

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

May 2024

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.](#) (JSI) with two consortium partners, [The Geneva Learning Foundation](#) (TGLF) and the [International Institute of Health Management Research](#) (IIHMR). Together, the consortium enables sharing and learning across four Country Learning Hubs (CLHs) 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 (ZD) and under-immunized children globally by facilitating high-quality evidence generation and uptake.

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Contact Information

JSI Research & Training Institute, Inc.
2733 Crystal Drive
4th floor
Arlington, VA 22202 USA

ZDLH website: <https://zdlh.gavi.org/>

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ACRONYMS

ASACO	association de santé communautaire (community health association)
BeSD	behavioral and social drivers
CAPEV	<i>Centre d'Apprentissage pour l'équité en vaccination</i> (Country Learning Hub)
CCEOP	Cold Chain Equipment Optimization Platform
CHW	community health worker
CLH	Country Learning Hub (<i>Centre d'Apprentissage pour l'équité en vaccination</i>)
CNI	Centre national d'immunisation (National Immunization Center)
CSCOM	centre de santé communautaire (community health centers)
CSO	civil society organizations
DHIS	District Health Information System
DPT	diphtheria, pertussis, tetanus
DQA	data quality assurance
EAF	Equity Acceleration Fund
EPI	Expanded Programme on Immunization
FPP	Full Portfolio Planning
HeRAMS	Health Resources and Services Availability Monitoring System
HSS	health system strengthening
IDP	internally displaced persons
IHME	Institute for Health Metrics and Evaluation
JSI	JSI Research & Training Institute, Inc.
LMIS	logistics management information system
LQAS	lot quality assurance survey
MOH	Ministry of Health
NGO	nongovernmental organization
PDDSS	Plan décennal de développement sanitaire et social (Ten-Year Health and Social Development Plan)
PEV	Programme élargi de vaccination (Expanded Programme on Immunization)
RAISE 4 Sahel	Reaching & Adapting Immunization Services Effectively to Reach Zero-Dose Children in the Sahel
RED/REC	Reaching Every District/Reaching Every Child
SARA	Service Availability and Readiness Assessment

UI	under-immunized
WHO	World Health Organization
ZD	zero-dose [children]
ZDLH	Zero-Dose Learning Hub
ZDLH-X	ZDLH Inter-Country Peer Exchange
ZIP	Zero-Dose Immunization Project

MALI

MALI COUNTRY LEARNING HUB

The Zero-Dose Learning Hub (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 zero-dose (ZD) and under-immunized (UI) children and missed communities. The ZDLH consortium is led by [JSI Research & Training Institute, Inc. \(JSI\)](#), in collaboration with [The Geneva Learning Foundation](#) and the [International Institute of Health Management Research](#). ZDLH works to address immunization equity through the generation of evidence and learning around effective methods and approaches for identifying and reaching ZD and UI children. Four Country Learning Hubs (CLHs) in Bangladesh, Mali, Nigeria, and Uganda advance the uptake of research and evidence to improve immunization policy and programming, especially at subnational levels. In 2023, Gavi selected [GaneshAID](#) as the country learning partner for Mali. Together with the [Center for Vaccine Development—Mali](#), GaneshAID established the Mali CLH known in French as *Centre d’Apprentissage pour l’équité en vaccination (CAPEV)*.

ZDLH Technical Assistance

During the period July–December 2023, as the global learning partner, JSI continued to collaborate and co-create with the Mali Learning Hub to strengthen their ZD approaches, including organizing working sessions to map planned activities and think through support for implementation research, including protocol development, study design, data collection, and analysis. Through this demand-driven approach, JSI provided tailored technical assistance and resources to support development of the Learning Hub’s rapid assessment and address gaps in their research skills. For example, JSI and the Mali team explored potential data sources to triangulate for estimating diphtheria, pertussis, tetanus (DPT)1 coverage and ZD numbers at the subnational level and which source(s) or methodology to use for estimating the number of surviving infants under age one. JSI also reviewed qualitative tools for the Mali rapid assessment and provided support for incorporating behavioral and social drivers (BeSD) questions and probes in the interview guides. The Mali Learning Hub had identified qualitative data analysis as an area for capacity strengthening. In response, JSI conducted a training session to provide an overview of various qualitative methods before diving into best practices and procedures for managing qualitative data and developing themes and codes. The discussion on coding included a collaborative exercise on manual coding using excerpts from transcripts generated during the Mali Learning Hub’s rapid assessment. Additionally, the training covered the pros and cons of using software for qualitative analysis, providing a side-by-side comparison of various software applications along with their costs, accessibility, and included features. The training concluded with a brief demonstration of one qualitative data analysis software, Dedoose. The Learning Hub plans more in-depth and hands-on sessions and/or support for qualitative analysis as part of the implementation research to improve ZD interventions and programming.

