

Gavi's Zero-Dose Learning Hub IRMMA Aligned Interventions: Semiannual Update — Bangladesh

October 2025

Gavi Zero-Dose Learning Hub (ZDLH)

Funded by [Gavi](#), the Zero-Dose Learning Hub (ZDLH) serves as the global learning partner and is led by [JSI Research & Training Institute, Inc.](#) with two consortium partners, [The Geneva Learning Foundation](#) and the [International Institute of Health Management Research](#). Together, the consortium enables sharing and learning across four Country Learning Hubs in Bangladesh, Mali, Nigeria, and Uganda to advance the uptake of evidence by synthesizing and disseminating key learnings. The ZDLH also focuses on improving immunization equity and reducing the number of zero-dose and under-immunized children globally by facilitating high-quality evidence generation and uptake.

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ACRONYMS

BBS	Bangladesh Bureau of Statistics
BCG	Bacillus Calmette-Guérin
BDHS	Bangladesh Demographic and Health Survey
BeSD	Behavioral and Social Drivers
CC	City Corporation
CHCP	community health care provider
CES	Coverage Evaluation Survey
CS	Civil Surgeon
DNCC	Dhaka North City Corporation
EAF	Equity Accelerator Fund
EPI	Expanded Programme on Immunization
FCN	Family Counting Number
FDMN	Forcibly Displaced Myanmar Nationals
FGD	focus group discussions
Gavi	Gavi, the Vaccine Alliance
GoB	Government of Bangladesh
HA	health assistant
icddr,b	International Centre for Diarrheal Disease Research, Bangladesh
IIHMR	International Institute of Health Management Research
IR	implementation research
IRMMA	Identify, Reach, Monitor, Measure, Advocate
JSI	JSI Research & Training Institute, Inc.
KII	key informant interviews
KT	knowledge translation
MOHFW	Ministry of Health and Family Welfare
NGO	non-governmental organization
OP	Operational Plan
RI	routine immunization
RRRC	Refugee Relief and Repatriation Commissioner
TBA	traditional birth attendant
UI	under-immunized
UH&FPO	Upazila Health and Family Planning Officer

UNICEF	United Nations Children’s Fund
WHO	World Health Organization
ZD	zero-dose
ZDLH	Zero-Dose Learning Hub

EXECUTIVE SUMMARY

From January to June 2025, the Bangladesh Country Learning Hub, led by International Centre for Diarrheal Disease Research, Bangladesh (icddr,b) with partners Jhpiego and RedOrange Communications, advanced implementation research (IR) and knowledge translation (KT) activities to strengthen strategies for identifying and reaching zero-dose (ZD) and under-immunized (UI) children across six subnational sites in Bangladesh. The Learning Hub supported the Expanded Programme on Immunization (EPI) to adapt and test interventions, including evening sessions in urban areas, crash programs in rural hard-to-reach locations, and digital tracking tools, including an e-screening checklist and e-tracker system, while also monitoring systemic and contextual barriers affecting access.

The e-screening checklist identified 1,138 ZD/UI children, of whom 963 were vaccinated, demonstrating its value in offsetting workforce gaps. Evening sessions reached more than 1,000 children in IR areas (Ward-26 and 30, Zone-5) of the Dhaka North City Corporation (DNCC), providing flexible access for working caregivers, while crash programs vaccinated 1,834 children, including 208 ZD and 436 UI children, in areas with limited routine service delivery. However, persistent challenges—such as vaccine shortages, high staff turnover, salary delays for community health care providers (CHCP), and delays in approval of the EPI Operational Plan (OP)—undermined the consistency of these interventions and contributed to emerging ZD hotspots. A nationwide rolling review of DHIS2 data revealed an increase in high-burden areas, with rural ZD upazilas rising from 227 in 2023 to 385 in 2024.

The Learning Hub also continued research among Forcibly Displaced Myanmar Nationals (FDMN) and adjacent host communities. Findings confirmed low ZD prevalence among FDMN children (0.5 percent) but significantly higher UI compared to host communities (12.5 percent vs. 5.8 percent), with valid full vaccination coverage lower among FDMN children (74.8 percent vs. 82.6 percent). Completion rates dropped after caregivers received Family Counting Number (FCN) cards linked to food rations, underscoring the importance of building intrinsic motivation for immunization. Barriers included caregiver reluctance, misconceptions about side effects, language challenges, and inconsistent immunization records.

Evidence generated by the Learning Hub is increasingly informing policy and planning. ZD/UI children remain a standing agenda item in EPI review meetings at multiple levels, while new mechanisms—such as a prototype ZD dashboard in DHIS2 and a national monitoring committee chaired by the Ministry of Health and Family Welfare (MOHFW)—have institutionalized regular data use. District-level EPI managers (Civil Surgeons [CS]) advocated for expanding successful interventions, particularly the e-screening checklist and evening sessions, to additional areas. At the national level, Learning Hub data and recommendations contributed to the application of Gavi, the Vaccine Alliance's (Gavi) Equity Accelerator Fund (EAF) for Bangladesh and informed program adjustments to strengthen immunization coverage.

While systemic challenges persist, the Bangladesh Learning Hub is embedding evidence-based practices into national systems, expanding the visibility of ZD/UI children, and supporting government and partners to refine approaches that improve access and accountability in both routine and humanitarian settings.

