD/UI children in the camps (13% vs 6% in the host communities) (17). This is in spite of the smaller geographic area covered by the facilities in the camps and the relatively high number of staff. The qualitative data from this study, as well as responses from data validation and co-creation workshops help explain the reasons for this apparent disconnect, detail reasons for ZD/UI, and suggest potential solutions.

Based on these qualitative data, there is limited evidence of a direct effect of experience of the humanitarian crisis on the uptake of immunization by the FDMN. However, the restrictions that they faced in Myanmar likely impacted initial uptake and may have ongoing consequences for use of immunization services. For example, given that higher education is associated with increased likelihood of immunization, past restrictions on access to education may lead to low uptake. This may be exacerbated by the continued lack of access to formal education in the camps, especially for girls (18). That the FDMN may have had limited exposure to health care services and immunization in Myanmar may also have affected their initial uptake of immunization, and may continue to affect demand today. This could be due to having limited experience in navigating a health care system or to mistrust in the healthcare system (19).

Moreover, while the caregivers did not feel that their experience of the humanitarian crisis affected uptake of immunization, their treatment by the military in Myanmar and the trauma that they experienced before and during their displacement have potential implications for the delivery of routine vaccine services. For example, the vaccinators shared that the FDMN sometimes evaded them when they were attempting to contact them to inform them about an upcoming vaccination session. While this may be because they did not want to vaccinate their child, it could reflect a broader distrust of health workers; trust in CHWs has been identified as an issue in some humanitarian settings (20). Further exploration is needed to understand how services may need to be adapted to meet the needs of this population in a way that responds to the effects of their experiences. At the same time, caregivers talked about their use of services for mental health, trauma and gender-based violence that are available in the camps and that may offer more diverse opportunities for integration of EPI than in other settings.

In addition to their experience of displacement, the experience of the FDMN in the camps may also affect immunization uptake (21). Note that the health of refugees in the FDMN camps is affected by factors including living conditions, lack of social milieu, limited access to services, and the persistent scarcity of resources. The caregivers in this study shared similar challenges they face on a daily basis, though the situation has changed since 2018, when that study was published. However, the fact that some caregivers are selling the nutritional supplements provided for their children shows the kinds of trade-offs that caregivers may make with regard to the health of their children. While that is an extreme example, in general, taking a child for vaccination is likely competing with other demands like waiting in line to obtain essential services including food and water.

Multiple factors were identified as potential determinants of ZD and UI in the camps. These factors span both demand- and supply-side barriers. Among demand-side issues, limited awareness and knowledge around the benefits of immunization are believed by service providers to affect use of EPI services by the FDMN. Vaccine hesitancy linked to misconceptions about vaccines and experience of side effects were also raised as potential causes of ZD and UI. A specific finding is that the belief that children cannot be vaccinated when sick is causing some children to be UI, at least temporarily, though this may also be used as an acceptable way for those caregivers who do not want to vaccinate to avoid doing so. Social dynamics, such as gender norms that restrict women's decision-making and the ability of men to prohibit vaccination, including through violence, pose additional obstacles to timely vaccination. One factor specific to life in the camps that affects demand is the need to obtain an FCN card in order to access other humanitarian services. This appears to motivate caregivers to bring their child for the first doses of vaccines (i.e., Penta 1) so that they can add the child to the card, but it does not affect demand for completing the vaccine series.

On the supply side, communication gaps, arising from differences in language or literacy between providers and the FDMN community, may limit the effectiveness of health education and counseling. Logistical and structural barriers, including difficulty traversing the local terrain in some camps and challenges in linking information across the many service delivery sites in the camps, further impede access to immunization. Despite these obstacles, the study identified a willingness among many FDMN caregivers to have their children vaccinated, reflecting the improved situation over time.

In terms of the routine EPI programme for FDMN children, this is implemented through a combination of fixed and outreach vaccination sites coordinated by the GoB, with support from the WHO, UNICEF, jointly implemented by the GoB and national and international NGOs. The supply chain is managed as a single system for the camps and the host communities, with some differences in terms of distribution to sites. This differs from the monitoring system which is multi-layered and fragmented, with government, development partners and INGOs/NGOs implementing different approaches.

Persistent challenges in programme implementation include shortages of human resources, questionable quality of services and recordkeeping and reporting, and gaps in supportive supervision. The high proportion of children with discrepant information in their EPI card and the EPI register (7% in the household survey) (17) was attributed to insufficient training of vaccinators and insufficient supervision of the documentation process. These discrepancies contribute to invalid doses as well as ZD/UI. In addition, the mobility of the FDMN population, between, within and outside camps, may be affecting ZD and UI, but additional information is needed to fully understand this.

Potential solutions to be considered include integration of immunization with other humanitarian services, increased coordination among actors working on immunization in the camps, and improved

systems. In terms of integration, staff providing humanitarian services (e.g., food distribution, mental health) could be trained to motivate caregivers to bring the EPI card when they obtain services, check the recorded vaccination status of the children and motivate caregivers about full vaccination. They can also be a means of sharing accurate information about immunization. The results also suggest that ongoing effort is needed to improve coordination across partners supporting immunization in the camps and to streamline processes for registration and documentation to ensure that ZD/UI children are identified and reached. This may include the introduction of systems that have been piloted in other high ZD/UI areas (e.g., e-tracker, e-supervision checklist) to better enable tracking of children in need of vaccination whether they remain in a single location or migrate. Any efforts need to address potential trust issues between the EPI programme and the communities it serves; while there was no direct discussion of mistrust of the FDMN, some of the statements made suggest that there may be ongoing questions of trust on both sides.

Finally, in addition to directly addressing issue with immunization services, priority issues for the FDMN in the camps also need to be addressed. As noted, if caregivers are struggling to meet their basic needs for food insecurity, shelter, water and sanitation, education, and safety, they are less likely to priority immunization of their children. Moreover, refugees have the right to these services.

Conclusions and recommendations

Despite immunization coverage among FDMN children in Bangladesh is better than the Refugee children in other countries, our findings show that the host community had notably higher valid FVC (82%) compared to the FDMN group (74%). The findings also depict that ZD/UI is more common and twice as high among FDMN children than host children. Visibly, children of FDMN are more vulnerable to VPDs. Therefore, special attention is required to increase FVC of all children in the FDMN community in Bangladesh. Findings from qualitative data and co-creation workshops identified a number of factors that affect use of vaccination by the FDMN population and lead to higher rates of UI children in the FDMN community. These factors are exacerbated by cultural norms and dynamics between the refugees and the systems that supports them. However, the study recommended followings for improving the immunization programme and reducing ZD and UI children in the FDMN community.

Social behaviour change

1. Service providers who participated in KII and FGD felt that lack of education of the FDMN people is one of the major reasons for their vaccine hesitancy, but data from the household survey and the caregivers contradict this to some extent, showing that most FDMN are aware of the need for vaccination. While it was recommended that health education activities be launched for the FDMN community, such efforts should be grounded in a more nuanced understanding of the population that has ZD or UI children and should address the barriers to uptake. Specific suggestions from frontline service providers to improve perceptions about vaccines included developing a short film regarding vaccination and cartoons on ZD and UI in the FDMN community. The FGD participants felt that visual materials might be more effective with the FDMN, especially depictions of the effects of VPDs.

Human resources

2. *Increased human resources:* Given the insufficient supervision and monitoring level activities due to extra workload because of the growing population, it is suggested to increase human resources.

3. *Skill development of service providers:* Key informants said that vaccinators, CHNW and volunteers need skills development. They recommended both compulsory basic training and regular refresher training of field staff to ensure quality EPI services, including proper recording and reporting. Given the apparent lack of trust of some FDMN, such training, should also strengthen the counseling skills of these providers so that they can help to overcome the barriers to vaccination.
4. *Gender sensitive service delivery:* In all areas, participants suggested the need for female staff to support vaccination services in order to be responsive to cultural norms around interactions between men and women. In Bhasan Char, this was raised in all KII, FGDs and IDI with participants stating that most caregivers who bring children for vaccination are women and they feel uncomfortable having a male vaccinator. Solutions to address this may include recruiting female vaccinators (a suggestion made in Bhasan Char) or engaging female volunteers to accompany male vaccinators, a solution being implemented in Teknaf.

Coordination

5. *Coordination among and across services providers:* Given the number of organizations working in the camps (GoB including RRRC, INGO/NGO and development partners), both within the immunization space and more broadly, improved coordination is needed. Engaging partners in a coordinated manner and encouraging integration of EPI with other services, could make it easier for caregivers to receive the range of available services, ensure that they are not missing vaccination due to other competing activities, and can provide additional mechanisms for minimize, identifying and reaching ZD and UI children. With regard to improved coordination, frontline service providers suggested that CiC offices could aid in effective coordination, ensuring administrative support.

Community Involvement

6. *Community Involvement:* Because the FDMN community trusts community leaders, including Majhees, religious leaders and teachers, and is influenced by these leaders, service providers recommended their involvement in EPI activities. They suggested that community leaders be oriented on the benefits and importance of vaccination including ZD and UI so that they can share this information with their communities during existing communal moments—such as in community gatherings or during Zummah (Friday prayers) prayers. Moreover, they suggested that as part of their coordination efforts, the CiC could encourage community leaders to engage in promoting vaccination.
7. *Male Involvement:* The involvement of both parents, particularly fathers, was identified as a key factor by the respondents in improving vaccine uptake in the FDMN community. While mothers are often the primary caregivers, fathers hold strong decision-making power within the family and were noted to be a primary barrier to vaccination for some children. Effectively engaging fathers in the vaccination programme could be a means to change their opinions, improving vaccination coverage and reducing ZD and UI.

Health Systems

8. *Digitalization of EPI activities:* Service providers from all areas emphasized the digitalization of EPI activities in the camps. They mentioned that the whole vaccination system in FDMN camps should be digitalized to help reduce errors in recording and reporting and to aid in identifying targeted children, identifying and reaching ZD and UI children, and recording and reporting EPI performance, including the supply chain.

9. *Strengthening monitoring and introducing online monitoring system*: Service providers informed that there is a lack of supervision and monitoring of EPI programme in the camps. While EPI centers run by NGOs have some monitoring activities, such activities are rarely conducted in these areas. Therefore, the service providers emphasized monitoring including regular review of data and providing necessary feedback to the field staff. The findings also suggested that an online-monitoring system is needed in the camps to monitor the performance of vaccination teams working across multiple organizations.
10. *Vaccine Supply*: Service providers noted the challenges they faced when FDMN caregivers missed a dose due to a vaccine shortage. They felt this led to unwillingness to vaccinate and they said they faced challenges later in vaccinating such children. To mitigate this issue, it is essential to ensure vaccine supply in the camps.

Most importantly, designing appropriate interventions based on the key findings from co-creation workshops and study recommendations and implementation of the interventions are essential for improving child vaccination uptake and reducing UI children in the FDMN communities.

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Annexures

Annex 1: Checklists for geographical and social mapping of FDMN communities and immunization activities

Annex 1.1: Observation Checklist

SECTION: 1

- Name of the Block and Number:
- Name of the camp and Number:
- Camp site:
- Upazila:
- District:
- Observer's name & ID :
- Date of Information Collection:
- Checklist Number:

SECTION: 2

Instructions for Observer: Please visit the selected camp area with the permission of Camp-in-Charge. The following areas that could be observed during your visits of the blocks.

- Housing Characteristics of the residents of the block)
 - Type of living arrangements: Stone-built, Mud-built, Tent etc.
 - Sanitation system
 - Source of drinking water
 - Source of fuel
 - Electricity System
 - Cleanliness
- Vaccination centers of the block
 - Number of vaccination center
 - Type of center: Fixed site/ Outreach site
 - Vaccination provider: Public, NGO, INGO, Private etc.
 - Place of Vaccination in the block
 - Time and monthly schedule of Vaccination
- Health centers in the Block:
 - Number of Health centers
 - Types of the health center: Permanent, Temporary
 - Health Center Management Organization: Public, NGO, INGO, Private
 - Present service providers/care providers
 - Placement of health center in the block
 - Schedule of service provision
 - Overall condition of the care center (Infrastructure, sitting arrangement, confidentiality maintenance, water and electricity supply and others)
 - Type of Patients: Children, Female, Male
 - Type of disease with complaints
- Please mention name and number of the 1st nominated block.
- Please draw and attach a map of the 1st nominated block and identify the following landmarks.
 - Vaccination center
 - Health center: Clinic/ Hospital

- Educational Institution
- Religious Institution
- Office of the Camp-in-Charge
- Roads and streets
- Spot of the relief distributions
- Office of the Humanitarian agencies
- Business institutions such as Bazaars/Markets
- Please mention name and number of the 2nd nominated block.
- Please draw and attach a map of the 2nd nominated block and identify the following landmarks.
 - Vaccination center
 - Health center: Clinic/ Hospital
 - Educational Institution
 - Religious Institution
 - Office of the Camp-in-Charge
 - Roads and streets
 - Spot of the relief distributions
 - Office of the Humanitarian agencies
 - Business institutions such as Bazaars/Markets
- Please draw a map of the camp and identify the following landmarks.
 - Vaccination center
 - Health center clinic/ hospital
 - Educational Institutions
 - Religious Institutions
 - Office of the Camp-in-Charge
 - Roads and streets
 - Spot of the relief distribution
 - Office of the Humanitarian agencies
 - Business institutions such as Bazaars/Markets
- If you found any new findings during the visits that were not mentioned in this checklist, please write them down in detail below

Annex 1.2: Mapping Checklist (Camp in Charge)

Instruction: Please collect the information from the Camp-in-Charge or from the appointed personnel by him who has sufficient knowledge of the camp. The following information could be collected from the documents of the camp. If the documents are not available, then take verbal information and provide notes.

Q. No	Question	Answer
111a	Name of the camp	
111b	Number of the camp	
111c	Camp site	<input type="radio"/> 1=Ukhiya <input type="radio"/> 2=Teknaf <input type="radio"/> 3=Bhasan Char
112	Upazila	<input type="radio"/> 1=Ukhiya <input type="radio"/> 2=Teknaf <input type="radio"/> 3=Hatiya
113	District	<input type="radio"/> 1=Cox's Bazar <input type="radio"/> 2=Noakhali
114a	Name of the information provider	
114b	Designation of the information provider	
115	Gender of the information provider	
116	Phone number of the informant	
117	Name and ID of the data collector	
118	Date of information collection	

Section 1: Collection of relevant documents on the FDMN community

Q. No	Question	Answer
101.	Do you have any published reports, documents, data, etc., on the FDMN population's health and child immunization?	<input type="radio"/> 1= Yes <input type="radio"/> 2= No
102.	Do you have any reports, documents, data, etc., published/unpublished on relief materials given to the FDMN population?	<input type="radio"/> 1= Yes <input type="radio"/> 2= No
103.	If the answer is yes, is it possible to share a copy of that document? Instruction: Please collect the document in had copy or soft copy, share your professional email if needed	<input type="radio"/> 1= Yes <input type="radio"/> 2= No
104.	Title of the Document, Type (Report, Document, data) and the name of the organization who published it	
105.	If there is any other information worth mentioning in the above section, please share it	

Section 2: Information related to camp

Q. No	Question	Answer														
201.	Total number and names of the blocks	a. Number b. Names														
202.	Total population of the camp and date of the population census Instruction: Write the date of the population census number they shared	a. Number Persons b. Date//														
203.	Number of family/Household	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>														
204.	Average number of family members in the household	<input type="text"/> <input type="text"/> Persons														
205.	Total number of children under 2 years in the camp	<input type="text"/> <input type="text"/> <input type="text"/> Persons														
206.	Total number of children under 2 years in each family/household	<input type="text"/> <input type="text"/> Persons														
207.	Types of most of the families in the camp	<input type="radio"/> 1= Nuclear Family <input type="radio"/> 2= Joint Family <input type="radio"/> 77= Others (Specify)														
208.	What are the sources of earning of the people living in camp? Instruction: Please list down the earning sources for the livelihood of the residents in the camp <ul style="list-style-type: none"> <input type="checkbox"/> A=Most of them are unemployed <input type="checkbox"/> B=Daily wages <input type="checkbox"/> C=NGO work on monthly basis <input type="checkbox"/> D=Daily NGO work <input type="checkbox"/> E=Agricultural work <input type="checkbox"/> F=Small business: grocery store, selling vegetables <input type="checkbox"/> G=The hawkers sell vegetables, baby food, toys, bangles, ribbons <input type="checkbox"/> H=Some families receive money from abroad (emigrants) <input type="checkbox"/> X= Others (Specify) Q208a : please note if any description available for earning source of the people living in the camp															
209.	What type of services are received by the people living in the camp for their livelihood? <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Types of services</th> <th style="width: 50%;">Name of the Humanitarian Organizations</th> </tr> </thead> <tbody> <tr> <td>Health care</td> <td></td> </tr> <tr> <td>Child Vaccination</td> <td></td> </tr> <tr> <td>Food</td> <td></td> </tr> <tr> <td>Clothes</td> <td></td> </tr> <tr> <td>Relief</td> <td></td> </tr> <tr> <td>Shelter</td> <td></td> </tr> </tbody> </table>	Types of services	Name of the Humanitarian Organizations	Health care		Child Vaccination		Food		Clothes		Relief		Shelter		
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Health care																
Child Vaccination																
Food																
Clothes																
Relief																
Shelter																