KEY LEARNINGS & RECOMMENDATIONS

IDENTIFY: UNDERSTANDING THE ZERO-DOSE BURDEN

Key Learnings

- **Annual DHIS2 review reveals increasing ZD burden and new hotspots.** The Learning Hub’s nationwide analysis of monthly vaccination coverage data from all upazilas, municipalities, and City Corporation (CC) zones for calculating ZD/UI prevalence, identified an unanticipated rise in high-burden areas in 2024. The number of ZD upazilas in rural areas increased from 227 in 2023 to 385 in 2024, and in CC zones from 17 to 34 over the same time period, with the ZD prevalence rising from 12.6 percent to 21.0 percent in top ten upazilas with the highest ZD rates in Bangladesh.
- **Household and digital identification systems remain inconsistently used.** Tools like the e-screening checklist (which identified 1,138 ZD/UI children, of whom 963 were vaccinated) and the e-tracker system can identify ZD children via unique identification numbers. However, adoption of the tool is slowed by technical issues, poor network coverage, low digital literacy among health staff, and staff relocations. The government began implementing the e-tracker system in 2023 with a goal to cover all designated vaccination centers by the end of 2025, but its full rollout is still in progress. Household registers are not always updated, and in some areas like Kawkhali, progress stalled when nurses were transferred and CHCPs withheld participation due to unpaid salaries, resulting in only 45 out of 82 planned health education sessions being held. Verification is further complicated in FDMN camps, where caregivers may misplace temporary vaccination slips or misrepresent children’s names to obtain extra rations.
- **Marginalized and hard-to-reach groups remain difficult to consistently identify, as structural and contextual barriers obscure the visibility of ZD/UI children.** In rural and urban slum settings, identification is hindered by weak transport and logistics, reliance on short-term crash programs, and limited staff presence, with 35 percent of vaccinator posts nationally vacant. In FDMN camps and hilly areas, restrictions on movement, bans on vaccinators’ vehicles, and insecurity further complicate identification. Caregiver motivations also shape vaccination uptake: many in FDMN camps seek Bacillus Calmette-Guérin (BCG) vaccination mainly to obtain FCN cards for rations and social assistance, which helps explain higher BCG coverage compared to subsequent doses such as Penta 1.
- **CHCPs engagement in identification of ZD children is uneven and often constrained.** CHCP involvement in ZD identification varies, with some supporting mobilization in areas lacking health assistants (HAs), while in other areas, such as Dowarabazar, CHCP avoid identification duties due to unpaid salaries. Heavy workloads among HAs and assistant health inspectors tends to hinder outreach and advocacy activities, contributing to limited contact.
- **Local knowledge and community leadership are underutilized for the identification of ZD/UI children in FDMN displacement settings.** Trusted figures like majhees, imams, and teachers can help identify and mobilize children for vaccination but are not systematically engaged in FDMN camps due to staff workload constraints. The lack of real-time integration of community insights

such as from traditional birth attendants (TBAs) into digital systems limits cross-verification, and language barriers in FDMN camps between Rohingya caregivers and local providers reduce the effectiveness of interpersonal communication as the Rohingya language is not spoken by most frontline service providers.

Recommendations

- **EPI should institutionalize an annual rolling review of DHIS2 data on ZD/UI children, complemented by monthly divisional-level data review meetings, to detect shifts in ZD burden and ensure rapid, evidence-driven action.** Finalize and integrate the prototype ZD dashboard developed by the Learning Hub into the national DHIS2 to enable real-time monitoring and prioritization of high-burden areas. Pair these reviews with improved data quality measures, including denominator validation, use of rapid assessments including Lot Quality Assurance Sampling, and an online data management system to strengthen the accuracy and utility of DHIS2 data. Sustained focus on systemic challenges, such as vaccine supply continuity and human resource shortfalls, is essential to prevent further increases in high ZD areas. Uninterrupted vaccine supply and introduction or continuation of special EPI activities such as crash programs and campaigns are needed to address the challenges when erosion of vaccination coverage is detected through the rolling reviews or when there are disruptions due to political instability or extreme weather events.
- **Ensure consistent use of e-screening tools by addressing technical barriers and strengthening training and supervision.** This involves software updates, technical troubleshooting (already completed in five areas where the Learning Hub is conducting IR), and additional training sessions to improve health worker uptake.
- **Strengthen coordination and accountability so children identified through screening are followed up by Upazila Health and Family Planning Officer (UH&FPOs) and HAs.** Ensure that once children are identified through e-screening, their details are promptly shared with UH&FPOs and frontline providers, with clear follow-up responsibilities assigned. Regular coordination meetings and timely data sharing are essential to sustain effective linkage from identification to vaccination.
- **Expand identification of ZD/UI children in displacement contexts by integrating household-level data with other sources (e.g., FDMN surveys, facility mapping, health worker inputs) through mixed-method approaches.** The Learning Hub's mixed-methods approach (combining social mapping, household surveys, and qualitative interviews) has identified ZD/UI pockets among FDMN and host communities, offering insights into geographic barriers, service availability, and demand-side hesitancy. This multifaceted approach provides a promising model for identifying and characterizing missed populations in other displacement settings, with a validation workshop planned to further synthesize these findings.
- **Adopt a multi-pronged strategy to address social and demographic barriers to identification, combining gender-responsive approaches, stronger CHCP and local leader engagement, and use of digital and systemic enablers.** This includes recruiting more female vaccinators and volunteers to align services with cultural norms, while also creating structured opportunities to engage fathers and male family members in vaccination decisions. Strengthen community-level health education by orienting religious and traditional leaders, expanding door-to-door interpersonal communication, and deploying culturally appropriate visual materials to dispel misconceptions. Digitalize immunization services, using e-screening and e-supervision tools, to

improve tracking of ZD/UI children and enhance accountability of vaccination teams. Finally, address underlying systemic constraints by investing in adequate human resources, refresher training, and the provision of essential medicines and services that enable caregivers to prioritize immunization.

REACH: ENSURING ACCESS TO IMMUNIZATION SERVICES

Key Learnings

- **Modified schedules and flexible delivery expand access but face sustainability constraints.** IR findings have shown that modified EPI schedules can increase access to immunization services in hard-to-reach and urban areas. Crash programs vaccinated 1,834 children (208 ZD, 436 UI) in hard-to-reach areas, while evening sessions in urban settings have provided a more convenient option for working mothers. However, regular implementation is constrained by insufficient transport, logistics funding, and competing staff demands.
- **Community engagement efforts have expanded awareness, but inconsistent caregiver contact undermines vaccination uptake.** Advocacy meetings, EPI support groups, non-governmental organization (NGO) community workers, and targeted health education have mobilized communities and increased awareness. However, some vaccinators do not always follow standard operating procedures or spend sufficient time explaining vaccine benefits and addressing concerns about side effects. In practice, frontline workers often encounter resistance, with families refusing to open doors, feigning interest, or actively avoiding vaccinators. These gaps in both the reach and quality of interpersonal communication were identified by stakeholders as a primary driver of ZD/UI children, underscoring the challenge of translating community engagement into consistent caregiver action.
- **Systemic and operational barriers disrupt reliable service delivery.** Political unrest, vaccine shortages, high staff turnover, poor DHIS2 data quality, and weak supervision disrupt routine immunization (RI) delivery, limiting consistent access for children and caregivers.
- **Persistent service gaps drive under-immunization in FDMN communities.** In FDMN communities, ZD prevalence is relatively low (0.5 percent), but UI is more than double that of host communities (12.5 percent vs. 5.8 percent). Full vaccination coverage is lower (74.8 percent vs. 82.6 percent) with higher dropout after FCN card issuance. Major barriers including child illness (63.1 percent), fear of side effects (15.5 percent), lack of schedule awareness (14.9 percent), persistent misconceptions, and inconsistent immunization card data underscore the difficulty of consistently reaching FDMN children. Language barriers further limit effectiveness, as most providers do not speak Rohingya, reducing clarity and trust.

Recommendations

- **Scale up and integrate proven outreach approaches.** Finalize and operationalize the ZD dashboard in DHIS2 for real-time monitoring and integrate it into routine data reviews; expand e-screening checklists, crash programs, and evening sessions to additional upazilas and wards; ensure all ZD/UI children identified are vaccinated within one month; maintain timely vaccine supply and budgets for hard-to-reach areas; and increase outreach frequency in densely populated FDMN camps.

- **Strengthen the health workforce and ensure operational continuity.** Address HA shortages through recruitment and retention; create contingency plans for staff transfers; provide ongoing refresher training (including digital tool use) for all health workers; expand CHCP positions; and resolve CHCP salary delays to maintain engagement in education and identification activities.
- **Improve data quality and digital system functionality.** Address technical issues with digital tools and ensure reliable mobile network access; upgrade frontline provider devices; and strengthen DHIS2 data validation to resolve coverage inconsistencies. Develop a robust system linking all providers in FDMN camps to track missed children.
- **Deepen caregiver communication and demand generation.** Improve interpersonal communication with caregivers, using engaging media (videos, cartoons, short cinema); routinely involve community leaders and focus on male engagement to address misconceptions and build trust; distribute behavior change communication materials; and keep ZD/UI as a standing agenda item in monthly EPI meetings.
- **Implement targeted, FDMN-specific service strategies.** Explore approaches to strengthen vaccination completion by considering the role of FCN cards and birth registration systems for FDMN communities. Involve TBAs to identify and follow up on newborns; improve vaccine storage in camps like the Ukhiya Upazila; create dedicated outreach vaccination spaces with reliable vaccine transport; and address supply-side barriers including long waits, overcrowding, and lack of skilled vaccinators.

MONITOR AND MEASURE: IMPROVING DATA SYSTEMS AND TRACKING IMMUNIZATION COVERAGE

Key Learnings

- **Digital tools are enhancing ZD/UI monitoring.** A DHIS2-based prototype ZD dashboard developed by the Learning Hub now provides interactive, geographically disaggregated views of ZD children for 2023–2024, enabling trend analysis, regional comparisons, and dropout tracking for key antigens. Complementary tools including the national rollout of the e-tracker registration system, the e-screening checklist (which identified 1,138 ZD/UI children with 963 vaccinated), and the e-supervision checklist are improving identification, follow-up, and oversight despite declines in use due to supervisor transfers.
- **Data quality issues signal deeper systemic problems and limit decision-making.** Persistent inconsistencies in DHIS2 data, such as months where dashboard coverage rates show zero despite the EPI headquarters dataset recording vaccinated children, along with incomplete or illogical immunization card records (especially in FDMN camps), denominator errors, and mismatches between calculated coverage and dashboard figures require intensive validation and significant time for cross-checking. These issues, compounded by strikes affecting data uploads, inconsistent vaccination card distribution, and the loss of temporary slips, point to underlying systemic challenges that hinder accurate tracking and timely action.
- **Systemic and operational challenges disrupt monitoring.** Political unrest, vaccine shortages, rapid staff turnover, delays in OP approval, and limited network coverage in remote areas have disrupted service delivery, increased ZD prevalence, and reduced real-time data capture.

Technical glitches with digital tools and weak supervision further undermine data completeness and quality.

- **Stakeholder engagement is strengthening monitoring practices.** Multi-partner collaboration, including MOHFW, EPI, World Health Organization (WHO), United Nations Children’s Fund (UNICEF), and Jhpiego, has strengthened national monitoring practices and embedded Learning Hub-generated evidence into country data systems. District and upazila managers now include ZD/UI as standing agenda items in EPI meetings, and the ZD Data Improvement Plan is under active review to enhance data quality and alignment with national and global goals. This collaboration also drove the integration of ZD/UI indicators and a Behavioral and Social Drivers (BeSD) section into the national Coverage Evaluation Survey (CES) in 2023 and 2025, enabling routine, standardized measurement of ZD/UI, annual triangulation with DHIS2, Bangladesh Demographic and Health Survey (BDHS), and Bangladesh Bureau of Statistics (BBS) data, and refined subdistrict estimates.
- **National oversight mechanisms are now in place.** The MOHFW, in partnership with the Learning Hub, has established a national monitoring committee chaired by the Additional Secretary (Public Health) to oversee ZD case tracking through monthly reviews, complemented by annual Learning Hub-led DHIS2 data analyses to identify high-burden areas and guide policymaking.

Recommendations

- **Finalize and operationalize the ZD dashboard.** Complete the development, integration, and use of the ZD dashboard within DHIS2, ensuring it uses real data for geographically disaggregated, accurate insights. Upgrade frontline provider devices, resolve technical tool issues, expand reliable mobile network coverage in remote areas, and strengthen digital linkages to trace missed vaccinations and address incomplete or illogical card data.
- **Strengthen data quality, validation, and follow-up.** Enhance DHIS2 validation processes, explicitly record misinformation on vaccination cards, document reasons for missed doses, and strengthen follow-up for ZD/UI children. Conduct annual triangulation of DHIS2 with CES, BDHS, and BBS data, adjusting CES tools and sampling for subdistrict ZD estimates, and transfer DHIS2 data quality assessment capacity from WHO to MOHFW staff.
- **Institutionalize regular monitoring and supervision.** Keep ZD/UI as a standing agenda item in monthly district and upazila EPI meetings, hold monthly divisional review sessions with Bangladesh ZDLH and improve oversight by involving MOHFW staff in camp-level supervision. EPI, with technical support from the Bangladesh Learning Hub, should adopt and scale up proven tools like the e-screening checklist and e-supervision to identify left-outs and dropouts, and ensure training for field teams in hard-to-reach areas to address navigation of tools, language, and documentation challenges.
- **Address systemic barriers to service delivery.** Recruit and retain HAs, ensure timely CHCP salary payments, and develop contingency plans for staff transfers to prevent service gaps. Maintain adequate vaccine supply and budget allocation for hard-to-reach areas and crash programs, with continuous communication with EPI headquarters to mitigate disruptions such as those caused by HA strikes.