210.	<p>Language of the people living in the camp</p> <p>Instruction: Please write down the language they use to communicate among themselves and the language they use to communicate with outsiders</p> <p>q210a.The language that residents speak among themselves in the camp</p> <p><input type="checkbox"/> A=FDMN language</p> <p><input type="checkbox"/> B=Bengali</p> <p><input type="checkbox"/> C=Bengali (local language of Chittagong)</p> <p><input type="checkbox"/> X= Others (Specify)</p> <p>q210b.The language that residents speak to outsiders in the camp</p> <p><input type="checkbox"/> A=FDMN language</p> <p><input type="checkbox"/> B=Bengali</p> <p><input type="checkbox"/> C=Bengali (local language of Chittagong)</p> <p><input type="checkbox"/> D=English</p> <p><input type="checkbox"/> X= Others (Specify)</p>	
211.	Are there any ethnic groups among the population of the camp?	<p><input type="radio"/> 1= Yes</p> <p><input type="radio"/> 2=No</p>
212.	If yes, what are the ethnic groups?	
213.	<p>People of which designation provide leadership to FDMN population?</p> <p>Note: Majhee, imam and teachers usually hold the leadership among the FDMN population</p> <p><input type="checkbox"/> A=Majhee</p> <p><input type="checkbox"/> B=Imam</p> <p><input type="checkbox"/> C=Teacher</p> <p><input type="checkbox"/> X=Others (Specify)</p>	
214.	How many people from each designation?	<p><input type="radio"/> Majhee = Persons</p> <p><input type="radio"/> Imam =..... Persons</p> <p><input type="radio"/> Teacher =..... Persons</p> <p><input type="radio"/> Others =..... Persons</p>
215.	If there is any other information worth mentioning in the above section, please share it	

Section 3: Information related to women empowerment in the FDMN community

Q. No	Question	Answer
301.	Who is the head of the family among FDMN Population	<p><input type="radio"/> 1= Male</p> <p><input type="radio"/> 2= Female</p>
302.	How much role do women play in making family decisions in patriarchal families?	<p><input type="radio"/> 1= Not at all</p> <p><input type="radio"/> Somewhat</p> <p><input type="radio"/> 3=Completely</p>
303.	How much role do women play in making family decisions regarding health in patriarchal families?	<p><input type="radio"/> 1= Not at all</p> <p><input type="radio"/> 2= Somewhat</p> <p><input type="radio"/> 3=Completely</p>

Q. No	Question	Answer
304.	How much role do women play in making family decisions regarding children vaccination in patriarchal families?	<input type="radio"/> 1= Not at all <input type="radio"/> 2= Somewhat <input type="radio"/> 3=Completely
305.	If there is anything more about women empowerment, please mention it below	

Section 4: Information related to the migration

Q. No	Question	Answer
401.	When did the people of this camp first come to Bangladesh? Instruction: Please describe when the FDMN population started living in this camp	
402.	Reasons behind their arrival	
403.	Arrival path (Name of the border)	
404.	Mention any other available information on FDMN migration below:	

Section 5: Information related to child vaccination

Q. No	Question	Answer
501.	Do the people living in the camp have any knowledge regarding EPI vaccines to prevent diseases for children?	<input type="radio"/> 1= Most have the knowledge <input type="radio"/> 2= Little knowledge <input type="radio"/> 3= No knowledge <input type="radio"/> 77= Others
502.	Do camp residents have any negative views on vaccination?	<input type="radio"/> 1= Yes <input type="radio"/> 2=No
503.	If yes, what are the reasons for the negative attitude?	
504.	Share your opinion on camp residents' knowledge, perceptions and practices regarding children vaccination	

Q. No	Question	Answer																		
505.	Who manages the vaccination programme in this camp? <table border="1"> <thead> <tr> <th>Type of organization</th> <th>Name of organization</th> <th>Type of center</th> </tr> </thead> <tbody> <tr> <td><input type="checkbox"/> A= Public</td> <td><input type="checkbox"/> 1=Upazila Health Complex, Ukhia <input type="checkbox"/> 2=Upazila Health Complex, Teknaf <input type="checkbox"/> 3=District Hospital <input type="checkbox"/> 77=Others (Specify)</td> <td><input type="checkbox"/> 1= Outreach <input type="checkbox"/> 2= Fixed site</td> </tr> <tr> <td><input type="checkbox"/> B= NGO</td> <td><input type="checkbox"/> 1=Public Health Centre <input type="checkbox"/> 2=Friendship <input type="checkbox"/> 3=Turkish Kizil Hospital <input type="checkbox"/> 77= Others (Specify)</td> <td></td> </tr> <tr> <td><input type="checkbox"/> C= INGO</td> <td><input type="checkbox"/> 1=Medical sans frontier <input type="checkbox"/> 77= Others (Specify)</td> <td></td> </tr> <tr> <td><input type="checkbox"/> D= Private</td> <td></td> <td></td> </tr> <tr> <td><input type="checkbox"/> X= Others</td> <td></td> <td></td> </tr> </tbody> </table>	Type of organization	Name of organization	Type of center	<input type="checkbox"/> A= Public	<input type="checkbox"/> 1=Upazila Health Complex, Ukhia <input type="checkbox"/> 2=Upazila Health Complex, Teknaf <input type="checkbox"/> 3=District Hospital <input type="checkbox"/> 77=Others (Specify)	<input type="checkbox"/> 1= Outreach <input type="checkbox"/> 2= Fixed site	<input type="checkbox"/> B= NGO	<input type="checkbox"/> 1=Public Health Centre <input type="checkbox"/> 2=Friendship <input type="checkbox"/> 3=Turkish Kizil Hospital <input type="checkbox"/> 77= Others (Specify)		<input type="checkbox"/> C= INGO	<input type="checkbox"/> 1=Medical sans frontier <input type="checkbox"/> 77= Others (Specify)		<input type="checkbox"/> D= Private			<input type="checkbox"/> X= Others			
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<input type="checkbox"/> C= INGO	<input type="checkbox"/> 1=Medical sans frontier <input type="checkbox"/> 77= Others (Specify)																			
<input type="checkbox"/> D= Private																				
<input type="checkbox"/> X= Others																				
506.	Kindly mention what other steps could be taken to strengthen the vaccination programme:																			
507.	If there is any other information worth mentioning in the above section, please share it																			

Section 6: Information related to general healthcare services

Q No	Question	Answer																																																															
600.	How many organizations are there for general treatment of camp residents?																																																																
601.	Where do camp residents go for treatment? Please mention the name of the management organization and type of services <table border="1"> <thead> <tr> <th>Sl.</th> <th>Name of the institution</th> <th>Name of management organization</th> <th>Type of the organization¹</th> <th>Type of service²</th> <th>Provided services³</th> <th>Schedule of service provision</th> </tr> </thead> <tbody> <tr><td>1</td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>2</td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>3</td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>4</td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>5</td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>6</td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>7</td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>8</td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </tbody> </table>	Sl.	Name of the institution	Name of management organization	Type of the organization ¹	Type of service ²	Provided services ³	Schedule of service provision	1							2							3							4							5							6							7							8							
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602.	Please mention what further steps can be taken to improve the quality of healthcare:									
603.	If there is any other information worth mentioning in the above section, please share it									

Section 7: Information related to media access

Q No	Question	Answer
701.	Is there mobile network in the camp?	<input type="radio"/> 1= Yes <input type="radio"/> 2= No
702.	If yes, which company's network is available?	<input type="checkbox"/> A= Grameenphone <input type="checkbox"/> B= Robi <input type="checkbox"/> C= Airtel <input type="checkbox"/> D= Banglalink <input type="checkbox"/> E= Teletalk <input type="checkbox"/> X= Others (Specify)
703.	Do the camp residents use mobile phone?	<input type="radio"/> 1= Yes <input type="radio"/> 2= No
704.	If yes, which type of mobile phone do they use?	<input type="checkbox"/> 1= Smart Phone <input type="checkbox"/> 2= Normal Phone

Q No	Question	Answer
705.	Do the camp population use print media (newspaper, magazines etc)?	<input type="radio"/> 1= Yes <input type="radio"/> 2= No
706.	Do the camp residents use satellite TV?	<input type="radio"/> 1= Yes <input type="radio"/> 2= No
707.	Do the camp residents have internet access?	<input type="radio"/> 1= Yes <input type="radio"/> 2= No
708.	What do the camp resident do in their free time?	
709.	Please state if you have any other information to share regarding media use	

Section 8: Work environment at FDMN camps

Q No	Question	Answer
801.	Does the FDMN community feel comfortable participating in surveys?	<input type="radio"/> 1= Yes <input type="radio"/> 2= No
802.	If not, what are the reasons behind that?	
803.	Who do the FDMN community feel comfortable talking to in order to gather information?	<input type="checkbox"/> 1= Male <input type="checkbox"/> 2= Female <input type="checkbox"/> 3= Both
804.	When is the right time to interview the FDMN community?	<input type="checkbox"/> 1= Morning <input type="checkbox"/> 2= Noon <input type="checkbox"/> 3= Afternoon
805.	Is language a barrier in interviewing the FDMN population?	<input type="radio"/> 1= Yes <input type="radio"/> 2= No
806.	What matters should we be aware of during the visit in camp?	
807.	Who are the important people in the camp?	
808.	Whose assistance is essential in conducting survey?	

Q No	Question	Answer
809.	If any other research activities are currently being conducted in this camp, give details of that (name of research organization, subject, type).	
810.	In carrying out the research activities, mention the issues that should be given special attention:	
811.	If there is any other information worth mentioning in the above section, please share it	

Q901: If you have any other suggestions, please share

Annex 1.3: Mapping Checklist (Majhee, Imam, Teacher)

Please collect information from Majhees/Imams/Teachers of the designated block for this checklist. One Majhee, one Imam and one teacher from each block selected in each camp must complete this checklist.

Q. No	Question	Answer
111a	Name of the block	
111b	Number of the block	
112a	Name of the camp	
112b	Number of the camp	
112c	Camp site	<input type="radio"/> 1=Ukhiya <input type="radio"/> 2=Teknaf <input type="radio"/> 3=Bhasan Char
113	Upazila	<input type="radio"/> 1=Ukhiya <input type="radio"/> 2=Teknaf <input type="radio"/> 3=Hatiya
114	District	<input type="radio"/> 1=Cox's Bazar <input type="radio"/> 2=Noakhali
115a	Designation of the information provider	<input type="radio"/> 1= Majhee <input type="radio"/> 2= Imam <input type="radio"/> 3= Teacher <input type="radio"/> 4= Others (Specify)
115b	Name of the information provider	
116	Gender of the information provider	
117	Phone number of the informant	
118	Name and ID of the data collector	
119	Date of information collection	

Section 1: Information related to residents of the block

Instruction: If any information is not available, then give a note of that

Q. No	Question	Answer
101.	What is the most common type of family in the block that you reside in?	<input type="radio"/> 1= Nuclear Family <input type="radio"/> 2= Extended Family <input type="radio"/> 77= Others (Specify)

Q. No	Question	Answer														
102.	What is the total number of families in your block?	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> number														
103.	What is the average number of family members?	<input type="text"/> <input type="text"/> Persons														
104.	Total number of children under 2 years in the block	<input type="text"/> <input type="text"/> <input type="text"/> Persons														
105.	Total number of children under 2 years per family	<input type="text"/> <input type="text"/> Persons														
106.	<p>What are the sources of income of the people living in your block?</p> <p>Instruction: Write down about the work that the block residents do to earn livelihood</p> <div style="border: 1px solid black; padding: 5px;"> <input type="checkbox"/> A=Most of them are unemployed <input type="checkbox"/> B=Daily wages <input type="checkbox"/> C=NGO work on monthly basis <input type="checkbox"/> D=Daily NGO work <input type="checkbox"/> E=Agricultural work <input type="checkbox"/> F=Small business: grocery store, selling vegetables <input type="checkbox"/> G=The hawkers sell vegetables, baby food, toys, bangles, ribbons <input type="checkbox"/> H=Some families receive money from abroad (emigrants) <input type="checkbox"/> X= Others (Specify) </div> <p>Q106a: please note if any description available for earning source of the people living in the block</p>															
107.	<p>What type of services/aids are the people living in the block getting to lead their life?</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;">Type of service</th> <th>Name of Humanitarian Organization</th> </tr> </thead> <tbody> <tr> <td>General health services</td> <td></td> </tr> <tr> <td>Child vaccination</td> <td></td> </tr> <tr> <td>Food</td> <td></td> </tr> <tr> <td>Clothes</td> <td></td> </tr> <tr> <td>Relief</td> <td></td> </tr> <tr> <td>Shelter</td> <td></td> </tr> </tbody> </table>	Type of service	Name of Humanitarian Organization	General health services		Child vaccination		Food		Clothes		Relief		Shelter		
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108.	<p>Language of the people living in the block</p> <p>Instruction: Please write down the language they use to communicate among themselves and the language they use to communicate with outsiders</p> <p>q108a. The language that residents speak among themselves in the block</p> <input type="checkbox"/> A=FDMN language <input type="checkbox"/> B=Bengali <input type="checkbox"/> C=Bengali (local language of Chittagong) <input type="checkbox"/> X= Others (Specify)															

Q. No	Question	Answer
	q108b. The language that residents speak to outsiders in the block <input type="checkbox"/> A=FDMN language <input type="checkbox"/> B=Bengali <input type="checkbox"/> C=Bengali (local language of Chittagong) <input type="checkbox"/> D=English <input type="checkbox"/> X= Others (Specify)	
109.	If there is any other information worth mentioning in the above section, please share it	

Section 2: Information related to women empowerment in FDMN community

Q. No	Question	Answer
201.	Who are usually the head of the family/household in your block?	<input type="radio"/> 1= Male <input type="radio"/> 2= Female
202.	How much role do women play in making family decisions in patriarchal families?	<input type="radio"/> 1= None at all <input type="radio"/> 2= Somewhat <input type="radio"/> 3= Completely
203.	How much role do women play in making family decisions regarding health in patriarchal families?	<input type="radio"/> 1= None at all <input type="radio"/> 2= Somewhat <input type="radio"/> 3= Completely
204.	How much role do women play in making family decisions regarding children vaccination in patriarchal families?	<input type="radio"/> 1= None at all <input type="radio"/> 2= Somewhat <input type="radio"/> 3= Completely
205.	If there is anything more about women empowerment, please mention it below	

Section 3: Information related to humanitarian organization and services

Instruction: Mention all organizations that provide services/aids in this block

Q. No	Question												
301.	Please tell us about the benefits received from public and private organization												
	<table border="1"> <thead> <tr> <th>Type of services</th> <th>Name of organization</th> </tr> </thead> <tbody> <tr> <td>Shelter</td> <td></td> </tr> <tr> <td>food</td> <td></td> </tr> <tr> <td>employment</td> <td></td> </tr> <tr> <td>healthcare</td> <td></td> </tr> <tr> <td>finance</td> <td></td> </tr> </tbody> </table>	Type of services	Name of organization	Shelter		food		employment		healthcare		finance	
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	food												
	employment												
healthcare													
finance													

Q. No	Question
302.	Please tell us in details about the health care services that you received <ul style="list-style-type: none"> • General Health Services • Maternal Care • Children Health Care • Child Vaccination
303.	If there is any other information worth mentioning in the above section, please share it

Section 4: Information related to the migration

Q. No	Question
401.	Please tell us about your life during your stay in Myanmar <ul style="list-style-type: none"> • Education • Occupation • Marital status • Type of residence • Household size • Income and expenditure of household
402.	Please share your experience in details of coming to Bangladesh from Myanmar <ul style="list-style-type: none"> • Reason of arrival • Date of arrival • First place of arrival • How long have been residing in the current place?
403.	Please tell us about your current life <ul style="list-style-type: none"> • Education • Occupation • Marital status • Type of residence • Household size • Income and expenditure of household
404.	If there is any other information worth mentioning in the above section, please share it

Section 5: Information related to child vaccination and lived immunization history

Q. No	Question	Answer
501.	Do the people living in the block have any knowledge on EPI vaccination that prevent vaccine-preventable diseases (VPDs) of children?	<input type="radio"/> 1= Most have the knowledge <input type="radio"/> 2= Little knowledge <input type="radio"/> 3= No knowledge <input type="radio"/> 77= Others (Specify)
502.	Is there any negative perception among the residents of the block regarding vaccination?	<input type="radio"/> 1= Yes <input type="radio"/> 2= No
503.	If yes, what are the reasons for negative perception?	
504.	Please share your opinion on knowledge, attitudes and practices regarding children vaccination among residents of block	
505.	Who manages the vaccination programme in this block?	
	Type of organization	Name of organization
		Type of center