ADVOCATE: STRENGTHENING POLICY AND STAKEHOLDER ENGAGEMENT

Key Learnings

- **Advocacy and collaboration embed ZD/UI in national policy and data systems.** The Learning Hub's sustained advocacy, enabled by close collaboration with MOHFW, EPI, WHO, UNICEF, and Jhpiego, has transformed ZD/UI from a little-known challenge into a recognized national priority. The topic of ZD/UI children is now consistently raised in meetings, seminars, and forums, and included as a standing agenda item in monthly EPI meetings at all levels. These efforts drove the formal inclusion of ZD/UI topics and indicators, along with a BeSD section, into the national CES questionnaires for 2023 and 2025, embedding routine, standardized measurement into Bangladesh's national data systems. Co-creation workshops and subnational committee meetings have further ensured Learning Hub evidence is applied in national policy documents, such as the EAF proposal, moving the country from ad-hoc assessments to sustained, system-wide monitoring and policy action.
- **Proven interventions gain momentum for scale-up.** According to meeting minutes of subnational committees, district and upazila managers are eager to expand evidence-based strategies such as the e-screening checklist and evening vaccination sessions to other areas, reflecting strong receptiveness to tested approaches.
- **Incentives can drive uptake among displaced populations but maintaining these gains requires sustained motivation.** In FDMN camps, caregivers are motivated to vaccinate as a way to receive the FCN card that gives them access to food rations and other assistance, but immunization completion rates drop in older age cohorts. Building intrinsic motivation for full immunization remains essential, alongside resolving operational challenges such as HA workloads, political unrest, vaccine shortages, staff turnover, and delays in EPI OP approval from the MOHFW. CHCP salary delays also undermine identification and follow-up efforts.
- **Community engagement and communication remain critical.** Leveraging community leaders (majhees, imams, teachers) and integrating RI into existing monthly union meetings can strengthen local advocacy. However, many caregivers reported a lack of contact from health workers about upcoming vaccination sessions, highlighting both communication gaps and the need to strengthen interpersonal communication and counseling skills. Beyond improving the quality of communication skills and how health workers relate to FDMN caregivers, there is a need for consistent outreach and reliable systems to ensure timely information reaches caregivers, for example, through mosque announcements, community meetings, or other trusted local channels.

Recommendations

- **Institutionalize ZD/UI in EPI processes and sustain evidence-driven decision-making.** Maintain ZD/UI as a standing agenda item in EPI meetings and transfer DHIS2 data quality assessment capacity from WHO to government staff to ensure long-term ownership. Continue to share research findings from surveys, qualitative studies, and cost-effectiveness analyses through monitoring committee meetings, dissemination seminars, and accessible learning products (including in local languages, a critical gap) to guide policy, inform planning, and support scale-up of effective approaches.

- **Promote, sustain, and resource proven interventions.** Advocate with district and upazila managers to expand high-impact strategies such as the e-screening checklist, crash programs, and evening vaccination sessions, while developing sustainability plans to maintain these beyond project funding. Ensure timely budget allocations for hard-to-reach areas, address staff shortages and CHCP salary delays, maintain uninterrupted vaccine and material supply, and follow up with development partners to fulfill operational support commitments.
- **Strengthen community engagement to build trust and drive uptake.** Improve provider/caregiver communication through enhanced counseling skills and engaging content such as videos, cartoons, and short films; involve community leaders and local groups; increase male participation to overcome gender barriers; and integrate immunization discussions into existing monthly union meetings for consistent visibility and support.
- **Use policy levers to encourage full immunization.** Explore measures such as linking birth registration or identity documents for FDMN to vaccination completion, while carefully assessing and mitigating potential unintended impacts on access to other essential services.

BANGLADESH COUNTRY LEARNING HUB

The [ZDLH](#), established by Gavi, addresses immunization equity by generating data, evidence, new insights, and learning to better understand the factors influencing implementation and performance of approaches to identify and reach ZD/UI children and missed communities. The ZDLH consortium is led by [JSI](#), in collaboration with [The Geneva Learning Foundation](#) and [International Institute of Health Management Research](#) (IIHMR). ZDLH works to address immunization equity through evidence and learning of effective methods and approaches for identifying and reaching ZD/UI children. Four Learning Hubs in Bangladesh, Mali, Nigeria, and Uganda generate and advance the uptake of research and evidence to improve immunization policy and programming, especially at subnational levels. The [Bangladesh Learning Hub](#) is led by the [icddr,b](#) with partners [Jhpiego](#) and [RedOrange Communications](#).

This semiannual update for the Gavi Board and other stakeholders highlights the ZDLH consortium's efforts to generate and share evidence for a deeper understanding of the factors that affect the implementation and performance of strategies to identify and reach ZD/UI children and missed communities. It synthesizes findings, challenges, and recommendations across Gavi's Identify, Reach, Monitor, Measure, and Advocate (IRMMA) framework emerging from the Learning Hubs.

ZERO-DOSE LEARNING HUB TECHNICAL ASSISTANCE

During the period of January–June 2025, JSI, as the global learning partner, continued to provide technical assistance, collaborate, and co-create with the Bangladesh Learning Hub. JSI reviewed the draft household survey report on FDMN and host communities, offering detailed feedback and recommendations on population comparisons and the application of the wealth index in refugee contexts. JSI also collaborated with IIHMR to finalize the Bangladesh political economy analysis report, a study that examines how political and economic dynamics affect the generation and use of evidence for immunization in Bangladesh. Additional support included reviewing social mapping summaries and qualitative data collection tools for the ZD/UI study in FDMN and host communities, and participating in technical discussions related to the design and validation of co-creation workshop guidelines to validate study findings and jointly develop solutions relevant to the displacement setting.

RELATED RESOURCES

- [Assessing the Governance and Political-Economy Landscape for Evidence-Based Zero-Dose Programming and Policies in Bangladesh](#)
- [Gavi's Zero-Dose Learning Hub IRMMA Aligned Interventions: Semiannual Update—Bangladesh \(April 2025\)](#) | [Bangladesh Data Dashboard \(April 2025\)](#)
- [Identifying the Zero-dose and Under-immunized Children in Bangladesh: Approaches and Experiences](#) (October 2024)
- [Prevalence of and Factors Associated with Zero-dose and Under-immunized Children in Selected Areas of Bangladesh: Findings from Lot Quality Assurance Sampling Survey](#) (August 2024)

- [Gavi's Zero-Dose Learning Hub IRMMA Aligned Interventions: Semiannual Update—Bangladesh \(October 2024\)](#)
- [Gavi's Zero-Dose Learning Hub IRMMA Aligned Interventions: Semiannual Update—Bangladesh \(May 2024\)](#)
- [Country Learning Hub for Immunization Equity in Bangladesh: Findings from Rapid Assessment \(December 2023\)](#)

IMPLEMENTATION RESEARCH AND ASSESSMENTS

IMPLEMENTATION RESEARCH

The Learning Hub continued to evaluate a package of interventions through a mixed-methods IR study in six diverse geographic areas: Saghatā (Char), Dowarabazar (Haor), Kawkhali (Hilly), Hatiya (Coastal), Nalitabari (Plain land), and urban areas in DNCC Zone-5 (Wards 26 and 30). The interventions tested were designed using a human-centered design approach in consultation with the Government of Bangladesh (GoB) and key stakeholders. Interventions included digital tools, adjusted service delivery schedules, and enhanced community engagement strategies, all designed to be integrated within the existing health system. The interventions concluded in June 2025, with the endline household survey now complete in the six intervention and six comparison areas. The survey sample included 12,974 caregivers of children aged 4.5 to <24 months across intervention and control areas. Qualitative data collection included 18 in-depth interviews with caregivers, 12 focus group discussions (FGDs) with service providers, and 22 key informant interviews (KIIs) with supervisors and managers. A cost-effectiveness analysis is also underway.

Key Findings

- **Interventions were associated with measurable increases in ZD/UI prevalence in intervention areas compared to comparison areas.** Overall, the package of interventions shows potential for broader impact and policy influence, pending further analysis of cost-effectiveness and sustainability. Local EPI managers at district and subdistrict levels applauded the specific ZD interventions, including e-screening checklist, crash programs, and evening sessions, and expressed strong interest in scaling them up to other upazilas and wards in their districts.
- The **e-screening checklist** effectively identified 1,138 ZD/UI children during the IR period, of whom 963 were vaccinated. This digital tool, used by health service providers not directly involved in vaccination (e.g., CHCPs, family welfare visitors, sub-assistant community medical officers, midwives) to identify ZD/UI children for referral, is a promising solution to human resource shortages in the EPI program.
- **Crash programs** (73), designed for hard-to-reach areas, successfully vaccinated 1,834 children, including 208 ZD and 436 UI children.
- **Evening sessions in urban areas** proved effective in reaching working caregivers leading to the vaccination of 1,099 children across 119 sessions (of 131 planned).
- The **e-tracker**, a DHIS2-based child tracking system piloted in DNCC among IR sites, enabled registration and tracking of children nationwide through unique identification numbers. A total of 4,263 newborns were registered during the IR period.

Challenges and Barriers

- **Human resources:** Frequent staff turnover and a high vacancy rate of 35 percent for vaccinators remained a persistent challenge to implementation. Protests by HAs over employment benefits

disrupted the submission of data to DHIS2, hindering real-time monitoring. In addition, CHCPs were reluctant to conduct health education sessions due to lack of assistance and unpaid salaries. Supervisors (assistant health inspectors/health inspectors) were also reluctant to visit the field because of poor travel allowances, reducing the quality of field supervision and monitoring. In Nalitabari, nurses responsible for administering vaccines at fixed EPI centers became involved in other activities which limited their availability for extended EPI sessions.

- **Supply chain:** Political unrest and delays in the approval of government OPs resulted in widespread vaccine shortages. These shortages affected both RI services and crash programs across all six IR areas. The unrest since 2024 also led to frequent transfers of officials, which disrupted oversight and coordination, including the inability to conduct the fifth monitoring committee meeting.
- **Logistics and geography:** Limited funding for transportation to hard-to-reach areas created hurdles for conducting crash programs and for enabling adequate field supervision. This constraint was particularly acute in geographically challenging locations where extra travel time and costs were required. In hilly areas such as Kawkhali and Rangamati, inaccessible terrain and scattered populations made it difficult to locate and interview target children, reducing the efficiency of survey implementation and program follow-up. These geographic constraints also increased the time and resources needed for vaccination sessions and supervision.
- **Data quality, record-keeping, and tracking system gaps:** Persistent inconsistencies in the information recorded on EPI cards and in registers such as mismatched vaccination dates were observed, with a 7.3 percent discrepancy rate found during the IR. These issues stemmed from inadequate training for vaccinators and communication barriers in the field. Beyond data entry errors, the IR identified broader concerns about the quality of services, record-keeping, reporting, and gaps in supportive supervision. The absence of a robust digital tracking system made it difficult to identify and follow up with ZD/UI children, particularly in areas with high population mobility. Incorrect target population estimates (denominator issues) also contributed to recurring vaccine shortages.

Stakeholder Response and Programmatic Actions

- **Scale up:** District-level EPI managers expressed interest in expanding successful interventions. CSs in Sherpur and Sunamganj praised the e-screening checklist and requested support from the Learning Hub to extend its use to additional upazilas. Assistant health officers (EPI Managers of CC) also recommended scaling up evening sessions to other areas. Subnational committees of Nalitabari and Dowarabazar further decided to involve Family Planning Department field workers in identifying ZD/UI children, highlighting broad support for embedding these interventions across the health system.
- **National e-tracker rollout:** The GoB began the national rollout of the e-tracker in 2023 as a permanent child registration platform, with the goal of covering all vaccination centers by the end of 2025. The system assigns each child a unique identification number, enabling continuous tracking across the immunization schedule and better identification of ZD children. As of mid-2025, the system was in use in 64 districts and 11 CCs.
- **Monitoring:** A prototype ZD dashboard was developed using DHIS2 data from 2023 and 2024 to provide a comprehensive, disaggregated view of ZD numbers and vaccination coverage trends across geographic levels, supported by interactive visualizations. The MOHFW, in collaboration with the Learning Hub, also established a national monitoring committee that meets monthly to

track ZD cases and coordinate responses. Joint monitoring visits in IR areas are regularly conducted by MOHFW supervisors and Learning Hub officers, who collect and analyze data and feed findings back into subnational review processes.