Q. No	Question	Answer
	<input type="checkbox"/> A= Public <input type="checkbox"/> B= NGO <input type="checkbox"/> C= INGO <input type="checkbox"/> D= Private <input type="checkbox"/> X= Others	<input type="checkbox"/> 1=Upazila Health Complex, Ukha <input type="checkbox"/> 2=Upazila Health Complex, Teknaf <input type="checkbox"/> 3=District Hospital <input type="checkbox"/> 77=Others (Specify) <input type="checkbox"/> 1=Public Health Centre <input type="checkbox"/> 2=Friendship <input type="checkbox"/> 3=Turkish Kizil Hospital <input type="checkbox"/> 77= Others (Specify) <input type="checkbox"/> 1=Medical sans frontier <input type="checkbox"/> 77= Others (Specify) <input type="checkbox"/> 1= Outreach <input type="checkbox"/> 2= Fixed site
506.	Do the children in your block receive vaccines regularly?	<input type="radio"/> 1= Yes <input type="radio"/> 2= No
507.	If no, what are the reasons behind that	
508.	Please tell us in details about the child immunization programme in Myanmar <ul style="list-style-type: none"> • Vaccination programme of Myanmar <ul style="list-style-type: none"> – Which organization organized the programme? – Children of what age got the vaccines? – Vaccines are provided for which disease? – Knowledge, attitudes and practices about vaccination programs in Myanmar – Advantages and challenges in vaccination in Myanmar 	
509.	Please tell us about the current (Bangladesh) immunization programme for children <ul style="list-style-type: none"> • Routine EPI programme • Modified EPI sessions (e.g. Campaign, Crash Program) • Advantages and challenges in administering immunization programs • Do you think the current vaccination programme is sufficient to immunize FDMN children? <ul style="list-style-type: none"> <input type="radio"/> 1= Yes <input type="radio"/> 2= No • If not then please tell the reasons behind it • what to do in this scenario 	
510.	Please tell us about any conflicts in your community on child vaccinations. <ul style="list-style-type: none"> • Is there any conflicts in your community on child vaccinations. <ul style="list-style-type: none"> <input type="radio"/> 1= Yes <input type="radio"/> 2= No • Which groups have such conflicts? • Reasons behind the conflicts • Impact of conflicts on vaccination programme 	

Q. No	Question	Answer
	<ul style="list-style-type: none"> Ways to mitigate the conflicts 	
511.	Please mention the role of the Government, Development partners, Civil Society Organization (CSO) and NGO in vaccination programme for FDMN children.	
512.	Also highlights what other roles could these organizations play for planning, implementation and monitoring of EPI programme.	
513.	Please tell us what further steps can be taken to ensure vaccination for all children:	
514.	If there is any other information worth mentioning in the above section, please share it	

Section 6: Information related to general healthcare services

Q. No	Question	Answer																																																																													
600.	How many organizations are there for general treatment of block residents?																																																																														
601.	Where do block residents go for treatment? Please mention the name of the management organization and type of services																																																																														
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Q. No	Question			Answer
	<input type="checkbox"/> 77= Others (Specify)	<input type="checkbox"/> X= Others (Specify)	<input type="checkbox"/> D= Family Planning service	
602.	Please mention what further steps can be taken to improve the quality of healthcare:			
603.	If there is any other information worth mentioning in the above section, please share it			

Section 7: Information related to media access

Q. No	Question	Answer
701.	Is there mobile network in the block?	<input type="radio"/> 1= Yes <input type="radio"/> 2= No
702.	If yes, which company's network is available?	<input type="checkbox"/> A= Grameenphone <input type="checkbox"/> D= Banglalink <input type="checkbox"/> B= Robi <input type="checkbox"/> E= Teletalk <input type="checkbox"/> C= Airtel <input type="checkbox"/> X= Others (Specify)
703.	Do the residents of block use mobile?	<input type="radio"/> 1= Yes <input type="radio"/> 2= No
704.	If yes, which type of mobile do they use?	<input type="checkbox"/> 1= Smart phone <input type="checkbox"/> 2= Normal Phone
705.	Do the people have access to print media (newspaper)?	<input type="radio"/> 1= Yes <input type="radio"/> 2= No
706.	Do the people watch satellite TV?	<input type="radio"/> 1= Yes <input type="radio"/> 2= No
707.	Do the block residents have internet access?	<input type="radio"/> 1= Yes <input type="radio"/> 2= No
708.	What do the residents do in their free time?	
709.	Please tell us if you have any other information to share regarding access to media	

Section 8: Work environment

Q. No	Question	Answer
801.	Does the community feel comfortable participating in surveys?	<input type="radio"/> 1= Yes <input type="radio"/> 2= No
802.	If not, what are the reasons behind that?	
803.	Who do the community feel comfortable for interview?	<input type="checkbox"/> 1= Male <input type="checkbox"/> 2= Female
804.	When is the best time to interview the community?	<input type="checkbox"/> 1= Morning <input type="checkbox"/> 2= Noon <input type="checkbox"/> 3= Afternoon
805.	Is language a barrier in interviewing the people?	<input type="radio"/> 1= Yes <input type="radio"/> 2= No
806.	What matters should we be aware of during movement in this block?	
807.	Who are the lead persons in this block?	
808.	Whose support is compulsory to conduct survey?	
809.	If any other research activities are currently being conducted in this block, please give details (name of research organization, subject, type).	
810.	Please mention the issues that should be given special attention to conduct research activities:	
811.	If there is any other information worth mentioning in the above section, please share it	

Q901: If you have any other suggestions, please share below:

Annex 1.4: Stakeholders (Frontline Service Providers) Consultations Guidelines

Instructions: Please use this guideline for discussions with the people administering vaccines (Health Assistants/vaccinators/paramedics). Use a recorder while using this module.

101a	Name of the block:	
101b	Number of the block:	
102a	Name of the camp:	
102b	Number of the camp	
102c	Camp site	<ul style="list-style-type: none"> ○ 1=Ukhiya ○ 2=Teknaf ○ 3=Bhasan Char
103	Upazila:	<ul style="list-style-type: none"> ○ 1=Ukhiya ○ 2=Teknaf ○ 3=Hatiya
104	District:	<ul style="list-style-type: none"> ○ 1=Cox's Bazar ○ 2=Noakhali
105a	Name of the information provider	
105b	Designation of the information provider	
106	Gender of the information provider	
107	Phone number of the information provider:	
108	Name and ID of the information collector:	
109	Date of Discussion:	

Points of Discussion

- Information regarding the EPI session
 - Is there a micro-plan to provide vaccination in 2024? If yes, then collect a copy
 - How many vaccination centers fall under your supervision?
 - How many vaccines do you administer every week or every month?
- Share your opinions on the FDMN population's knowledge, perceptions, and practice regarding disease-preventive vaccines for children.
- Do the FDMNs have any knowledge of the disease-preventive EPI vaccines for children? If they have any negative perspectives or thoughts, please learn the reasons behind them and share them.
- Are there any conflicts regarding vaccination among the groups of the FDMN population? If any, please mention which groups of the FDMNs are having conflicts regarding vaccination, the reasons behind that, the impact of the disagreement on the vaccination programme and ways to settle this issue
- Information regarding the vaccination of the selected vaccination center

- What is your targeted number of children?
 - How many children were vaccinated among the targeted children last month?
 - What are the reasons behind not giving vaccines to all the targeted children?
- Have you faced any challenges while vaccinating FDMN Children? If you did, please mention the challenges below in detail. Please mention the support you require to mitigate the challenges.
- Mention the role of the government, development partners, Civil Society Organization, and NGOs in the vaccination programme for FDMN children. What other roles could these organizations play in programme planning, implementation, and monitoring?
- Please share your valuable opinions on what steps could be taken to bring all FDMN children under vaccination
- Share your advice to strengthen the vaccination programme

Annex 1.5: EPI Session Observation

Please observe at least one EPI session from the beginning till ends in each camp and fill this checklist

101	Name of the vaccination center	
102	Type of vaccination center	<input type="checkbox"/> 1= Outreach <input type="checkbox"/> 2= Fixed Site
103	Name of the organization administrating the vaccination	
104a	Name of the block	
104b	Number of the block	
105a	Name of the camp	
105b	Number of the camp	
105c	Camp site	<input type="radio"/> 1=Ukhiya <input type="radio"/> 2=Teknaf <input type="radio"/> 3=Bhasan Char
106	Upazila	<input type="radio"/> 1=Ukhiya <input type="radio"/> 2=Teknaf <input type="radio"/> 3=Hatiya
107	District	<input type="radio"/> 1=Cox's Bazar <input type="radio"/> 2=Noakhali
108	Name and ID of the Observer	
109	Date of Inspection	

SL	Topic of observation	Findings from observation	Remarks
1.	Starting time of session	<input type="text"/> : <input type="text"/>	
2.	Arrival time of the vaccine in the center	<input type="text"/> : <input type="text"/>	
3.	Opening time of the vaccine carrier	<input type="text"/> : <input type="text"/>	
4.	Closing time of the session	<input type="text"/> : <input type="text"/>	
5.	Number of the targeted children of the Centre?	<input type="text"/> persons	
6.	Number of children who took vaccine?	<input type="text"/> persons	
7.	Reasons behind the difference between target number and vaccine takers		
	Human Resource		

SL	Topic of observation	Findings from observation	Remarks
8.	Number of health workers at the session	<input type="text"/> <input type="text"/> persons	
9.	Number of volunteers at the session	<input type="text"/> <input type="text"/> persons	
10.	Number of supervisors at the session	<input type="text"/> <input type="text"/> persons	
Management of the vaccination centre			
11.	Is there sufficient light at the centre?	<input type="radio"/> 1= Yes <input type="radio"/> 2= No	
12.	Is there adequate sitting arrangement at the centre?	<input type="radio"/> 1= Yes <input type="radio"/> 2= No	
13.	Are there people recruited to handle the crowd?	<input type="radio"/> 1= Yes <input type="radio"/> 2= No	
Logistics and supply			
14.	Is the Moni flag set in the right place?	<input type="radio"/> 1= Yes <input type="radio"/> 2= No	
15.	Were there sufficient vaccines in the center?	<input type="radio"/> 1= Yes <input type="radio"/> 2= No	
16.	Were there sufficient AD syringes in the center?	<input type="radio"/> 1= Yes <input type="radio"/> 2= No	
17.	Were there sufficient safety boxes in the center?	<input type="radio"/> 1= Yes <input type="radio"/> 2= No	
Cold Chain			
18.	Was there a dial thermometer at the vaccine carrier?	<input type="radio"/> 1= Yes <input type="radio"/> 2= No	
19.	How many ice packs were in the vaccine carrier?	<input type="radio"/> 1= Yes <input type="radio"/> 2= No	
20.	Was the vaccine carrier kept under a shade?	<input type="radio"/> 1= Yes <input type="radio"/> 2= No	
21.	Was the expiration date of the vaccine checked properly?	<input type="radio"/> 1= Yes <input type="radio"/> 2= No	
Vaccination			
22.	Were the children's ages being checked?	<input type="radio"/> 1= Yes <input type="radio"/> 2= No	
23.	Was the Non-touch technique being followed during vaccination?	<input type="radio"/> 1= Yes <input type="radio"/> 2= No	
24.	Were the used syringes being dropped in the safety box?	<input type="radio"/> 1= Yes <input type="radio"/> 2= No	
25.	Were there any negative side effects noticeable after vaccination?	<input type="radio"/> 1= Yes <input type="radio"/> 2= No	
26.	Had any steps been taken for the negative side-effects?	<input type="radio"/> 1= Yes <input type="radio"/> 2= No	
Inter personal communication			
27.	Were the service recipients being informed about the next schedule for the vaccine?	<input type="radio"/> 1= Yes <input type="radio"/> 2= No	
28.	Were the service takers being informed about the possible side effects of the vaccine?	<input type="radio"/> 1= Yes <input type="radio"/> 2= No	
29.	Were service recipients being informed of the steps to be taken if any side-effects occur?	<input type="radio"/> 1= Yes <input type="radio"/> 2= No	
30.	Have steps been taken to bring the dropout children to the center?	<input type="radio"/> 1= Yes <input type="radio"/> 2= No	
Record keeping			

SL	Topic of observation	Findings from observation	Remarks
31.	Were all necessary records and forms present at the center?	<input type="radio"/> 1= Yes <input type="radio"/> 2= No	
32.	Were the children being vaccinated after checking the registration book?	<input type="radio"/> 1= Yes <input type="radio"/> 2= No	
33.	Were the tally sheet being checked right after vaccination?	<input type="radio"/> 1= Yes <input type="radio"/> 2= No	
34.	Does the number of vaccine vials match the number of vaccine recipients?	<input type="radio"/> 1= Yes <input type="radio"/> 2= No	
35.	Was the report ready after the session?	<input type="radio"/> 1= Yes <input type="radio"/> 2= No	
36.	Was the report sent after the end of the session?	<input type="radio"/> 1= Yes <input type="radio"/> 2= No	
Monitoring and supervising			
37.	Did any supervisor come to inspect the session?	<input type="radio"/> 1= Yes <input type="radio"/> 2= No	
38.	What was the designation of the supervisor?		
39.	What did he do during the inspection?		
40.	What did he write in the remark's column?		

Q100: Mention any noticeable incident in details

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Annex 2: Household survey questionnaire

Eligibility: Collect information from parents or guardians of children aged 4.5 months to less than 24 months.

Questionnaire Module:

Module 01: Respondent identification

Module 02: Information of nearby vaccination center

Module 03: Information about children aged between 4.5-<24 months and between 2-11 years in the households

Module 04: Information about respondent

Module 05: Information about household

Module 06: Knowledge, attitude and perception on child immunization

Module 07: Information on vaccination status of children aged between 4.5-<24 months
Information on vaccination status of children aged between 2-11 years (only applicable to FDMN community)

Module 09: Experience about healthcare service

Module 10: Information on FDMN community (only applicable to FDMN community)

Module 11: Attitude of local people on FDMN community (only applicable to local residents)

Module 01 Respondent Identification

Q. No.	Characteristics	Instruction
101	Division ○ 1= Chattogram	
102	District/ City corporation (SELECT ONE) ○ 1= Cox's Bazar ○ 2= Noakhali	
103	Upazila (SELECT ONE) ○ 1= Teknaf ○ 2= Ukhia ○ 3= Hatia (Bhasan Char)	
104	Type of community (SELECT ONE) ○ 1= FDMN community ○ 2= Host community	
105	Union	Only applicable to

Q. No.	Characteristics	Instruction
106	Ward No	local people
107	Name of cluster	
107x	Name of cluster (others)	
108	Name of camp	Only applicable to FDMN community
109	Type of Block <ul style="list-style-type: none"> ○ Selected block ○ Other block 	Applicable only for FDMN living in Teknaf and Ukhia
109a1	Selected block	
109a2	Other block	
109c	Name of segment	
110	Name of cluster	Applicable only to FDMNs living in Bhasan Char
110a	Name of cluster (others)	
111	Is this household inside the selected cluster or segment (sub-block)? <ul style="list-style-type: none"> ○ 1= Yes ○ 2= No 	
113	Has the respondent given consent? (SELECT ONE) <ul style="list-style-type: none"> ○ 1= Yes ○ 2= No 	If the answer is no, then refrain from continuing the interview, if yes, continue the interview
114	ID number of the respondent	It will be automatically generated
115	Name of the respondent	
116	Mobile no	If available
117	Interviewer Name	It will be automatically generated
118	Date of interview	

Module 2: Information about nearby vaccination center

Question No.	Characteristics	Instruction
201.	Address of EPI center (Write down name of center and sub-block)	The center which he usually takes services from
202.	Distance of EPI centre from household (SELECT ONE) <ul style="list-style-type: none"> ○ 1= < 1 km 	Write after confirming with the supervisor

	<ul style="list-style-type: none"> ○ 2=>1 km 	
203.	<p>Is the EPI centre static or satellite? (SELECT ONE)</p> <ul style="list-style-type: none"> ○ 1= Static (Fixed center) ○ 2= Temporary /Outreach center (Satellite clinic / Mobile Clinic) ○ 88=Others (Specify) 	
204.	<p>What are the modes of transport to reach EPI centre? (Multiple answers are acceptable)</p> <ul style="list-style-type: none"> <input type="checkbox"/> A= Walking <input type="checkbox"/> B= By rickshaw/ van <input type="checkbox"/> C= Auto rickshaw/CNG <input type="checkbox"/> D= Bus <input type="checkbox"/> X= Others, (Specify) 	
205.	<p>Types of Organizations Running Vaccination Centres ((Multiple answers are acceptable)</p> <ul style="list-style-type: none"> <input type="checkbox"/> A= Govt <input type="checkbox"/> B= Private <input type="checkbox"/> C= NGO <input type="checkbox"/> D= INGO 	<p>Confirm the type of vaccination center organization from the supervisors</p>

Module 3: Information about children aged between 4.5-<24 months and between 2-11 years in the households

a) Information about children aged between 4.5-<24 months in the households

Instruction: Please note down if there is more than one child aged between 4.5-<24 months and consider the older child as a target child.

Q300a: How many children aged between 4.5-<24 months are in the household? person

301a	302a	303a	304a	305a
Sl. No. (Older to younger/Descending order)	What is your child's name? (Record child's name)	Is the child a boy or a girl? 01=Boy 02=Girl	Date of birth of the child	Relationship with respondent: (Choose one answer) ○ 1= Mother ○ 2= Father ○ 3= Grandfather/Grandmother ○ 88= Other (specify)
1.			-----/-----/-----	
2.			-----/-----/-----	

3			-----/-----/-----	
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Q309: Select child for interview from the above listed children aged between 4.5-<24 months

b) Information about children aged between 2-11 years in the households (Only for FDMN)

Instruction: Please note down information of all children if there is more than one child aged between 2-11 years and consider the older child as a target child.