- **Data quality:** The tally sheet and register are considered the main sources for record-keeping and reporting. However, persistent inconsistencies between caregiver vaccination cards and tally sheets/registers can mislead the estimation of actual vaccination coverage. These inconsistencies underscore the need for stronger training and supervision of vaccinators, since errors can result in invalid doses and unreliable reporting. To address this, the Learning Hub recommended systematic documentation of discrepancies on cards to improve accuracy and reduce future errors. WHO introduced an app-based Data Quality Self-Assessment tool for monthly reviews which will support Bangladesh Learning Hub to strengthen system-wide practices. Training for Surveillance and Immunization Medical Officers and EPI headquarters staff was completed in 2024, with a subnational rollout planned.
- **Policy integration:** ZD/UI have become regular agenda items in monthly MOHFW meetings at division, district, and subdistrict levels, reflecting institutional commitment to addressing these challenges. Learning Hub activities raised awareness among EPI stakeholders, influencing the inclusion of ZD/UI in forums and instruments such as the CES 2023. Co-creation workshops conducted by Bangladesh Learning Hub also inspired improvements to the ZD data improvement plan based on workshop participant feedback, including prioritization of data quality, tracking system enhancements, and alignment with national and global immunization goals.
- **Cost-effectiveness analysis:** Data collection for an implementation cost study is underway as part of a broader cost-effectiveness analysis of the tested interventions. The final report, expected later in 2025, will provide critical evidence on the efficiency and value of these approaches to inform decisions about scale-up and sustainability.

DHIS2 ROLLING REVIEW

The Learning Hub has conducted an annual rolling review of DHIS2 data to monitor immunization equity and identify areas with ZD/UI children. This iterative process involves sorting data to highlight areas with the highest ZD prevalence and cross-verifying the top 30 with EPI dashboard data for accuracy. By analyzing monthly administrative vaccination data from all upazilas, municipalities, and CC zones, the review tracks changes in ZD status over time. The process includes cleaning data, addressing inconsistencies, and calculating ZD/UI prevalence to pinpoint areas with the greatest burden. This data-driven approach provides timely insights into emerging hotspots and helps inform the national EPI program, guiding policy decisions to address evolving challenges.

Key Findings

- **Increase in the number of high ZD areas:** The 2024 rolling review results analyzed in early 2025 revealed a rise in the number of ZD/UI areas across Bangladesh in 2024. The number of rural high ZD upazilas increased from 227 in 2023 to 385 in 2024, while ZD classified CC zones doubled from 17 to 34 in the same period. The threshold for a high ZD upazila rose from 12.6 percent in 2023 to 21.0 percent in 2024, indicating a higher concentration of ZD children in

these areas. This indicates a substantial increase in the percentage of ZD children in these areas, underscoring the scale of the problem.

- **Geographic hotspots:** High ZD areas are clustered in specific districts, suggesting a need for targeted regional strategies. All nine upazilas in Noakhali District and eight of 12 upazilas in Mymensingh were among the top 30 ZD areas in 2024. Mymensingh District also showed a consistent presence on the high ZD list in both 2023 and 2024.

The rolling review serves as an early warning system, ensuring that programmatic and policy adjustments are evidence-based and responsive to the evolving landscape of immunization in Bangladesh. These findings have been reviewed with EPI stakeholders to enable a rapid and informed response to threats to immunization coverage. EPI officials cite nationwide vaccine shortages and a lack of human resources stemming from delays in the approval of the EPI's OP by the MOHFW. EPI officials recognize that there is a risk that the situation could worsen if these systemic issues, particularly the OP approval delays and resulting shortages, are not addressed.

ASSESSMENT OF ZD/UI AMONG FDMN AND HOST COMMUNITIES

The Learning Hub conducted a multi-phase study to assess immunization service delivery and the status of ZD/UI children among FDMN and adjacent host communities in Bangladesh. The study was implemented in FDMN camps in Ukhiya and Teknaf Upazilas of Cox's Bazar District and in Bhasan Char under Hatiya Upazila of Noakhali District. Adjacent host communities were included in Ukhiya and Teknaf; no host community was surveyed for Bhasan Char due to its geographic isolation. The research design used mixed methods and was conducted in three phases:

1. **Social mapping** to understand the social, cultural, economic, and health system context, including EPI service delivery arrangements and partner involvement.
2. **Household survey** (September–December 2024) covering caregivers of children aged 4.5–<24 months in both FDMN and host communities, and collecting vaccination history for children aged two to 11 years.
3. **Qualitative data collection** (February–March 2025), including in-depth interviews with caregivers, FGDs with service providers, and KIIs with managers and humanitarian stakeholders, followed by data validation and co-creation workshops to develop potential solutions.

Sampling in the household survey was designed to estimate ZD/UI prevalence separately for each FDMN site and host community area, with adjustments for design effect and non-response. Data were collected by trained interviewers, including Rohingya speakers, using structured questionnaires.

Validation and Co-Creation Workshops

The Learning Hub held a series of validation and co-creation workshops as the third phase of the study. These built on earlier social mapping, household survey, and qualitative data collection, aiming to validate findings from both FDMN and host communities and jointly develop solutions to address ZD/UI children. Ten workshops were conducted: nine local-level sessions (April 2025) in Ukhiya, Teknaf, and Bhasan Char, each with separate meetings for caregivers, community leaders, and frontline service providers. Additionally, one district-level co-creation workshop (June 2025) was held at the Refugee

Relief and Repatriation Commissioner (RRRC) office in Cox's Bazar with senior government, NGO, and partner representatives. Participants included caregivers of children aged 4.5 to under 24 months, Majhees, Imams, teachers, health workers, vaccinators, supervisors, and program managers. Facilitators presented preliminary findings, which participants validated or challenged, before engaging in group exercises to identify solutions.