Q300b: How many children aged between 2-11 years are in the household? person

301b	302b	303b	304b	305b	306b	307b	308b
Sl. No. (Older to younger/Descending order)	What is your child's name? (Record child's name)	Is the child a boy or a girl? 01=Boy 02=Girl	Date of birth of the child ----/----/-- -	Relationship with respondent: (SELECT ONE) <input type="radio"/> 1= Mother <input type="radio"/> 2= Father <input type="radio"/> 3=Grandfather/ Grandmother <input type="radio"/> 88= Others (specify)	In which country the child was born: <input type="radio"/> 1= Bangladesh <input type="radio"/> 2= Myanmar	Does your child go to school/learning center? <input type="radio"/> 1= Yes <input type="radio"/> 2= No <input type="radio"/> 77=Not applicable	If yes, then which class are they in? <input type="radio"/> 1=Class <input type="radio"/> 2=Years
1.			----/----/-- -				
2.			----/----/-- -				
3.			---/----/-- -				

Module 04: Information about respondent

Q. No.	Question & response	Instruction
401	How old are you? Please write down in full years _ _ Years	If necessary, take this information from the data card/ID card
402	Record whether the respondent is male or female. (SELECT ONE) <input type="radio"/> 1= male <input type="radio"/> 2= female <input type="radio"/> 88= Others, specify	
403	What is your highest level of formal education? (SELECT ONE) <input type="radio"/> 1= No education/ illiterate/ never went to school <input type="radio"/> 2= Primary incomplete <input type="radio"/> 3= Primary completed <input type="radio"/> 4= Secondary incomplete <input type="radio"/> 5= Secondary completed	

Q. No.	Question & response	Instruction
	<ul style="list-style-type: none"> ○ 6= Higher secondary incomplete ○ 7= Higher secondary completed ○ 8= Graduation incomplete ○ 9= Graduation completed or above ○ 10=Religious education ○ 88= Others, specify 	
404	<p>What is your main occupation? (SELECT ONE)</p> <ul style="list-style-type: none"> ○ 1= Day labourer (Porter/Boatman/ Transport worker) ○ 2=Non-government employee or NGO worker ○ 3= Agriculture ○ 4= Small business ○ 5= Business ○ 6= Housewife ○ 7= Government Employee ○ 8= Rickshaw/Van puller ○ 9= Skilled worker (Tailor / Mason / Carpenter / Electrician) ○ 10= Maid/domestic help ○ 11= Not working/ Disabled ○ 12= Student ○ 13= Boatman (Leader) ○ 14= Teacher ○ 15= Imam/ Maulvi/Kazi ○ 16= Volunteer ○ 17=Hand and home crafts ○ 88= Others, specify 	
404a	<p>Where is his work place? (SELECT ONE)</p> <ul style="list-style-type: none"> ○ 1 = inside the camp ○ 2= outside the camp ○ 3= in both places 	Ask if Q104 code is 1 and Q404 answer is '1'
405	<p>What is your marital status? (SELECT ONE)</p> <ul style="list-style-type: none"> ○ 1= Married ○ 2= Separated ○ 3= Abandoned ○ 4= Divorced ○ 5= Widowed ○ 88= Others, Specify 	Ask Q406 only if the answer of Q405 is 1
406a	<p>Does your husband have any other wives at present? (If the respondent is a mother) (SELECT ONE)</p> <ul style="list-style-type: none"> ○ 1= Yes ○ 2= No 	Check Q305a1. If the answer is 1, then ask Q406a

Q. No.	Question & response	Instruction										
406b	Do you have any other wives? (If the respondent is a father) (SELECT ONE) <input type="radio"/> 1= Yes <input type="radio"/> 2= No	Check Q305a1. If the answer is 2, then ask Q406b										
407	Which religion do you follow? (SELECT ONE) <input type="radio"/> 1= Islam <input type="radio"/> 2= Hinduism <input type="radio"/> 3= Christianity <input type="radio"/> 4= Buddhism <input type="radio"/> 88=Others, Specify											
408	What is your ethnicity? (SELECT ONE) <input type="radio"/> 1= Bengali <input type="radio"/> 2= Indigenous (Specify _____) <input type="radio"/> 3= FDMN <input type="radio"/> 88= Others (specify _____)											
409	How many living children do you have? _____	Check Q305a1. If the answer is 1 or 2, then ask Q409										
410	Have you ever taken any vaccines in your entire life? <input type="radio"/> 1= Yes <input type="radio"/> 2= No	If no, then go to the next module										
411	Which vaccine and where did you take it from? <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;">Vaccine</th> <th style="width: 40%;">Place (Mention country code)</th> </tr> </thead> <tbody> <tr> <td><input type="checkbox"/> A = COVID-19 vaccine</td> <td style="text-align: center;">E</td> </tr> <tr> <td><input type="checkbox"/> B = Vaccines for women aged between 15-49 years, example: TT, TD and HPV</td> <td style="text-align: center;">E</td> </tr> <tr> <td><input type="checkbox"/> C = Children' routine vaccine</td> <td style="text-align: center;">E</td> </tr> <tr> <td><input type="checkbox"/> X =Others (Specify)</td> <td style="text-align: center;">E</td> </tr> </tbody> </table> *Code: <input type="radio"/> 1= Bangladesh <input type="radio"/> 2= Myanmar <input type="radio"/> 88= Others (Specify)	Vaccine	Place (Mention country code)	<input type="checkbox"/> A = COVID-19 vaccine	E	<input type="checkbox"/> B = Vaccines for women aged between 15-49 years, example: TT, TD and HPV	E	<input type="checkbox"/> C = Children' routine vaccine	E	<input type="checkbox"/> X =Others (Specify)	E	
Vaccine	Place (Mention country code)											
<input type="checkbox"/> A = COVID-19 vaccine	E											
<input type="checkbox"/> B = Vaccines for women aged between 15-49 years, example: TT, TD and HPV	E											
<input type="checkbox"/> C = Children' routine vaccine	E											
<input type="checkbox"/> X =Others (Specify)	E											

Module 5: Information about household

Q. No.	Question & Response	Instruction
501.	How many members are in your household? _____ person	

Q. No.	Question & Response	Instruction
502.	How many earning members are in your household? _____ person	
503.	<p>Source of income (MULTIPLE ANSWER)</p> <p>a) For FDMN</p> <ul style="list-style-type: none"> <input type="checkbox"/> A=Relief goods <input type="checkbox"/> B=Daily basis wage labour <input type="checkbox"/> C= Small business/ Small family business <input type="checkbox"/> D= Job/Monthly basis wage labour <input type="checkbox"/> E= Hand and home crafts <input type="checkbox"/> F=Financial help from Outside <input type="checkbox"/> X= Others, specify <p>b) For host community</p> <ul style="list-style-type: none"> <input type="checkbox"/> A= Agriculture <input type="checkbox"/> B= Business <input type="checkbox"/> C= Job <input type="checkbox"/> D= Daily basis wage labour <input type="checkbox"/> E=Financial help from Outside <input type="checkbox"/> X = Others (Specify) 	
504.	<p>What is the monthly expense?</p> <ul style="list-style-type: none"> ○ 1= <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> Taka ○ 99= Do not know 	Calculate the monthly expense of last month, however exclude any expenses spent on special occasions
505.	<p>What is the monthly income?</p> <ul style="list-style-type: none"> ○ 1= <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> Taka ○ 99= Do not know 	Calculate the monthly income of last month, however exclude any income from special sources
506.	<p>Is the household spending is more than income? (SELECT ONE)</p> <ul style="list-style-type: none"> ○ 1= Yes ○ 2= No ○ 77= Not applicable 	Ask only if the spending is more than the income, otherwise, just choose the 'not applicable' option
507.	<p>Whether the following things are available in your household? (MULTIPLE ANSWER)</p> <ul style="list-style-type: none"> <input type="checkbox"/> A= Mobile Phone <input type="checkbox"/> B= Computer <input type="checkbox"/> C= Television <input type="checkbox"/> D= Radio <input type="checkbox"/> E= Electricity/Generator <input type="checkbox"/> F= Solar electricity <input type="checkbox"/> G= Fridge <input type="checkbox"/> H= Almirah <input type="checkbox"/> I= Bed <input type="checkbox"/> J= Electric fan <input type="checkbox"/> K=Gas stove <input type="checkbox"/> L= Water pump <input type="checkbox"/> M= Air conditioner <input type="checkbox"/> N= Agricultural machineries (tractor/ salo machine) <input type="checkbox"/> O= Bicycle <input type="checkbox"/> P= Motorcycle <input type="checkbox"/> Q= Jeep/Car/Truck/CNG/Van/Rickshaw/ Boat 	

Q. No.	Question & Response	Instruction
508.	<p>Observe and record the main house building materials of the respondent's dwelling.</p> <p>(SELECT ONE)</p> <p>a. Living room roof:</p> <p><input type="checkbox"/> 1=Bamboo/Straw/Polythene</p> <p><input type="checkbox"/> 2=Tin</p> <p><input type="checkbox"/> 3=Paved (cement)</p> <p><input type="checkbox"/> 88=Others (specify)</p> <p>b. Living room wall:</p> <p><input type="checkbox"/> 1=Bamboo/Straw/Polythene</p> <p><input type="checkbox"/> 2=Tin/Wood</p> <p><input type="checkbox"/> 3=Paved (cement)</p> <p><input type="checkbox"/> 4=Soil</p> <p><input type="checkbox"/> 88=Others (specify)</p> <p>c. Living room floor:</p> <p><input type="checkbox"/> 1= Raw floor (soil)</p> <p><input type="checkbox"/> 2= Flooring made of bamboo / wood</p> <p><input type="checkbox"/> 3= Paved floor (cement/tiles)</p> <p><input type="checkbox"/> 88= Others, specify</p>	
509.	<p>What is the main source of drinking water for members of your household?</p> <p>(SELECT ONE)</p> <p><input type="radio"/> 1=Piped (tap) water</p> <p><input type="radio"/> 2=Tube well or handpump</p> <p><input type="radio"/> 3= Spring/lake water</p> <p><input type="radio"/> 88=Others (specify)</p>	
510.	<p>What kind of toilet facility members of your household usually use?</p> <p>(SELECT ONE)</p> <p><input type="radio"/> 1=Flush toilet</p> <p><input type="radio"/> 2=Pit latrine</p> <p><input type="radio"/> 3= Bush/field</p> <p><input type="radio"/> 88=Others (specify)</p>	
511.	<p>Who is the leader of the household?</p> <p>(SELECT ONE)</p> <p><input type="radio"/> 1= Myself</p> <p><input type="radio"/> 2= Husband/Wife</p> <p><input type="radio"/> 3= Father</p> <p><input type="radio"/> 4=Mother</p> <p><input type="radio"/> 5= Brother</p> <p><input type="radio"/> 6= Son</p> <p><input type="radio"/> 7= Daughter</p> <p><input type="radio"/> 8= Grandfather</p> <p><input type="radio"/> 9= Grandmother</p> <p><input type="radio"/> 88=Others (Specify)</p>	
512.	<p>If you/any of your household members need to take any healthcare, who makes the decision in that case?</p> <p>(SELECT ONE)</p> <p><input type="radio"/> 1= Myself</p> <p><input type="radio"/> 2= Husband/Wife</p> <p><input type="radio"/> 3= Father</p> <p><input type="radio"/> 4=Mother</p> <p><input type="radio"/> 5= Brother</p> <p><input type="radio"/> 6= Son</p> <p><input type="radio"/> 7= Daughter</p> <p><input type="radio"/> 8= Grandfather</p> <p><input type="radio"/> 9= Grandmother</p> <p><input type="radio"/> 10= Joint</p> <p><input type="radio"/> 88=Others (Specify)</p>	

Module 06: Knowledge, attitude and perception on child immunization

Q. No.	Question & response	Instruction
601	<p>How important do you think vaccines are for your child's health? (SELECT ONE)</p> <ul style="list-style-type: none"> <input type="radio"/> 1= Not at all important <input type="radio"/> 2= A little important <input type="radio"/> 3= Moderately important <input type="radio"/> 4= Very important 	
602	<p>Do you think most of your close relatives want you to get your child vaccinated? (SELECT ONE)</p> <ul style="list-style-type: none"> <input type="radio"/> 1= Yes <input type="radio"/> 2= No 	By close relatives, it is meant blood related relatives
603	<p>The Government has a schedule of recommended vaccines for children. Do you want your child to get those vaccines? (SELECT ONE)</p> <ul style="list-style-type: none"> <input type="radio"/> 1= None <input type="radio"/> 2= Some <input type="radio"/> 3= All 	
604	<p>Do you know where to go to get your child vaccinated? (SELECT ONE)</p> <ul style="list-style-type: none"> <input type="radio"/> 1= Yes <input type="radio"/> 2= No 	
605	<p>How easy is it to pay for vaccination? (When you think about the cost, please consider any payments to the clinic, the cost of getting there, plus the cost of taking time away from work.) Would you say... (SELECT ONE)</p> <ul style="list-style-type: none"> <input type="radio"/> 1= Not at all easy <input type="radio"/> 2= A little easy <input type="radio"/> 3= Easy <input type="radio"/> 4= Very easy 	
606	<p>How safe do you think vaccines are for your child? Would you say... (SELECT ONE)</p> <ul style="list-style-type: none"> <input type="radio"/> 1= Not at all safe <input type="radio"/> 2= A little safe <input type="radio"/> 3= Safe <input type="radio"/> 4= Very safe 	
607	<p>How much reliance do you have on the health workers who give vaccines to the children? (SELECT ONE)</p> <ul style="list-style-type: none"> <input type="radio"/> 1= No reliance at all <input type="radio"/> 2= A little reliance <input type="radio"/> 3= Have reliance <input type="radio"/> 4= A lot of reliance 	

Q. No.	Question & response	Instruction
608	Do you think most parents you know get their children vaccinated? (SELECT ONE) <input type="radio"/> 1= Yes <input type="radio"/> 2= No	
609	Do you think your community elderly/ leaders want you to get your child vaccinated? (SELECT ONE) <input type="radio"/> 1= Yes <input type="radio"/> 2= No	
610	Has any health worker recommended your child to be vaccinated? (SELECT ONE) <input type="radio"/> 1= Yes <input type="radio"/> 2= No	
611	Have you ever been contacted by any health worker about your child being due for vaccination? (SELECT ONE) <input type="radio"/> 1= Yes <input type="radio"/> 2= No	
612	Do you need permission (from your partner/ husband/ wife/ family members or any elderly) to take your child to the vaccinator center for vaccination? (SELECT ONE) <input type="radio"/> 1= Yes <input type="radio"/> 2= No <input type="radio"/> 3= Not applicable	
613	Have you personally ever taken your child to vaccination center to get them vaccinated? (SELECT ONE) <input type="radio"/> 1= Yes <input type="radio"/> 2= No	
614	Have you ever been turned away when you tried to get your child vaccinated? (SELECT ONE) <input type="radio"/> 1= Yes <input type="radio"/> 2= No	
615	How easy is it to avail vaccination service for your child? (SELECT ONE) <input type="radio"/> 1= Not at all easy <input type="radio"/> 2= A little easy <input type="radio"/> 3= Easy <input type="radio"/> 4= Very easy	
616	What makes it hard to get vaccination services for your child? Would you say... (MULTIPLE RESPONSE) <input type="checkbox"/> A= There is nothing that is hard <input type="checkbox"/> B= Getting to the vaccination center/clinic is hard	If you select Code "A", then rest of the code will be disabled

Q. No.	Question & response	Instruction
	<input type="checkbox"/> C= The vaccination center/clinic opening times/ service schedule are inconvenient <input type="checkbox"/> D= The vaccination center/clinic sometimes turns people away without vaccinating <input type="checkbox"/> E= The waiting time in the vaccination center/clinic takes too long <input type="checkbox"/> F= Sitting problem <input type="checkbox"/> G= Behaviour of service provider is not good <input type="checkbox"/> H= There is no vaccination center in our locality/block/ sub-block <input type="checkbox"/> I= The vaccines are not provided regularly in our locality <input type="checkbox"/> X= Others (Specify)_____	
617	How satisfied are you with the vaccination services? Would you say... <ul style="list-style-type: none"> ○ 1= Not at all satisfied ○ 2= A little satisfied ○ 3= Moderately satisfied ○ 4= Very satisfied 	If Q617 answered '1' or '2' then ask Q618 otherwise skip Q618
618	What is not satisfactory about the vaccination services? Would you say... (MULTIPLE RESPONSE) <ul style="list-style-type: none"> <input type="checkbox"/> A= Vaccine is not always available <input type="checkbox"/> B= The clinic does not open on time <input type="checkbox"/> C= Waiting time are long <input type="checkbox"/> D= The clinic is not clean <input type="checkbox"/> E= Staff are poorly trained <input type="checkbox"/> F= Staff are not respectful <input type="checkbox"/> G= Staff do not spend enough time with people <input type="checkbox"/> H= There is no vaccination center at our locality <input type="checkbox"/> I = Vaccine is provided sporadically <input type="checkbox"/> X= Others (Specify)_____ 	

Module 07: Information on vaccination status of children aged between 4.5-<24 months

Instruction: Write the information of the child mentioned in the SL no.1 of 301a question

Q. No.	Question & response	Instruction
701	Would you please tell whether the child (child's name) has received any disease preventive vaccine? (SELECT ONE) <ul style="list-style-type: none"> ○ 1= Yes ○ 2= No 	If the answer is 'Yes', then go to question 703

Q. No.	Question & response	Instruction
702	<p>If not, what are the reasons for not getting a vaccine? (MULTIPLE RESPONSE)</p> <ul style="list-style-type: none"> <input type="checkbox"/> A= Due to the child's illness <input type="checkbox"/> B= Parents/caregivers business <input type="checkbox"/> C= Thought of getting vaccinated later <input type="checkbox"/> D= Change of residence <input type="checkbox"/> E= Fear of side effect <input type="checkbox"/> F= Inconvenient vaccination hours/vaccination days <input type="checkbox"/> G= Did not know when to give vaccines <input type="checkbox"/> H= Vaccination centre had been closed <input type="checkbox"/> I= Family members did not permit <input type="checkbox"/> J= There was no vaccine in stock <input type="checkbox"/> K= Reluctance towards vaccine <input type="checkbox"/> x= Others, specify 	
703	<p>What is the status of the child's vaccination card/? (SELECT ONE)</p> <ul style="list-style-type: none"> <input type="radio"/> 1= Received card and it is available <input type="radio"/> 2= Received card but it is unavailable <input type="radio"/> 3= Never received card <input type="radio"/> 4=Don't have the card but have the slip <input type="radio"/> 99= Don't know 	If answer is 2,3 or 99 go to Q706
704	<p>Can you show me the card? (SELECT ONE)</p> <ul style="list-style-type: none"> <input type="radio"/> 1= Yes <input type="radio"/> 2= No 	If answer is Yes, go to Q707
705	<p>If no, where is the card now? (SELECT ONE)</p> <ul style="list-style-type: none"> <input type="radio"/> 1= Locked inside almirah <input type="radio"/> 2= The person who has the card is not at home <input type="radio"/> 3= Card is lost <input type="radio"/> 4= Card is in another house <input type="radio"/> 88= Others, Specify 	

Q. No.	Question & response	Instruction																																		
706	<p>(Instructions: If the target child is immunized but does not have a vaccine card/slip, then confirm the child's immunization status by asking the following questions and fill in the corresponding immunization box of Q710.</p> <p>(If the respondent cannot state the date of vaccination, tick (√) the date of vaccination box.)</p> <p>a) How many times did the child (Name...) go to the vaccination centre (such as: outreach, fixed center, campaign) for immunization? Number..... <input type="text"/></p> <p>b) How many vaccines has the child (Name...) been given at what age?</p> <table border="1" data-bbox="264 591 1050 909"> <thead> <tr> <th rowspan="2">Visit</th> <th rowspan="2">How old was the child? (day)</th> <th colspan="2">Number of vaccines</th> </tr> <tr> <th>injection</th> <th>oral</th> </tr> </thead> <tbody> <tr><td>1st time</td><td></td><td></td><td></td></tr> <tr><td>2nd time</td><td></td><td></td><td></td></tr> <tr><td>3rd time</td><td></td><td></td><td></td></tr> <tr><td>4th time</td><td></td><td></td><td></td></tr> <tr><td>5th time</td><td></td><td></td><td></td></tr> <tr><td>6th time</td><td></td><td></td><td></td></tr> <tr><td>7th time</td><td></td><td></td><td></td></tr> </tbody> </table>	Visit	How old was the child? (day)	Number of vaccines		injection	oral	1 st time				2 nd time				3 rd time				4 th time				5 th time				6 th time				7 th time				Go to question Q710
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1 st time																																				
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4 th time																																				
5 th time																																				
6 th time																																				
7 th time																																				
707	<p>Have your child received any vaccine that is not recorded on the card? (SELECT ONE)</p> <p><input type="radio"/> 1= Yes</p> <p><input type="radio"/> 2= No</p> <p><input type="radio"/> 99= Don't know</p>																																			
707a	<p>Is there any vaccine recorded on the card that is not received by your child? (SELECT ONE)</p> <p><input type="radio"/> 1= Yes</p> <p><input type="radio"/> 2= No</p> <p><input type="radio"/> 99= Don't know</p>																																			
708	<p>Enter the date of birth of the child according to the card</p> <p><input type="radio"/> <input type="text"/> <input type="text"/> <input type="text"/> DD MM YYYY</p> <p><input type="radio"/> 99= Date of birth is not written on the card / date of birth is unclear</p>																																			
709	<p>Instructions: Enter the date of vaccination according to the vaccine card. Fill the cell with '0' if the date is not mentioned on the vaccination card, fill with '8' if there is a tick mark and fill it with '9' if the writing is unclear.</p> <p>Select "The session is not timed " for MR-1 or MR-2 vaccine if the child is eligible for MR-1 or MR-2 vaccine but vaccination session is not fixed for that time period.</p>																																			

Q. No.	Question & response							Instruction
	a) Applicable for vaccine card holders				b) Applicable for no card holders			
	Name of vaccine	Immunize d (as per card)		Vaccination date (As per card)	Immunize d (Respondent's statement)		Vaccination date (Respondent's statement)	
		Yes	No		Ye s	No		
	<input type="checkbox"/> A= BCG	1	2		1	2		
	<input type="checkbox"/> B= Penta-1	1	2		1	2		
	<input type="checkbox"/> C= Penta-2	1	2		1	2		
	<input type="checkbox"/> D= Penta-3	1	2		1	2		
	<input type="checkbox"/> E= PCV-1	1	2		1	2		
	<input type="checkbox"/> F= PCV-2	1	2		1	2		
	<input type="checkbox"/> G= PCV-3	1	2		1	2		
	<input type="checkbox"/> H= OPV-1	1	2		1	2		
	<input type="checkbox"/> I= OPV-2	1	2		1	2		
	<input type="checkbox"/> J= OPV-3	1	2		1	2		
	<input type="checkbox"/> K= IPV-1	1	2		1	2		
	<input type="checkbox"/> L= IPV-2	1	2		1	2		
	<input type="checkbox"/> M=MR-1	1	2		1	2		
	<input type="checkbox"/> N= MR-2	1	2		1	2		
	<input type="checkbox"/> O= BCG-2	1	2		1	2		
	<p>* q709am_Vaccination centre (Have card)</p> <ul style="list-style-type: none"> ○ 1= GoB Outreach center ○ 2= GoB fixed center / Hospital ○ 3= NGO/ INGO Fixed Center/ Clinic/ Hospital ○ 4= INGO Outreach Center ○ 5= Private Clinic/ Hospital <p>* q709bm_Vaccination centre (Don't have card)</p> <ul style="list-style-type: none"> ○ 1= GoB Outreach center ○ 2= GoB fixed center / Hospital ○ 3= NGO/ INGO Fixed Center/ Clinic/ Hospital ○ 4= INGO Outreach Center ○ 5= Private Clinic/ Hospital 							
710	<p>What are the reasons for not giving all the vaccines to your child? (Multiple answers are acceptable)</p> <ul style="list-style-type: none"> <input type="checkbox"/> A= Due to the child's illness <input type="checkbox"/> B= Parents/caregivers business <input type="checkbox"/> C= Thought of getting vaccinated later 							

Q. No.	Question & response	Instruction
	<input type="checkbox"/> D= Change of residence <input type="checkbox"/> E= Fear of side effects <input type="checkbox"/> F= Inconvenient facility hours/vaccination days <input type="checkbox"/> G= Did not know when to give vaccines <input type="checkbox"/> H= Vaccination centre was closed <input type="checkbox"/> I= Family members were against it <input type="checkbox"/> J= There was no vaccine in stock <input type="checkbox"/> K= Reluctance towards vaccine <input type="checkbox"/> L= It is not time for vaccinate yet <input type="checkbox"/> M= The session is not timed <input type="checkbox"/> X= Other, specify	
711	What were the side effects that occurred after vaccinating your child? Multiple answers acceptable (SELECT ONE) <ul style="list-style-type: none"> <input type="radio"/> 1= Fever (above 102F) <input type="radio"/> 2= Abscess <input type="radio"/> 3=convulsion <input type="radio"/> 4= There is no side effects <input type="radio"/> 88= Other specify <input type="radio"/> 99= Don't know 	If the answer is 4/99, go to Q714
713	Did the child need to be taken to hospital/clinic for this problem? (SELECT ONE) <ul style="list-style-type: none"> <input type="radio"/> 1= Yes <input type="radio"/> 2= No <input type="radio"/> 99= Don't know 	
714	Do you have any suggestions for ensuring that all targeted children in your area are vaccinated? (SELECT ONE) <ul style="list-style-type: none"> <input type="radio"/> 1= Yes <input type="radio"/> 2= No 	If answer is no, go to next section
715	What are the suggestions? (Multiple answers acceptable) <ul style="list-style-type: none"> <input type="checkbox"/> A= Let the parents know about the importance of vaccination <input type="checkbox"/> B= Should be informed before the session <input type="checkbox"/> C= Should be informed through announcement (miking) <input type="checkbox"/> D= Vaccinator should visit door to door to provide vaccine <input type="checkbox"/> E= Take help from boatman (majhee) on vaccination day <input type="checkbox"/> F= Take strong steps from CiC office <input type="checkbox"/> x= Others, specify 	

Module 8: Information on vaccination status of children aged between 2-11 years (Only for FDMN community)

Q. No.	Question & response					Instruction
801	Instruction: Ask information regarding vaccination status of all children aged between 2-11 years and fill the table below					
Serial No. (According to descending order of children's age)	Child's Name	a. Is the child vaccination card available? ○ 1=Yes ○ 2=No	b. Child's Immunization Status ○ 1=Completed vaccination ○ 2=Partial vaccination given (Drop-out) ○ 3=No vaccination provided (Left out) ○ 4= Do not remember	c. Place of administered ¹ (Use code) If the answer of Q801b is 1 or 2 then ask Q801c	d. Reason for drop out or left (Use code) If answer Q801b is 2 or then Q801	
1.						
2.						
3.						
4.						
5.						
<p>¹ Code for "Place of administered":</p> <ul style="list-style-type: none"> <input type="checkbox"/> A= Outreach centre, BD <input type="checkbox"/> B= Fixed centre, BD <input type="checkbox"/> C= NGO or INGO Clinic/ Hospital, BD <input type="checkbox"/> D= Private Clinic/ Hospital, BD <input type="checkbox"/> E= Outreach center, MM <input type="checkbox"/> F= Fixed center, MM <input type="checkbox"/> G= NGO or INGO Clinic/ Hospital, MM <input type="checkbox"/> H= Private Clinic/ Hospital, MM <input type="checkbox"/> X= Others (Specify) <p>² Code for "reasons for drop out or left out":</p> <ul style="list-style-type: none"> <input type="checkbox"/> A= Due to the child's illness <input type="checkbox"/> B= Parents/caregivers business <input type="checkbox"/> C= Thought of getting vaccinated later <input type="checkbox"/> D= Change of residence <input type="checkbox"/> E= Didn't Fear of side effect <input type="checkbox"/> F= Inconvenient facility hours/vaccination days <input type="checkbox"/> G= Did not know when to give vaccines <input type="checkbox"/> H= Vaccination centre was closed <input type="checkbox"/> I= No permission from family members <input type="checkbox"/> J= There was no vaccine in stock <input type="checkbox"/> K= Reluctance towards vaccine 						

Q. No.	Question & response	Instruction																																													
	<input type="checkbox"/> X= Others, specify																																														
801a	<p>Which of the following children of yours was under 2 years of age before coming to Bangladesh and received vaccinations while in Myanmar? (SELECT ONE)</p> <ul style="list-style-type: none"> <input type="radio"/> 1= Name of child in serial no.1 <input type="radio"/> 2= Name of child in serial no.2 <input type="radio"/> 3= Name of child in Serial No. 3 <input type="radio"/> 4= Name of child of Serial No. 4 <input type="radio"/> 5= Name of child of Serial No. 5 <input type="radio"/> 77= Not applicable 	<p>Instructions: If there are more than one child, record the details of the eldest child. If the answer is 77, go to the next section</p>																																													
802	<p>Instructions: Collect the following information for the child who was under 2 years of age before coming to Bangladesh and received vaccinations while in Myanmar. The vaccination schedule of Myanmar in 2016 is as follows:</p> <table border="1" data-bbox="240 936 1157 1525"> <thead> <tr> <th>Visit</th> <th>Age</th> <th>Vaccine</th> <th>Type of administration</th> </tr> </thead> <tbody> <tr> <td>1st time</td> <td>At birth</td> <td>BCG Hepatitis B</td> <td>Injection Injection</td> </tr> <tr> <td>2nd time</td> <td>2months</td> <td>Pentavalent-1 PCV-1 OPV -1</td> <td>Injection Injection Oral</td> </tr> <tr> <td>3rd time</td> <td>4months</td> <td>Pentavalent-2 PCV-2 OPV -2 IPV</td> <td>Injection Injection Oral Injection</td> </tr> <tr> <td>4th time</td> <td>6 months</td> <td>Pentavalent-3 PCV-3 OPV -3</td> <td>Injection Injection Oral</td> </tr> <tr> <td>5th time</td> <td>9 months</td> <td>Measles -Rubella</td> <td>Injection</td> </tr> <tr> <td>6th time</td> <td>18 months</td> <td>Measles</td> <td>Injection</td> </tr> </tbody> </table> <p>Complete table 802b (as per the schedule)</p> <p>a) How many times did the child (Name...) (Check Q801a) go to the vaccination centre for immunization? Number..... <input type="checkbox"/></p> <p>b) How many vaccines has the child (Name...) (Check Q801a) been given vaccine at what age?</p> <table border="1" data-bbox="264 1854 1198 2022"> <thead> <tr> <th rowspan="2">Visit</th> <th rowspan="2">How old was the child? (day)</th> <th colspan="2">Number of vaccines</th> <th rowspan="2">Name vaccine *code</th> </tr> <tr> <th>injection</th> <th>oral</th> </tr> </thead> <tbody> <tr> <td>1st time</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>2nd time</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Visit	Age	Vaccine	Type of administration	1 st time	At birth	BCG Hepatitis B	Injection Injection	2 nd time	2months	Pentavalent-1 PCV-1 OPV -1	Injection Injection Oral	3 rd time	4months	Pentavalent-2 PCV-2 OPV -2 IPV	Injection Injection Oral Injection	4 th time	6 months	Pentavalent-3 PCV-3 OPV -3	Injection Injection Oral	5 th time	9 months	Measles -Rubella	Injection	6 th time	18 months	Measles	Injection	Visit	How old was the child? (day)	Number of vaccines		Name vaccine *code	injection	oral	1 st time					2 nd time					
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6 th time																																
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803	<p>How easy was it to pay for vaccination in Myanmar? When you think about the cost, please consider any payments to the clinic, the cost of getting there, plus the cost of taking time away from work.</p> <p>(SELECT ONE)</p> <ul style="list-style-type: none"> <input type="radio"/> 1= Not at all easy <input type="radio"/> 2= A little easy <input type="radio"/> 3= Easy <input type="radio"/> 4= Very easy 																															
804	<p>How much reliance did you have on the health workers of Myanmar who give vaccines to the children?</p> <p>(SELECT ONE)</p> <ul style="list-style-type: none"> <input type="radio"/> 1= No reliance at all <input type="radio"/> 2= A little reliance <input type="radio"/> 3= Moderate reliance <input type="radio"/> 4= Very much reliance 	If the answer is 1, go to 805																														
805	<p>Write the reason behind distrust?</p> <hr/>																															
806	<p>Do you think your community leaders of Myanmar wanted you to get your child vaccinated?</p> <p>(SELECT ONE)</p> <ul style="list-style-type: none"> <input type="radio"/> 1= Yes <input type="radio"/> 2= No 																															

Q. No.	Question & response	Instruction
807	Had any health worker of Myanmar recommended your child to be vaccinated? (SELECT ONE) <ul style="list-style-type: none"> ○ 1= Yes ○ 2= No 	
808	Had you ever been contacted by health worker of Myanmar about your child's vaccination? (SELECT ONE) <ul style="list-style-type: none"> ○ 1= Yes ○ 2= No 	
809	How easy was it to avail vaccination service in Myanmar for your child? (SELECT ONE) <ul style="list-style-type: none"> ○ 1= Not at all easy ○ 2= A little easy ○ 3= Easy ○ 4= Very easy 	If the answer is 1 or 2, then go to Q810
810	What made it hard to get vaccination services in Myanmar for your child? Would you say... (MULTIPLE RESPONSE) <ul style="list-style-type: none"> <input type="checkbox"/> A= Nothing <input type="checkbox"/> B= Getting to the center/clinic is hard <input type="checkbox"/> C= The center/clinic opening times/ service schedule are inconvenient <input type="checkbox"/> D= The center/clinic sometimes turns people away without vaccinating <input type="checkbox"/> E= The waiting time in the center/clinic takes too long <input type="checkbox"/> F= Sitting problem <input type="checkbox"/> G= Behaviour of service provider is not good <input type="checkbox"/> H= There is no vaccination center in our locality <input type="checkbox"/> I= The vaccines are not provided regularly in our locality <input type="checkbox"/> X= Others (Specify) 	
811	Had any health worker contacted you regarding whether your child has taken all necessary vaccine within that time or not? (SELECT ONE) <ul style="list-style-type: none"> ○ 1= Yes ○ 2= No 	
812	How satisfied were you with the vaccination services in Myanmar? Would you say... <ul style="list-style-type: none"> ○ 1= Not at all satisfied ○ 2= A little satisfied ○ 3= Moderately satisfied ○ 4= Very satisfied 	If the answer is "1" or "2" then go to Q813 or else, go to the next section