Key Findings

- **ZD/UI prevalence:** While the proportion of ZD children was low across both study populations, 0.5 percent among FDMN children and 0.2 percent in host communities, the burden of UI was more than twice as high in FDMN areas (12.5 percent) compared to host communities (5.8 percent). Within the FDMN sites, Teknaf recorded the lowest UI prevalence at just 3.2 percent, highlighting geographic variation within camps. Host communities achieved higher valid full vaccination coverage (82.6 percent) compared to FDMN children (74.8 percent) across all study sites. Female children in both FDMN and host communities were more likely to be ZD compared to male children, although UI prevalence showed minimal gender differences. This points to potential gender-based barriers influencing the earliest stages of vaccination initiation.
- **Demand-side barriers:** Misconceptions and hesitancy, particularly fears of side effects such as fever, pain, swelling, and infertility, limited uptake, especially in Rohingya communities. A central factor in the FDMN camps was the FCN card dynamic: caregivers often pursued only the initial BCG vaccination to obtain the ration-linked card, then disengaged, contributing to dropouts. Male caregivers' prohibitions, sometimes reinforced by threats of divorce, further constrained decision-making. Child illness was the most frequently cited reason for missing doses across both communities, though sometimes used as an excuse to avoid vaccination. Additional contributors included the intention to vaccinate later, forgetfulness, insufficient interpersonal communication by vaccinators, and cultural norms requiring female vaccinators for female caregivers, which created challenges when female staff were unavailable.
- **Data quality concerns:** Inaccuracies on immunization cards such as missing, incomplete, or illogical entries were common in FDMN camps, with some cards listing doses before the child's birth or out of sequence. These issues undermine reliable tracking and may distort coverage estimates.
- **Service delivery and operational constraints:** Immunization services in both communities were affected by overcrowding at sites, long waiting times, and inadequate infrastructure including poor ventilation, lack of water, and unsafe spaces for children that discouraged attendance. The presence and engagement of CHCPs were strongly associated with higher coverage, pointing to the need for more CHCPs in camps and better training to sustain quality service delivery. Shortages of human resources were common, with limited numbers of trained vaccinators, frequent absenteeism, and insufficient female staff to reach female caregivers. Supply chain weaknesses including irregular vaccine availability, inadequate cold chain capacity, and delayed distribution of logistics and reporting tools contributed to service disruptions. In addition, limited or inconsistent microplanning, gaps in supportive supervision, and weak community engagement reduced the quality and consistency of service delivery. Insufficient cold storage capacity, especially in Ukhiya, limits the ability to store vaccines for a full month, posing risks to continuous availability and requiring infrastructure solutions.
- **Linking birth registration to vaccination:** Consider the role of Family Counting Number (FCN) cards in encouraging timely vaccination. Stakeholders from RRRC who participated in the co-

creation workshops suggested exploring whether linking card distribution more closely with vaccination milestones, such as verifying completion of key doses by six months, could motivate caregivers to follow through, while ensuring birth registration remains accessible and not conditional on vaccination.

- **Integration with other sectors:** Improving community awareness of available services and strengthening interpersonal communication were identified as critical needs, especially in Rohingya camps where direct engagement could drive uptake. Integrating vaccination promotion into education and food programs such as including immunization messages in courtyard meetings was suggested as a means of reinforcing awareness through non-health channels.
- **Vaccinator recognition and trust:** Understanding whether vaccinators are from the host or FDMN community could inform trust-building strategies, and issuing recognition cards to fully immunized FDMN children could incentivize completion and strengthen demand. TBAs were seen as valuable allies for early identification of newborns and supporting follow-up for timely immunization, particularly in contexts where facility births are less common.

Co-Created Recommendations

- **Coordination and communication:** Improve coordination among providers and sites; engage trusted leaders; expand interpersonal communication; enhance counseling with visual tools; form mothers' and fathers' groups.
- **Digitalization and monitoring:** Introduce a digital vaccination system (e-tracker); strengthen supervision and feedback; use digital platforms (e.g., WhatsApp) for real-time data sharing; document misinformation for follow-up.
- **Human resources and service delivery:** Increase the number of CHCPs, especially female vaccinators; mandate training and refreshers; improve follow-up for sick children; reduce facility wait times.
- **Supply chain and logistics:** Ensure reliable vaccine supply; address storage and transport challenges; improve diagnostic and medicine availability.
- **Addressing migration and incentives:** Track migrating families and share vaccination records; consider incentives like cards or small gifts for full immunization completion.

The study confirms that while ZD prevalence is low in both FDMN and host communities, UI rates remain disproportionately higher among FDMN children. Barriers span both demand- and supply-side challenges, including misinformation, social norms, operational gaps, and systemic resource constraints. The co-created recommendations highlight practical, community-driven solutions that can be integrated into ongoing humanitarian and RI efforts. These findings provide the first comprehensive evidence base to inform policy and programming for sustaining equitable immunization coverage among displaced and host populations.

KNOWLEDGE TRANSLATION

KT, the systematic process of moving research into policy and practice, is central to the ZDLH approach. In Bangladesh, the Learning Hub advanced KT through a sequenced pathway that moved beyond simply sharing findings: it actively connected evidence to decision-making, mobilized stakeholder commitment, and supported the adoption of research-tested solutions. By tailoring data for policymakers, engaging communities and frontline staff, and supporting stakeholders to embed innovations into routine systems, the Learning Hub helped institutionalize evidence-informed practices across both routine and humanitarian immunization. This focus on translating knowledge into action has enabled research insights to drive tangible improvements in how ZD/UI children are identified, reached, and prioritized within the national immunization program.

DISSEMINATION: SHARING EVIDENCE TO DRIVE CHANGE

The Learning Hub continued to develop and distribute targeted knowledge products to share research findings. These efforts aimed to raise awareness of ZD/UI children and inform immunization policy and practice at national and subnational levels. These included research articles in peer-reviewed journals and the use of its [dedicated website](#) as a platform for disseminating news, features, e-library publications, event summaries, and blogs. The team produced social media posts and infographics, along with a video on evening immunization sessions, to highlight evidence-based interventions and their relevance for reaching missed communities. These products were designed to be accessible and visually engaging, supporting communication of IR findings. In addition, the Learning Hub maintained regular communication with key stakeholders through national and subnational meetings, such as those with the RRRC and subnational EPI committees.