Q. No	Question & Response	Instruction																								
904	What kind of treatment did you receive that time? (Multiple answers are acceptable) <input type="checkbox"/> A= General Health Care <input type="checkbox"/> E= Counselling <input type="checkbox"/> B= Maternal Healthcare <input type="checkbox"/> F= Refer <input type="checkbox"/> C= Child Health <input type="checkbox"/> G= Child vaccine <input type="checkbox"/> D= Family Planning Service <input type="checkbox"/> H=Emergency health service <input type="checkbox"/> X= Others (specify)																									
905	Did you get any prescription? (SELECT ONE) <input type="radio"/> 1= Yes <input type="radio"/> 2= No																									
906	Did you receive any free medicine from healthcare center? (SELECT ONE) <input type="radio"/> 1= Yes, fully <input type="radio"/> 2= Yes, partially <input type="radio"/> 3= No <input type="radio"/> 77= Not applicable																									
907x	Was there any cost for the treatment? (SELECT ONE) <input type="radio"/> 1= Yes <input type="radio"/> 2= No	If answer is no, go to Q908																								
907	What was the total cost of treatment? (Mention cost of medicine, laboratory test and Fees, exclude the transportation fee) <table border="1" data-bbox="199 1288 1265 1574"> <thead> <tr> <th></th> <th>Type of expense</th> <th>Taka</th> </tr> </thead> <tbody> <tr> <td>a.</td> <td>Transportation</td> <td></td> </tr> <tr> <td>b.</td> <td>Medicine</td> <td></td> </tr> <tr> <td>c.</td> <td>Prescription</td> <td></td> </tr> <tr> <td>d.</td> <td>Test fee</td> <td></td> </tr> <tr> <td>e.</td> <td>No expense</td> <td></td> </tr> <tr> <td>x.</td> <td>Others (Specify)</td> <td></td> </tr> <tr> <td></td> <td>Total</td> <td></td> </tr> </tbody> </table>		Type of expense	Taka	a.	Transportation		b.	Medicine		c.	Prescription		d.	Test fee		e.	No expense		x.	Others (Specify)			Total		
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d.	Test fee																									
e.	No expense																									
x.	Others (Specify)																									
	Total																									
908	How much dependable the centre was able to fulfil your demand? (SELECT ONE) <input type="radio"/> 1=Completely <input type="radio"/> 2= Partially <input type="radio"/> 3= No																									

Q. No	Question & Response	Instruction																																				
909	<p>If the answer for Q908 is 1, then why you think the centre as a dependable one? (Multiple answers acceptable)</p> <p><input type="checkbox"/> A= Service providers were good <input type="checkbox"/> B= Did not have to wait <input type="checkbox"/> C= Maintained confidentiality <input type="checkbox"/> D= Service provider were skilled <input type="checkbox"/> E= Always open <input type="checkbox"/> F= Sufficient and good drugs available <input type="checkbox"/> X= Others (Specify)</p>																																					
910	<p>If the answer for Q908 is 2 or 3, then why you think the centre was not dependable? (Multiple answers acceptable)</p> <p><input type="checkbox"/> A= Behaviour of the service provider were bad/harsh <input type="checkbox"/> B= Had to wait long period of time <input type="checkbox"/> C= Didn't maintain confidentiality <input type="checkbox"/> D= Service provider were not skilled <input type="checkbox"/> E= Didn't get the service when needed <input type="checkbox"/> F= Timely service not available <input type="checkbox"/> G= Required medication not available <input type="checkbox"/> X = Others (Specify)</p>																																					
911	<p>What are your observations about the following?</p> <table border="1" data-bbox="199 987 1299 1711"> <thead> <tr> <th data-bbox="199 987 949 1093">Subjects</th> <th data-bbox="949 987 1026 1093">Yes</th> <th data-bbox="1026 987 1099 1093">No</th> <th data-bbox="1099 987 1299 1093">Don't know/Can't remember</th> </tr> </thead> <tbody> <tr> <td data-bbox="199 1093 949 1160">a. Was there a waiting space/room?</td> <td data-bbox="949 1093 1026 1160">1</td> <td data-bbox="1026 1093 1099 1160">2</td> <td data-bbox="1099 1093 1299 1160">99</td> </tr> <tr> <td data-bbox="199 1160 949 1227">b. Were there adequate seats for the clients?</td> <td data-bbox="949 1160 1026 1227">1</td> <td data-bbox="1026 1160 1099 1227">2</td> <td data-bbox="1099 1160 1299 1227">99</td> </tr> <tr> <td data-bbox="199 1227 949 1317">c. Was there a space with adequate privacy for counselling and screening?</td> <td data-bbox="949 1227 1026 1317">1</td> <td data-bbox="1026 1227 1099 1317">2</td> <td data-bbox="1099 1227 1299 1317">99</td> </tr> <tr> <td data-bbox="199 1317 949 1384">d. Was there curtain in the service provision room?</td> <td data-bbox="949 1317 1026 1384">1</td> <td data-bbox="1026 1317 1099 1384">2</td> <td data-bbox="1099 1317 1299 1384">99</td> </tr> <tr> <td data-bbox="199 1384 949 1451">e. Were the Information, Education, and Communication (IEC) materials displayed?</td> <td data-bbox="949 1384 1026 1451">1</td> <td data-bbox="1026 1384 1099 1451">2</td> <td data-bbox="1099 1384 1299 1451">99</td> </tr> <tr> <td data-bbox="199 1451 949 1541">f. Was the citizen charter (list of services available for patients) displayed?</td> <td data-bbox="949 1451 1026 1541">1</td> <td data-bbox="1026 1451 1099 1541">2</td> <td data-bbox="1099 1451 1299 1541">99</td> </tr> <tr> <td data-bbox="199 1541 949 1608">g. Was there uninterrupted electric supply available?)</td> <td data-bbox="949 1541 1026 1608">1</td> <td data-bbox="1026 1541 1099 1608">2</td> <td data-bbox="1099 1541 1299 1608">99</td> </tr> <tr> <td data-bbox="199 1608 949 1711">h. Was the center crowded?</td> <td data-bbox="949 1608 1026 1711">1</td> <td data-bbox="1026 1608 1099 1711">2</td> <td data-bbox="1099 1608 1299 1711">99</td> </tr> </tbody> </table>	Subjects	Yes	No	Don't know/Can't remember	a. Was there a waiting space/room?	1	2	99	b. Were there adequate seats for the clients?	1	2	99	c. Was there a space with adequate privacy for counselling and screening?	1	2	99	d. Was there curtain in the service provision room?	1	2	99	e. Were the Information, Education, and Communication (IEC) materials displayed?	1	2	99	f. Was the citizen charter (list of services available for patients) displayed?	1	2	99	g. Was there uninterrupted electric supply available?)	1	2	99	h. Was the center crowded?	1	2	99	
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912	<p>How long did you wait to get health service?</p> <p>----- minute ----- hour</p>																																					

Q. No	Question & Response	Instruction
913	What was the overall status of the centre? (SELECT ONE) <ul style="list-style-type: none"> <input type="radio"/> 1= Excellent <input type="radio"/> 2= Good <input type="radio"/> 3= Moderate <input type="radio"/> 4= Not good <input type="radio"/> 5= Bad <input type="radio"/> 99= No comment 	

Module 10: Information on FDMN community (Only for FDMN community)

Q. No.	Questions & response	Instruction						
1001.	Which place was your birthplace? (SELECT ONE) <ul style="list-style-type: none"> <input type="radio"/> 1=Myanmar <input type="radio"/> 2= Bangladesh <input type="radio"/> 3=India <input type="radio"/> 88= Others (Specify) 							
1002.	In what kind of your locality did you live in before coming here? (SELECT ONE) <ul style="list-style-type: none"> <input type="radio"/> 1= Urban <input type="radio"/> 2= Rural (village) 							
1003.	How many times were you forcibly displaced before coming to Bangladesh? _____ times							
1004.	When were you forcibly displaced from Myanmar(last)? (If you cannot remember the exact date, write the month and year) <ul style="list-style-type: none"> <input type="radio"/> 1 <table style="margin-left: 20px; border: none;"> <tr> <td style="border: 1px solid black; width: 30px; height: 20px; background-color: #4a7ebb;"></td> <td style="border: 1px solid black; width: 30px; height: 20px; background-color: #4a7ebb;"></td> <td style="border: 1px solid black; width: 30px; height: 20px; background-color: #4a7ebb;"></td> </tr> <tr> <td style="text-align: center;">Day</td> <td style="text-align: center;">Month</td> <td style="text-align: center;">Year</td> </tr> </table> <input type="radio"/> 2= month and year 				Day	Month	Year	
Day	Month	Year						
1005.	When have you come to Bangladesh? (If you cannot remember the exact date, write the month and year) <ul style="list-style-type: none"> <input type="radio"/> 1 <table style="margin-left: 20px; border: none;"> <tr> <td style="border: 1px solid black; width: 30px; height: 20px; background-color: #4a7ebb;"></td> <td style="border: 1px solid black; width: 30px; height: 20px; background-color: #4a7ebb;"></td> <td style="border: 1px solid black; width: 30px; height: 20px; background-color: #4a7ebb;"></td> </tr> <tr> <td style="text-align: center;">Day</td> <td style="text-align: center;">Month</td> <td style="text-align: center;">Year</td> </tr> </table> <input type="radio"/> 2= month and year 				Day	Month	Year	
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1006.	How many times have you changed your residence since migrating to Bangladesh? <div style="border: 1px solid black; width: 30px; height: 20px; background-color: #4a7ebb; margin-left: 20px;"></div>							

Q. No.	Questions & response	Instruction
1007.	For how long have you been residing in the current camp? (SELECT ONE) <ul style="list-style-type: none"> ○ 1= < 6 months ○ 2= 6-12 months ○ 3= 1-2 years ○ 4= > 2years 	
1008.	How satisfied are you with the space allocated for you and your family in the camp? (SELECT ONE) <ul style="list-style-type: none"> ○ 1= Very satisfied ○ 2= Satisfied ○ 3= Dissatisfied ○ 4= Very dissatisfied ○ 5= No comment 	
1009.	Do you have clean/ safe drinking water available for you? (SELECT ONE) <ul style="list-style-type: none"> ○ 1= Yes ○ 2= No 	
1010.	Do you have bathing facility? (SELECT ONE) <ul style="list-style-type: none"> ○ 1= Yes ○ 2= No 	
1011.	How satisfied are you with the level of hygiene and sanitation in the camp? (SELECT ONE) <ul style="list-style-type: none"> ○ 1= Very satisfied ○ 2= Satisfied ○ 3= Dissatisfied ○ 4= Very dissatisfied ○ 5= No comment 	
1012.	Are you satisfied enough health care facilities for you/your family (Help center, health center, hospital)? (SELECT ONE) <ul style="list-style-type: none"> ○ 1= Yes ○ 2= No 	If answer “No” go to Q1014
1013.	How satisfied are you with the health care you and your family are receiving in the camp? (SELECT ONE) <ul style="list-style-type: none"> ○ 1= Very satisfied ○ 2= Satisfied ○ 3= Dissatisfied ○ 4= Very dissatisfied ○ 5= No comment 	

Q. No.	Questions & response	Instruction
1014.	Are you and your family getting any mental support (attempts at reducing stress to get back to normal life)? (SELECT ONE) <ul style="list-style-type: none"> ○ 1= Yes ○ 2= No 	If answer “No” go to Q1016
1015.	How satisfied are you with the mental support you and your family are receiving at the camp? (SELECT ONE) <ul style="list-style-type: none"> ○ 1= Very satisfied ○ 2= Satisfied ○ 3= Dissatisfied ○ 4= Very dissatisfied ○ 5= No comment 	
1016.	How safe do you feel in the camp? (SELECT ONE) <ul style="list-style-type: none"> ○ 1= Very safe ○ 2= Safe ○ 3= Neither Safe or not unsafe ○ 4= Unsafe ○ 5= Very unsafe 	
1017.	How trustworthy are your neighbours? (SELECT ONE) <ul style="list-style-type: none"> ○ 1= Very trustworthy ○ 2= Trustworthy ○ 3=Somewhat trustworthy ○ 4=Untrustworthy ○ 5=Very untrustworthy 	
1018.	How trustworthy are the health workers? (SELECT ONE) <ul style="list-style-type: none"> ○ 1= Very trustworthy ○ 2= Trustworthy ○ 3= Somewhat trustworthy ○ 4=Untrustworthy ○ 5=Very untrustworthy 	
1019.	Do you have any advice or recommendation on healthcare services for your community? (SELECT ONE) <ul style="list-style-type: none"> ○ 1 = Yes ○ 2= No ○ 3= No comment 	If answer “2” or “3”, end the interview
1020.	If yes, what are your recommendations? _____ _____	End the interview

Module 11: Attitude of local people towards FDMN community (Applicable for host community)

Q. NO.	QUESTIONS & RESPONSE	INSTRUCTION				
1101	<p>How has your family life changed since the FDMN community arrived from Myanmar? (SELECT ONE)</p> <ul style="list-style-type: none"> <input type="radio"/> 1= Positively changed <input type="radio"/> 2= Negatively changed <input type="radio"/> 3= No changes noticed <input type="radio"/> 4= No comment 					
1102	<p>Are you facing any problems due to the FDMN community? (SELECT ONE)</p> <ul style="list-style-type: none"> <input type="radio"/> 1 = Yes <input type="radio"/> 2= No <input type="radio"/> 3= No comment 	If answer “2” or “3”, then go to Q1104				
1103	<p>If yes, what kind of suffering are you facing? (Multiple answers are acceptable)</p> <ul style="list-style-type: none"> <input type="checkbox"/> A= Livelihood <input type="checkbox"/> B= Health <input type="checkbox"/> C= Education <input type="checkbox"/> D= Environment <input type="checkbox"/> E= Security <input type="checkbox"/> F= Transportation <input type="checkbox"/> H=Loss of land <input type="checkbox"/> X=Others (Specify) 					
1104	<p>Do you have any advice or recommendation on healthcare services for both yourselves and FDMNs? (SELECT ONE)</p> <ul style="list-style-type: none"> <input type="radio"/> 1= Yes <input type="radio"/> 2= No <input type="radio"/> 3= No comment 	If answer “2” or “3”, end the interview				
1105	<p>If yes, what are your recommendations?</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%; text-align: center;">a. FDMN community</th> <th style="width: 50%; text-align: center;">b. Host community</th> </tr> </thead> <tbody> <tr> <td style="height: 30px;"></td> <td></td> </tr> </tbody> </table>	a. FDMN community	b. Host community			
a. FDMN community	b. Host community					

Q. NO.	QUESTIONS & RESPONSE	INSTRUCTION
1201.	<p>Remarks</p> <p>.....</p>	

Thank you very much for your time

Annex 3: Key Informant Interviews (KIIs) guidelines

Information regarding the participant

SL.	Personal information	Participant's information
1	Name	
2	Gender	
3	Age	
4	Designation	
5	Duty station	
6	Experience working in FDMN	
7	Interview conducted at (place):	

[**Informant Guidelines:** Since you are involved in providing services to the FDMN community, we would like to ask you some questions related to healthcare, child immunizations, and other social services. You may seek assistance from others for information if you wish. Please note that there are no right or wrong answers here; our aim is simply to learn about your role in providing services at the FDMN camp and to hear your suggestions for improving vaccination services in the FDMN community and local communities.]

For CS, UH&FPO/ Hospital Coordinator, WHO

Information on the immunization programme for FDMN children

1. Please tell us about the present EPI programme for FDMN and the host community.
 - How are the ongoing programmes being implemented for the FDMN children?
 - Which programmes are needed to reduce the number of ZD (who misses the first dose of Pentavalent vaccine) and UI (who misses the third dose of Pentavalent vaccine) among FDMN children?
 - In your opinion, do host communities need the same or different types of programme? If it is different, how and why are they different?
 - In your opinion, how does the FDMN community perceive vaccinating their children?
 - Have you ever faced any obstacles from them? If yes, then what were the reasons? Do you always face those obstacles? Please share one such experience of yours when faced with challenges and obstacles with a caregiver, and how you overcame those.
 - Did they (FDMN community) express any challenge or obstacle about the immunization service of the camp? If yes, who were they? What steps did you take to solve those problems? What are the roles of partner organizations in programme planning, implementation, monitoring and measurement?
 - What is the formal governing structure of the vaccination programme?
 - What are the problems/gaps of continuing this programme?
2. Have you had to make any changes in the EPI programme because of the FDMN community? If yes, what changes did you make? Did the ongoing EPI programme take any initiative to manage these changes? If yes, what are they?
3. Did any special immunization programme initiate for the FDMN children of this area? If yes, what kind of programme? Was that successful?
 - What did you do to make it successful? When did you do that? What were the challenges of that programme?

4. Published data shows that the prevalence of ZD and UI is higher among the children of FDMN communities than the host communities. Do you think the same? If yes, what do you think the reasons are? (Probe- Social, cultural, economic and health-related issues)
5. Is there ZD/UI in the host communities of this area? What are the reasons for ZD/UI among the host communities of this area? (Probe- Social, cultural, economic and health-related issues)
6. How do you identify ZD and UI among FDMN and host communities?
7. Were the FDMN's perceptions, opinions, and needs regarding vaccination considered when involving them in the immunization programme? Is there any process to consider their perceptions, opinions, and needs? What are those processes? Please explain how their perceptions, opinions, and needs influenced EPI programme planning.
8. Have you seen any difference between the immunization coverage of FDMN and host communities? If yes, what could be the reasons for those differences?

[Now, I will ask you some questions about vaccine demand and supply]

9. Please share your observations about the immunization demand among the FDMN community of this area.
 - How is the demand/interest among the host communities of this area?
 - Do you think the experience of being displaced impacted the immunization demand/interest among FDMNs? If yes, please tell us more.
 - Does the outbreak of Diphtheria and Measles influence their opinion about the vaccination of their children?
10. Please tell us about the vaccines and logistics supply for these two different communities (FDMN and the host).
 - How does the supply chain work for these two communities?
 - How do you determine the target of vaccine doses? What is your source of this information?
 - What are the challenges of determining the target of vaccine doses? How are these things being separated for these communities?
 - How long does it take to get your supply after submitting the demand?
 - Do you face any challenges in logistics supply? How do you overcome those challenges?

Monitoring, supervision

11. Please tell me about the monitoring and supervision of the immunization programme of the FDMN camps. (Please probe the type of monitoring, who is monitoring it, and if there is any specific monitoring schedule).
12. Is there any difference in monitoring and supervision of immunization programmes between FDMN camps and the host communities? If there are differences, what are they?

Record Keeping & Reporting: For WHO & UH&FPO

13. Please tell us the details of how statistical information (e.g., targets and achievements, number/rate of zero-dose and under-immunized children) is recorded and reported on the immunization programme of FDMN camps. (Please probe- Name of organizations, related personnel)
14. Is there any difference between record keeping and reporting of immunization programmes in the FDMN camps and the host communities? If yes, then what are those?
15. Please tell us how these records and reports could be obtained.

[Interviewer Instructions: Now, we are going to ask you some questions based on the results of the HH survey.]

16. We found that the rate of ZD was notably higher among female children than among male children in FDMN communities. What do you think are the reasons for this difference?
17. The number of UI children in the FDMN community is double that in the host communities. Please tell us the reasons that you know.
18. It is hoped that every child who gets BCG will get Penta 1 (after completing the 42 day). However, the research data show that the same number of children are not getting Penta 1. Please tell us why this difference is there.
19. Immunization coverage is better in INGOs/NGOs working areas than in the government's working areas. Why do you think this difference exists? Can you give me some specific examples?
20. More children in the host community receive their vaccine doses earlier or later compared to the children in the FDMN community. Please tell me the reasons for this.
21. What are the reasons for more dropout children among the FDMN community than the host community?
22. Children of the FDMN community can be vaccinated on any day of the week. How does it influence microplan and achievement?
23. We saw that the main reason children are not vaccinated is their sickness. If you think this is the only reason, please tell us the names of the diseases. If you do not agree with this, please tell us the other reasons.
24. Immunization coverage in Teknaf is better than in Ukhiya. What do you think are the reasons for this difference?

[Interviewer Instructions: Now, we are going to ask you about your recommendations/ Suggestions]

25. Please tell us if you have any other recommendations to reduce the number of zero-dose/under-immunized children and ensure 100% immunization coverage within FDMN and surrounding local communities.
26. Do you want to say anything else that you could not say before in this discussion?

For the Hospital coordinator

Information on the immunization programme for FDMN children

1. Please tell us about the present EPI programme for FDMN and the host community.
 - How are the ongoing programmes being implemented for the FDMN children?
 - Which programmes are needed to reduce the number of ZD (who misses the first dose of Pentavalent vaccine) and UI (who misses the third dose of Pentavalent vaccine) among FDMN children?
 - In your opinion, how does the FDMN community perceive vaccinating their children?
 - Have you ever faced any obstacles from them? If yes, then what were the reasons? Do you always face those obstacles? Please share one such experience of yours when faced with challenges and obstacles with a caregiver, and how you overcame those.
 - Did they (FDMN community) express any challenge or obstacle about the immunization service of the camp? If yes, who were they? What steps did you take to solve those problems? What are the roles of partner organizations in programme planning, implementation, monitoring and measurement?
 - What is the formal governing structure of the vaccination programme?
 - What are the problems/gaps of continuing this programme?
 2. Have you had to make any changes in the EPI programme because of the FDMN community? If yes, what changes did you make? Did the ongoing EPI programme take any initiative to manage these changes? If yes, what are they?
 3. Did any special immunization programme initiate for the FDMN children of this area? If yes, what kind of programme? Was that successful?
 - What did you do to make it successful? When did you do that? What were the challenges of that programme?
 4. Published data shows that the prevalence of ZD and UI is higher among the children of FDMN communities than the host communities. Do you think the same? If yes, what do you think the reasons are? (Probe- Social, cultural, economic and health-related issues)
 5. How do you identify ZD and UI among FDMN and host communities?
 6. Were the FDMN's perceptions, opinions, and needs regarding vaccination considered when involving them in the immunization programme? Is there any process to consider their perceptions, opinions, and needs? What are those processes? Please share an example of how their perceptions, opinions, and needs influenced EPI programme planning.
 7. What kind of challenges did you face during immunization service among the FDMN population?
- [Now, I will ask you some questions about vaccine demand and supply]**
8. Please share your observations about the demand for immunization among the FDMN communities in this area.
 - Do you think the experience of being displaced impacted the immunization demand/interest among FDMNs? If yes, please tell us more about it.
 - Did the outbreak of Diphtheria and Measles influence their opinion about the vaccination of their children?
 9. Please tell us about the vaccines and logistics supply for the FDMN community.
 - How does the supply chain work? How do you determine the target of vaccine doses? What is your source of this information?
 - What are the challenges of determining the target of vaccine doses?
 - How long does it take to get your supply after submitting the demand?
 - Do you face any challenges in logistics supply? How do you overcome those challenges?

Monitoring, supervision

10. Please tell me about the monitoring and supervision of the immunization programme in the FDMN camps. (Please probe the type of monitoring, who is monitoring it, and if there is any specific monitoring schedule).

Record Keeping & Reporting: For CS, WHO & UH&FPO

11. Please tell us the details of how statistical information (e.g., targets and achievements, number/rate of zero-dose and under-immunized children) is recorded and reported on the immunization programme of FDMN camps. (Please probe- Name of organizations, related personnel)
12. Please tell us how these records and reports could be obtained.

[**Interviewer Instructions:** Now, we are going to ask you some questions based on the results of the HH survey]

13. Immunization coverage is better in INGOs/NGOs working areas than in the government's working areas. Why do you think this difference exists? Can you give me some specific examples?
14. Children of the FDMN community can be vaccinated on any day of the week. How does it influence microplan and achievement?
15. We saw that the main reason children are not vaccinated is their sickness. If you think this is the only reason, please tell us the names of the diseases. If you do not agree with this, please tell us the other reasons.

[**Interviewer Instructions:** Now, we are going to ask you about your recommendations/ Suggestions]

16. Please tell us if you have any other recommendations to reduce the number of zero-dose/under-immunized children and ensure 100% immunization coverage within FDMN and surrounding local communities.
17. Do you want to say anything else that you could not say before in this discussion?

For District EPI Superintendent, MT-EPI, HI and NGO Focal Person

Information on the immunization programme for FDMN children

1. Please elaborate on how the EPI immunization programme for FDMN children started and how it is currently being managed in that context. [Please probe- Policies and strategies, management and microplans, basis of decision making, agencies involved and their roles, patterns of immunization (campaign and routine), immunization]
 - Were the FDMN's perceptions, opinions, and needs regarding vaccination considered when involving them in the immunization programme? If considered, please explain how it was done with an example.
 - Please explain the differences between vaccination programmes for FDMN children and local communities. (Please probe- Vaccination Supply, Management & Microplan, Vaccination, AFI Management, Monitoring, Record Keeping and Reporting)
 - Did you face any problems, as there is a special immunization programme conducted for FDMNs? If so, tell us about the problems. How are you dealing with these problems?
 - What is the formal governing structure of the vaccination programme?
 - What are the problems/gaps of continuing this programme?
2. Please tell us about how resettling the FDMN population in Bangladesh impacted the routine vaccination programme of the local population. (Please probe – Vaccines and logistics, management, vaccination, human resources, supervision, finance and reporting system, etc.)
 - Do you face any problems because of this? If so, please describe the problems and how you deal with them.
3. Please tell me what measures can be taken to ensure that no FDMN child is left out of vaccination in future.
4. Please tell me what measures can be taken to ensure that no local child is left out of vaccination in future.
5. Please tell us about the impact of the arrival of the FDMN population in Bangladesh on the health care of the local population. (please probe: budget, increase outpatient capacity, shortage of medicines, increase in diseases)
 - Do you face any problems because of this? If so, please describe the problems and how you deal with them.

Information on zero-dose, under-immunized and missed communities

6. How do you identify unimmunized children (zero dose and under-immunized)? Please explain the strengths and weaknesses of this process. What steps can be taken to overcome these weaknesses in the future?
7. We know that high rates of FDMN children have been left out of vaccination (ZD and UI). What are the reasons behind this (Please prob: based on various aspects of social, cultural, educational, economic and health systems)?
 - Have you taken any steps to address these factors? If so, please provide details. Apart from this, what else could be done?
8. What are the reasons children are left out of vaccination (ZD and UI) among the host communities? Have you taken any steps to address these factors? If so, please give details about it. What else could be done?
9. Have you noticed any difference in vaccination rates between the FDMN and the host communities at present? What are the reasons for the difference? What else could be done to resolve these differences in the future?

10. Were the FDMN's perceptions, opinions, and needs regarding vaccination considered when involving them in the immunization programme? Is there any process to consider their perceptions, opinions, and needs? What are those processes? Please share an example of how their perceptions, opinions, and needs influenced EPI programme planning.
11. What kind of challenges did you face during immunization service among the FDMN and host communities?

Information on vaccine and logistics supply, distribution and management

12. Please tell us about the vaccines and logistics supply for the FDMN and the host communities. (Please probe: demand assessment, location of vaccination, vaccine storage, transportation, distribution)
13. Please state what problems you are facing in managing this process (supply, distribution, and management) and how you are dealing with them.
14. What steps could be taken to make the process easier in the future?

Monitoring, supervision

15. Please tell me about the monitoring and supervision of the immunization programme in the FDMN camps. (Please probe the type of monitoring, who is monitoring it, and if there is any specific monitoring schedule)
16. Is there any difference in monitoring and supervision of immunization programmes between FDMN camps and the host communities? If there are differences, what are they?

Record Keeping & Reporting (For WHO & UH&FPO)

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20. We found that the rate of ZD was notably higher among female children than among male children in FDMN communities. What do you think are the reasons for this difference?
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22. It is hoped that every child who gets BCG will get Penta 1 (after completing 42 days). However, the research data show that the same number of children are not getting Penta 1. Please tell us why this difference exists.
23. Immunization coverage is better in INGOs/NGOs working areas than in the government's working areas. Why do you think this difference exists? Can you give me some specific examples?
24. More children in the host community receive their vaccine doses earlier or later compared to the children in the FDMN community. Please tell me the reasons for this.
25. What are the reasons for more dropout children among the FDMN community than the host community?
26. Children of the FDMN community can be vaccinated on any day of the week. How does it influence microplan and achievement?

27. We saw that the main reason children are not vaccinated is their sickness. If you think this is the only reason, please tell us the names of the diseases. If you do not agree with this, please tell us the other reasons.
28. Immunization coverage in Teknaf is better than in Ukhiya. What do you think are the reasons for this difference?
Recommendation/ Suggestions
29. Please tell us if you have any other recommendations to reduce the number of zero-dose/under-immunized children and ensure 100% immunization coverage within FDMN and surrounding local communities.
30. Do you want to say anything else that you could not say before in this discussion?

For UNICEF

Information regarding the role of development partners

1. We know that the government and non-government organizations (WHO, UNICEF, NGOs, INGOs, etc.) are working to vaccinate FDMN children. Please tell us about your role and the role of other organizations. (Please probe- immunization programme planning/microplan, Implementation and Monitoring and Evaluation)
2. Are there any problems working with the agencies on immunization programme planning/microplan, implementation, monitoring, and evaluation? If there are problems, please tell us how you deal with them.
3. What steps could be taken to make it easier to work with all partners in the future?

Information on vaccine, logistics, supply, and management

4. Please tell us about the vaccines and logistics supply for the FDMN and the local population. (Please probe: demand assessment, location of vaccination, vaccine storage, transportation, distribution)
5. Please state what problems you are facing in managing this process (supply, distribution, and management) and how you deal with them.
6. What steps could be taken to make the process easier in the future?

Record Keeping & Reporting

7. Please tell me how you collect statistical information (e.g., targets and achievements, and number of service recipients) on the immunization programme conducted in FDMN camps.
 - Which organizations and personnel are related to the record-keeping and reporting?
 - Please state the process of how these records and reports can be obtained.

[Interviewer Instructions: Now, we are going to ask you some questions based on the results of the HH survey]

8. Immunization coverage is better in INGOs/NGOs working areas than in the government's working areas of the government. Why do you think this difference exists? Can you give me some specific examples?
9. Children of the FDMN community can be vaccinated on any day of the week. How does it influence microplan and achievement?
10. Immunization coverage in Teknaf is better than in Ukhiya. What do you think are the reasons for this difference?
Recommendation/ Suggestions

11. Please tell us if you have any other recommendations to reduce the number of zero-dose/under-immunized children and ensure 100% immunization coverage within FDMN and surrounding local communities.
12. Do you want to say anything else that you could not say before in this discussion?

For RRRC

1. Please tell us about the role of RRRC in improving the living standards of FDMNs.
 - Food: Is special food provided for different age groups and special needs groups, which organizations are working on it, etc.?
 - Accommodation: What type of accommodation and repair assistance is provided, which organizations are working with, etc.
 - Education: what kind and for what age groups of children, what organizations are working, etc.
 - Treatment: What type of treatment is provided, such as general health services, maternity services, child health services, mental health services, and which organizations are working with it?
 - Sanitation- clean water supply, sewage system, related organizations, etc. Is there a policy (selection process/eligibility criterion) for providing services? If so, what is that process? If any problems are encountered in implementing the policy, tell about them.
2. Please elaborate on the process of coordinating the activities of various organizations to provide these services.
 - Tell us about how you coordinate and monitor the activities of these organizations.
3. Please describe the role of RRRC in immunization activities in the FDMN camps. (Please probe: immunization programme planning, Implementation and monitoring and evaluation)
 - How are the activities of organizations involved in immunization activities coordinated and monitored?
4. Please give me the details of how statistical information (e.g., population, births, deaths, number of service recipients, etc.) are recorded and reported on the immunization programme conducted in FDMN camps. (Please probe- Name of organizations, concerned GoB Officers)
 - Please state the process of how these records and reports can be obtained.
5. Please tell us about the barriers to implementing the immunization programme in FDMN camps.
6. I would like to know your opinion about what can be done in the future to overcome these barriers.

For UNHCR, WFP

1. Please tell us about you and your organization's role in improving the living standards of FDMN children. (Please probe)
 - Food: Is special food provided for groups of different ages and special needs? Which organizations are working on it?
 - Accommodation: What type of accommodation and repair assistance is provided, which organizations are working with, etc.
 - Education: what kind and for what age groups of children, what organizations are working, etc.
 - Treatment: What type of treatment is provided, such as general health services, maternity services, child health services, mental health services, and which organizations are working with it?
 - Sanitation- clean water supply, sewage system, related organizations, etc.

2. Is there a policy (selection process/eligibility criterion) for providing services? If so, what is that process? If any problems are encountered in implementing the policy, tell about them.
3. Please tell us about how the FDMN's experience of displacement was addressed during service planning? (Mental health services and others)
4. Are you associated with the immunization activity of the FDMN camp? If yes, please provide more details.
5. Please tell us about any barriers you face in delivering services to the FDMN population.
6. I would like to know your opinion about what can be done in the future to overcome these barriers.

CLOSING We conclude the interview with this discussion. We truly value your time and participation in this discussion. Thank you very much!

Annex 4: Focus Group Discussion (FGD) Sessions Guidelines

Section I: Information regarding the session

Date	
Session start time	
Session end time	
Number of participants	
Interview conducted at (place):	Ukhiya/Teknaf/Bhasan Char
Name of the facilitator	
Name of the note-taker	

Section II: Information regarding the participant

Sl. No.	Name	Gender	Age	Education	Present work	Experience with EPI	Designation	Address
1								
2								
3								
4								
5								
6								
7								
8								

Section III: Current job, recruitment, training & management

1. Please describe your job and your involvement with the EPI programme.
2. Please tell me about your recruitment, training, and work management
 - a. Prob: type of recruitment and time of recruitment
 - b. Was there any special training for working with the FDMN community?
 - c. What were the contents of the training you received? And who provided the training?
 - d. Was the training successful? What was the duration? Was the duration enough?
 - e. How did the training curriculum help you in working with the community?
3. How do you conduct IPC before each session? Do you face any challenges? How do we overcome these challenges?

Section IV: Information regarding vaccine coverage among FDMN children

4. What do you understand about ZD and UI children? We know that there are more ZD and UI among FDMN children. Please tell us what the reasons behind this could be.
 - a. Prob: different aspects of social, cultural, educational, economic and health
5. Please tell us how you identify the left-out FDMN children and bring them to the vaccination programme.
 - a. What challenges do you face doing so?
 - b. How do you overcome the challenges? Could you share a story, please?
6. What do you think are the reasons for low EPI coverage in camps compared to other areas of Bangladesh? And why is that happening?
7. If the camps have been gradually improving their performance, what do you think has contributed to those improvements?

Section V: Valid and invalid doses

1. We want to understand some reasons for invalid doses in your working areas. Please tell us what your knowledge is of valid and invalid doses.
 - a. What is the status of invalid doses in the camps?
2. Please discuss what sort of training on valid and invalid doses you have received.
 - a. What were the contents of the training?
 - b. If you did not receive any, what type of training do you need?