TRANSMISSION: TAILORING EVIDENCE FOR DECISION-MAKERS

The Learning Hub strategically tailored evidence to support decision-making across multiple levels of the health system. One key strategy to facilitate interpretation and use of evidence from the FDMN study was the facilitation of nine local-level validation workshops. The Learning Hub convened these workshops with community members, leaders, and service providers to present preliminary findings from the FDMN social mapping, household surveys, and qualitative interviews. These workshops invited participants to interpret the data and jointly design locally-relevant solutions to address the immunization needs of ZD/UI children. Additionally, a district-level co-creation workshop was held at the RRRC in Cox's Bazar. There, stakeholders, including EPI program managers and local authorities, were presented with synthesized evidence and encouraged to deliberate on actionable responses.

Tailored evidence shared during subnational committee meetings in Learning Hub IR areas presented policymakers with progress, challenges, and local data. These discussions supported localized adaptation of interventions such as the e-screening checklist, evening sessions, and crash programs. These tailored exchanges ensured that evidence was not only shared but shaped to align with the operational, cultural, and strategic priorities of immunization stakeholders across Bangladesh.

ACQUISITION: STAKEHOLDERS RECOGNIZING AND ADOPTING KNOWLEDGE

The Learning Hub fostered meaningful engagement with decision-makers and implementers who demonstrated commitment to sustaining and scaling effective interventions. This was most clearly reflected during subnational committee meetings held in Nalitabari (Sherpur) and Dowarabazar (Sunamganj), where health officials and EPI managers praised the use of the e-screening checklist and advocated for its continued use. The CS of Sherpur specifically cited the tool's potential to address HA shortages and requested support from icddr,b to scale the intervention to other upazilas. In Dowarabazar, the CS called for expanding all Learning Hub-supported interventions to the remaining 11 upazilas in the district, and the committee agreed to immunize all children identified as ZD or UI via the e-screening checklist within the following month. Members also recommended refresher training for newly recruited staff and emphasized the importance of incorporating Learning Hub IR-tested activities into regular planning even after the project concludes at the end of 2025. The inclusion of ZD/UI as a standing agenda item in monthly review meetings, from the union level to MOHFW, also signaled institutional commitment to maintaining focus on missed communities beyond the life of the Learning Hub. Together, these examples reflect a pattern of stakeholder recognition, commitment, and forward planning, key markers of knowledge acquisition that signal readiness for implementation and scale-up.

APPLICATION: IMPLEMENTING RESEARCH-BASED SOLUTIONS

Stakeholder engagement was reflected in the use of Learning Hub evidence by national-level decision-makers, including for the preparation of the EAF application and programmatic decisions by EPI. Officials acknowledged that some of the IR-tested interventions were contributing to reducing ZD/UI rates. At the national level, the Learning Hub contributed to the inclusion of ZD/UI children in the CES 2023 by adapting the WHO BeSD tool, ensuring that decision-makers had access to behavioral data relevant to missed communities. To address gaps where routine sessions were insufficient, the GoB introduced modified session schedules, with Learning Hub support in documenting and analyzing outcomes. Crash programs were conducted in hard-to-reach areas, vaccinating 1,834 children (including 208 ZD and 436 UI) through temporary intensified activities. Evening sessions were held in urban slums to accommodate caregivers, particularly working mothers, and were subsequently expanded to additional wards of DNCC. In parallel, the Learning Hub supported rolling reviews of DHIS2 administrative data across all subnational units, enabling timely identification of emerging ZD/UI hotspots and informing government program adjustments. The Learning Hub's FDMN assessment, recognized as the first comprehensive assessment documenting immunization status, service gaps, and barriers among Rohingya children, yielded actionable recommendations. Findings were synthesized and shared during validation and co-creation workshops, leading to recommendations such as strengthening coordination across NGOs, international NGOs, and government actors; expanding culturally sensitive community engagement strategies; and investing in gender-responsive service delivery models. These applied interventions illustrate how research and collaborative problem-solving can inform and refine government-led strategies to improve service delivery and address persistent barriers to vaccination.

IMPACT: INSTITUTIONALIZING EVIDENCE-BASED PRACTICES AND STRENGTHENING IMMUNIZATION

Evidence generated and translated by the Learning Hub has started to inform sustained changes in policy, practice, and system design across both routine and humanitarian immunization efforts. The e-screening checklist, which demonstrated potential to address human resource constraints, received strong endorsement from sub-national health officials. CSs requested support to extend its use beyond pilot areas, and discussions were underway to integrate it into monthly staff workflows. Similarly, evening immunization sessions, originally piloted in Dhaka urban slums to accommodate working caregivers, were expanded to additional wards within DNCC, with interest in further rollout expressed by EPI officials. Evidence generated through the Learning Hub also influenced broader programmatic decision-making. According to stakeholders, Learning Hub data and recommendations were used in the development of Gavi's EAF application for Bangladesh, and district managers expressed intent to adopt and scale select IR-tested interventions.

Through co-creation with stakeholders, the Learning Hub contributed to the development of a prototype ZD dashboard. This dashboard uses DHIS2 data and is designed to track the proportion and absolute number of ZD children. It also monitors vaccination coverage for key antigens such as BCG, Penta 2 and Penta 3, and measles-rubella 1 and 2, and tracks dropout rates. The dashboard incorporates information down to the upazila level for 2023 and 2024. Furthermore, in the monitoring committee meeting, the issue of expanding DHIS2 dashboard up to union level was raised and decided that EPI would update the dashboard as per decision. Hence, it has been expanded to cover the union level in rural areas and the ward and sub-block levels in urban areas, allowing relevant health officials to access union-level data analysis through DHIS2. This initiative enables program managers to identify areas with high ZD numbers and prioritize targeted interventions, strengthening RI reviews at different administrative levels. By embedding these indicators in an interactive platform with district ranking capabilities, which highlights both high-performing and underperforming districts, the Learning Hub is contributing to efforts to institutionalize ZD/UI monitoring within national health information systems.

While systemic challenges persist, including political instability, workforce shortages, and vaccine stock-outs, the Bangladesh Learning Hub's KT efforts have contributed to sustained shifts in how ZD/UI children are prioritized, measured, and reached within the national immunization program.



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