Section VI: Vaccines and the equipment supply

3. Please tell us about the supply of vaccines and equipment for FDMN children.
 - a. Please prob: identify the demand, storage, transportation, distribution and vaccination
4. Did you always receive vaccines according to the demand, or were there interruptions like a shortage of vaccines?
 - a. If yes, when was that? Which vaccines?
 - b. How did you manage to work with vaccine shortages?

Section VII: Monitoring and supervision

5. Please tell us about the vaccination monitoring and supervision in the camps.
 - a. Prob: type of supervision, monitoring body (GoB, WHO, Other NGOs), schedule of monitoring, etc.
 - b. Please provide examples.

Section VIII: Record keeping and reporting

6. Please tell us how you record vaccination information in the register, record it in the vaccination cards, and report about vaccination sessions of the camps.
 - a. Who monitors these and solves the problem when it occurs?
 - b. Do you verify the records between the vaccine cards and the register and identify the discrepancies? How often do you do this?
 - c. What is the mechanism for identifying the discrepancies?
 - d. If it does not match, how are the problems usually solved?
 - e. How do you minimize the errors in vaccine cards and the registers?
 - f. How do you manage the record when someone from another Centre receives a vaccine in your Centre?

Section IX: Suggestions

7. Please tell us what else can be done to bring all the left-out FDMN children under the vaccination programme.
8. Is there anything else you want to mention, or did you not get the opportunity to discuss it earlier?

CLOSING With this last discussion, we conclude the session today; we truly value your time and participation in this discussion. Thank you very much.

Annex 5: In-depth Interviews (IDIs) Guidelines

Section I: Information regarding the participant

SL.	Participant's information		Children's information
1.	Name		
2.	Gender	 Months
3.	Age		Category of child
4.	Occupation		<input type="checkbox"/> Zero-dose
5.	Education		<input type="checkbox"/> Under-immunized
6.	Number of Children		<input type="checkbox"/> Fully vaccinated
7.	Interview conducted at (place):	<input type="checkbox"/> Ukhiya <input type="checkbox"/> Teknaf <input type="checkbox"/> BhasanChar	Place of birth of the child: <input type="checkbox"/> Hospital <input type="checkbox"/> at home
8.	Date of Interview	Day/month/year	

Vaccination-related information: Caregivers of zero-dose children

[I would like to ask you some questions related to your child's vaccination. Please know that there are no right or wrong answers; our purpose is only to learn more about your needs in order to improve immunization services in the community]

- We know you have a child (name.....) under two years old. Could you please tell me if your child has received any vaccinations? How do you feel about vaccinations?
 - a. Please prob based on the responses.
 - b. Please ask for any other reasons outside of the respondent's responses.
- If the child (name...) was born in the hospital, then prob if anyone asked about vaccination. If yes, what did they say? (Please probe if needed)
 - c. Regarding your child's vaccination, did any health workers come to your home to inform you? If yes, who came? Please tell me about the suggestions they provided.
- Are you still interested in vaccinating your child? If yes, please ask if the respondent knew where and when to get vaccinated. If the respondent is not interested in vaccinating the child, then ask the reasons.
- Please tell me if you have any suggestions about vaccinating all children at your camp/block.
- Could you please describe your experience with the vaccination programme in Myanmar?
 - d. Please tell us the differences in vaccine delivery in Myanmar and FDMN camps.
 - e. Please prob vaccine providers, schedule, vaccination sites, vaccine supply chain, cost, etc.)

Vaccination-related information: Caregivers of under-immunized children

- We know you have a child (name.....) under two years old. Could you please tell me if the child received all the vaccines? If not, why does your child remain drop-out/under-immunized?
 - f. Please prob based on the responses.
 - g. Please ask if there were any other reasons outside of the responses of the respondent.
- Did any health workers come to inform you to complete all vaccine doses? If yes, who came? Please tell me about the suggestions they provided.
- Are you still interested in completing all vaccine doses? If yes, please ask if the respondent knew where and when to get vaccinated. If the respondent is not interested in completing all doses, ask the reasons.
- Please tell me if you have any suggestions about vaccinating all children at your camp/block.

- Could you please describe your experience with the vaccination programme in Myanmar?
 - a. Please tell us the differences in vaccine delivery in Myanmar and FDMN camps.
 - b. Please prob vaccine providers, schedule, vaccination sites, vaccine supply chain, cost, etc.)

Vaccination-related information: Caregivers of fully vaccinated children

- We know you have a child (name.....) under two years old. Could you please tell me if the child received all the vaccines? If yes, could you please tell me the facts that encouraged you to get all the vaccines for your child?
 - a. How was your experience vaccinating your child? Please prob based on the responses.
- Please tell me if you have any suggestions about vaccinating all children at your camp/block.
- Could you please describe your experience with the vaccination programme in Myanmar?
 - a. Please tell us the differences in vaccine delivery in Myanmar and FDMN camps.
 - b. Please prob vaccine providers, schedule, vaccination sites, vaccine supply chain, cost, etc.)

Current Immunization Demand

- Please tell me about your observation of the demand for vaccination among your extended family and neighbours.
- In your opinion, what are the barriers to vaccinating children in your community? How can these barriers be overcome?

Accessing health services: For all categories of respondents

- Some government and non-government agencies work for your community to provide different health services for your needs. Please tell me about the health services (general health, mental health, child health, reproductive health, maternal health, etc.) you usually receive.
 - a. Are these services enough for you and your family? If not, why are they not enough?
 - b. Do you have any suggestions for improvement of healthcare services in your camp?

Access to Humanitarian services: For all categories of respondents

- Some government and non-government agencies work for your community to provide different humanitarian services for your needs. Please tell me about the humanitarian services (Food/shelter/water/sanitation/clothes//legal service, etc.) you usually receive.
 - a. Are these services enough for you and your family? If not, why are they not enough?
 - b. Do you have any suggestions for improvement of these services in your camp?

Journey from Myanmar to Bangladesh

- Please tell us about your journey from Myanmar to Bangladesh-
 - a. What forced you to flee from your country, and under what situation?
 - b. What type of hardship did you face during your journey
 - c. How do you feel recalling your experience?

Refugee life in Camp

Tell us about how you started living in the camp. How do you feel about a refugee life that far from your homeland?

- We heard some commotion sometimes happens in some of the camps. How do you feel about that? Does that affect your safety or the safety of your family members?
 - a. Have you ever witnessed or experienced them? Who is involved in those violent activities (FDMN/local community)? Do you feel safe in the camp as a FDMN woman/person?

Annex 6: Guidelines for data validation and co-creation workshop

[Script: You know that icddr,b has been conducting a research study on child immunization among FDMN and adjacent host communities. The aim of this study was to assess the vaccination coverage and determinants, including ZD and UI, among children in FDMN and in adjacent host communities and to assess EPI and humanitarian service delivery mechanisms. There were 4 phases of this study. In the first three phases, we completed a social mapping, a household survey and a qualitative assessment. Based on the findings from these three components, we are presenting some of the issues to discuss with you to validate the findings and co-create possible solutions.]

1. We found that children do not complete all vaccine doses after getting the 1st dose. Our qualitative data shows the following reasons behind this finding.
 - Experience of side effects after getting the first dose
 - Inadequate and improper IPC
 - Migration and frequent movement
 - (a) What is your opinion about the reasons for this?
 - (b) What possible solution could be for reducing the problems as mentioned earlier?
2. The data show many mismatched dates in the vaccination cards. What could be the possible reasons for those mistakes?
 - (a) Do you always bring the cards to the centres while getting vaccines?
 - (b) What can be done to keep your cards up to date?
3. All FDMN children who received BCG are expected to receive Penta 1, but the result does not reflect this. The coverage of Penta-1 is lower than that of BCG. From the qualitative assessment, we found the following reasons:
 - Increase in facility delivery that ensures the BCG vaccine
 - Eager to get FCN card (Vaccine card/birth certificate needed to get FCN card)
 - Illness
 - (a) Do you agree with above mentioned reasons?
 - (b) How can these gaps between BCG and Penta 1 coverage be reduced?
4. Contrary to our expectation, the finding shows that the FDMN children living within 1 kilometer of EPI centers exhibited a higher ZD/UI prevalence (13.5%) than those living further than 1 kilometer (9.6%).
 - (a) Do you think that if the location of outreach centres is changed, more people would get vaccinated?
 - (b) Now, let's discuss the possible solution to these issues.
5. The finding that the prevalence of ZD was significantly higher among female children compared to male children in the FDMN population. The qualitative data show that, other than general preferences for male children, there are no reasons for that. Most of the respondents did not even notice this.
 - (a) What is your opinion about it?
 - (b) Now, let's discuss the possible solution to these issues.
6. The recommendations for vaccinating children were to

- vaccinate children door-to-door
- increase IPC
- introduce courtyard meetings to the community
- recruit female vaccinators
 - (a) Do you think the aforementioned recommendations will effectively vaccinate all the children in the community?
 - (b) What could be other solutions to vaccinate more children?

7. Do you have any more suggestions or recommendations to reduce ZD and UI children in your community?

Participants: community leaders (Majhee, Imam, School teacher)

Protocol Title: Assessing EPI service delivery and the status of zero-dose and under-immunized children among Forcibly Displaced Myanmar Nationals (FDMN) and in adjacent host community in Bangladesh

[**Script:** You know that icddr,b has been conducting a research study on child immunization among FDMN and adjacent host communities. The aim of this study was to assess the vaccination coverage and determinants, including ZD and UI, among children in FDMN and in adjacent host communities and to assess EPI and humanitarian service delivery mechanisms. There were 4 phases of this study. In the first three phases, we completed a social mapping, a household survey and a qualitative assessment. Based on the findings from these three components, we are presenting some of the issues to discuss with you to validate the findings.]

1. We found that children do not complete all vaccine doses after getting the 1st dose. Our qualitative data shows the following reasons behind this finding.
 - Experience of side effects after getting the first dose
 - Inadequate and improper IPC
 - Migration and frequent movement
 - (a) What is your opinion about the reasons for this?
 - (b) What possible solution could be for reducing the problems as mentioned earlier?

2. Contrary to our expectation, the finding shows that the FDMN children living within 1 kilometer of EPI centers exhibited a higher ZD/UI prevalence (13.5%) than those living further than 1 kilometer (9.6%).
 - (a) Do you think that if the location of outreach centres is changed, more people will get vaccinated?
 - (b) What could be the possible solution to this problem?

3. One of the findings was that the higher the household size and wealth tertile, the higher the prevalence of ZD/UI in the FDMN community.
 - (a) What would be your comment on that?
 - (b) How can these gaps be addressed?

4. One of the recommendations was to raise awareness among the FDMN community.
 - (a) Do you think this will bring more children to the vaccination centres?
 - (b) How to raise awareness?

5. The community side's recommendation was to
 - Vaccinate children door-to-door
 - Increase IPC
 - Introduce courtyard meetings to the community
 - Recruit female vaccinators
 - (a) Do you think that the aforementioned recommendation will be effective in vaccinating all the children in the community?
 - (b) What could be other solutions to vaccinate more children?

6. Do you have any more suggestions or recommendations to reduce ZD and UI children in your community?

Participants: service providers

Protocol Title: Assessing EPI service delivery and the status of zero-dose and under-immunized children among Forcibly Displaced Myanmar Nationals (FDMN) and in adjacent host community in Bangladesh

[Script: You know that icddr,b has been conducting a research study on child immunization among FDMN and adjacent host communities. The aim of this study was to assess the vaccination coverage and determinants, including ZD and UI, among children in FDMN and in adjacent host communities and to assess EPI and humanitarian service delivery mechanisms. There were 4 phases of this study. In the first three phases, we completed a social mapping, a household survey and a qualitative assessment. Based on the findings from these three components, we are presenting some of the issues to discuss with you to validate the findings.]

1. We found that the under-immunized (UI) children are doubled among the Forcibly Displaced Myanmar Nationals (FDMN) community compared to the host community. The qualitative data revealed the following reasons:
 - Unwillingness of caregivers to vaccinate their children
 - Frequent migration between and outside the camps
 - (a) What would be your opinion regarding the aforementioned findings?
 - (b) What are the possible solutions to address these problems?
2. We found that children do not complete all vaccine doses after getting the 1st dose. The reasons are:
 - Experience of side effects after getting the first dose
 - Inadequate and improper IPC
 - Frequent migration between and outside the camps
 - (a) What is your opinion about the reasons mentioned above?
 - (b) Now, let's discuss the possible solution to these issues.
3. The following are some reasons for mismatching information between the vaccine card and the register book:
 - Vaccinators are not being careful
 - Lack of training
 - Lack of skills
 - (a) What is your opinion on the reasons as mentioned above?
 - (b) What are the possible solutions to address these reasons?
4. All children who received BCG are expected to receive Penta 1, but the result does not reflect it. The coverage of Penta 1 is lower than that of BCG. We have found the following reasons from the qualitative assessment:
 - Increase in facility delivery that ensures the BCG vaccine
 - Illness of a child
 - Receive BCG to be eligible for the Family Counting Number (FCN) card
 - (a) Do you agree with the reasons above?
 - (b) What can we do to overcome the issue?

5. Prevalence of ZD and/or UI is significantly lower in the areas where only INGO/NGOs are providing vaccines than in the areas where only the GoB provides services directly to the FDMN community. The following are the strengths of INGO/NGO compared to the GoB or combined services:
 - Strong monitoring system
 - Extra layer of supervision
 - Better salary and benefit package
 - Ensure Accountability
 - Regular performance evaluation
 - Ensure immediate support
 - (a) Do you think these reasons are making a difference?
 - (b) How can we strengthen the GoB EPI service delivery?

6. The findings show a higher dropout rate among FDMN children than in the host community. We found from qualitative assessment that the prime reasons are the unwillingness of caregivers and the illness of the child
 - (a) What is your opinion on this?
 - (b) What could be done to reduce the barriers and dropout rate?

7. Vaccination coverage among the FDMN population is better in Teknaf than in Ukhiya. The advantages of Teknaf compared to Ukhiya are:
 - Small population size
 - Easy to manage, supervise, and monitor
 - Less local influence
 - (a) What are your thoughts on it? Are these actual reasons for the differences?
 - (b) How can we improve the vaccination coverage in Ukhiya like Teknaf?

8. Younger parents (≤ 24 years) with less children have a higher prevalence of ZD/UI than older parents in the FDMN community. The reasons were found as follows:
 - Less understanding
 - Less life experiences
 - Not having decision-making capacity

What do you think about these findings?

 - (a) How can we bring more children of young parents to vaccine centres?

9. Illness was commonly reported as the principal reason for not vaccinating the children in FDMN and the host community. The reasons are addressed as follows:
 - Fear of side effects
 - Illness is an excuse for unwillingness
 - Sickness hampers the parents' work
 - (a) Would you say the same?
 - (b) Since not all illnesses are barriers to vaccinating children, how could we address this situation?

10. Fever was more commonly reported in the FDMN community (30.5%) as a side effect of vaccination.

- (a) Do you agree with the statement? Or, is fever just an excuse not to vaccinate their children?
- (b) What is your suggestion to reach out to these children and bring them to get vaccinated as soon as possible?
11. The vaccine shortage is one reason for the increasing number of zero-dose, under-immunized children in the camps. We found that if caregivers do not get vaccines due to the vaccine shortage, they tend not to come back again.
- (a) What are your thoughts on this?
- (b) How can sufficient vaccines be ensured in sessions?
12. The average waiting time at a health facility to receive health services is 101 minutes.
- (a) What is your opinion about this?
- (b) What is the possible solution to reduce wait time?
13. There is a scarcity of medication in the health facilities in the camps.
- (a) What is the FDMN population's major challenge in obtaining healthcare in the camps?
- (b) How can a sufficient medication supply be ensured in health facilities?
14. Contrary to our expectation, the finding shows that the FDMN children living within 1 kilometer of EPI centers exhibited a higher ZD/UI prevalence (13.5%) than those living further than 1 kilometer (9.6%).
- (a) Do you think that if the location of outreach centres is changed, more people will get vaccinated?
- (b) What could be the possible solution to this problem?
15. The higher the household size and wealth tertile, the higher the prevalence of ZD/UI in the FDMN community.
- (a) What would be your comment on that?
- (b) What could be the possible solution to this problem?
16. The following aspects were considered for vaccine delivery in the camps:
- Involve the community
 - Get direct feedback from the caregivers
 - Make changes in the programme
- (a) How did you consider the humanitarian crisis experience when designing and implementing the vaccination programme? Do you agree with the aspects mentioned above?
- (b) How can we better understand their needs and expectations and consider incorporating them into the vaccination programme?
17. Findings revealed the following challenges:
- | | |
|--|--|
| <p>Supply sides-</p> <ul style="list-style-type: none"> • Vaccine shortage • Inadequate training • Commotion and conflicts in the camps • Lack of female vaccinators | <p>Demand side-</p> <ul style="list-style-type: none"> • Frequent migration • Community unwillingness • Illness of a child • Family barriers |
|--|--|

- (a) Do you agree that the challenges above are the reasons for low coverage of child vaccination?
- (b) What would be the possible solution for these challenges?

18. The following suggestions were found for improving vaccination coverage:

- Increasing vaccination coverage
- Raising awareness
- Ensuring IPC & domiciliary visits
- Ensuring enough vaccine supply
- Involving the community
- Recruiting female vaccinators
- A small token of appreciation
- Continuation of funding
- Introducing a digital system to identify left-out children

- (a) Do you think that the aforementioned recommendation will be effective in vaccinating all the children in the community?
- (b) What could be other solutions to vaccinate more children?

19. Do you have any more suggestions or recommendations to reduce ZD and UI children in your community?