Additional Resources:

- Current and previous strategies: [Gavi Country Documents—Mali](#)
- [Mali Zero-Dose Landscape](#)
- [ZDLH Semiannual Update \(October 2023\)](#) (January–June 2023)
- [Early Learning from Zero-Dose Practitioners in Bangladesh and Mali: Gavi ZDLH Inter-Country Peer Exchange \(ZDLH-X1\)](#)

ZERO-DOSE CONTEXT—COUNTRY PRIORITIES

Table 1. Grants and Objectives

Grant	Status	Objective
Health Systems Strengthening (HSS) 3	Non-active <i>Grant years: 2024–2029</i>	Core health systems strengthening grant.
Equity Acceleration Fund (EAF)	Non-active <i>Grant years: 2024–2027</i>	Targeted intervention to accelerate reaching zero-dose and missed communities; focused on not duplicating ongoing efforts by Reaching & Adapting Immunization Services Effectively to Reach Zero-Dose Children in the Sahel (RAISE 4 Sahel) ZD Immunization Project (ZIP).

Identifying and reaching ZD and UI children in Mali is essential to meeting the Gavi 5.0 equity goal and to progress toward reaching all eligible children with routine vaccination in the country. Under Gavi’s 4.0 strategy, Mali’s previous health systems and equity investments had already shifted to prioritize marginalized and under-reached populations:

- **Reaching Every District/Reaching Every Child (RED/REC)** in 8 target populations: (1) Nomads, (2) Communities occupying riverbeds, (3) Dispersed/remote farming populations, (4) Communities affected by conflict, (5) Communities living on gold panning sites, (6) Extremist religious groups, (7) Peri-urban populations, and (8) Homeless communities. In 2017, an immunization equity analysis was conducted on each population and prioritized the relevant RED/REC focus areas related to the identified immunization barriers. The areas of focus for RED/REC were planning and resource management, reaching all eligible populations, formative supervision, linking services to communities, and tracking and using data for action.
- The **Urban Immunization Strategy** aimed at urban/peri-urban populations, internally displaced populations (IDPs), and homeless persons in Bamako District by focusing on flexible service delivery approaches and tailored communication strategies. Mali plans to deploy this strategy to 10 major cities as part of the Full Portfolio Planning (FPP).
- Early development of **activities to identify and reach ZD children**: mapping of ZD and missed children and services using geospatial mapping (carried out by United Nations High Commission for Refugees as a source of additional information on ZD and missed communities), forging stronger partnerships and accountability with humanitarian partners and community organizations, and identifying gender-related barriers.

Mali’s strategy for 2024–2029 includes a renewed and more nuanced focus on ZD children and missed communities, with the following objective: “By 2028, Mali aims to reduce 22 percent of ZD children nationwide, through EAF and RSS grants in 58 percent of health districts, representing a decrease of 25,553 ZD children in 44 health districts.”

The current set of investments take a more focused approach to reducing the number of ZD children, or those missed by immunization services. These children are mainly located in conflict areas, and some other specific geographies (urban, rural/remote, refugees and migrants). Gavi’s HSS and EAF grants prioritize strategies to reach ZD children tailored to the target populations of interest as well as the deployment of electronic solutions to improve performance management of immunization personnel, integrated health management information system-eLMIS [logistics management information systems], and generating and using learnings for improved program management. Mali’s new strategy focuses on ZD and UI children distributed throughout 44 priority districts and two urban commune areas in the country:

- 22 districts in **conflict zones**.
- 10 districts with other **special sub-populations** (migrants, refugees, islanders, desert dwellers).
- 10 districts in **rural/remote areas**.
- 2 districts with **poor populations in peri-urban areas**, including 1 **refugee camp**.

HSS grant district selection depends on having at least 1,000 ZD children, support from World Vision/ZIP, or over 500 ZD children in the Bamako Region. EAF grant district inclusion criteria is based on having at least 1,000 ZD children and low coverage, those with hard-to-reach or special/conflict-affected populations, excluding districts supported by Raise 4 Sahel ZIP. The number of ZD children was based on the 2022 Institute for Health Metrics and Evaluation (IHME) estimates. The prioritized districts for this strategy are: Ansongo, Bafoulabe, Banamba, Bandiagara, Bankass, Between, Bougouni, Bourem, Choir, Diema, Djenné, Douentza, Gao, Goundam, Gourma-Rharous, Kadiolo, Kalabancoro, Kati, Kayes, Kenieba, Kita, Kolokani, Kolondieba, Koulikoro, Koutiala, Markala, Millstone, Mopti, Nara, Niafunké, Niono, Nioro, Oussoubidiagna, San, Segou, Sikasso, Tell, Tenekou, Timbuktu, Tominian, We, Yelimane, Yorosso, Youwarou, Commune V in Bamako, and Commune VI in Bamako.

Data from the IHME (2021)¹ suggest that while the sparsely populated northern regions of the country have the highest prevalence of ZD children, the highest overall numbers are in the heavily populated southern regions of the country, particularly in districts in the Bamako and Kayes Regions. According to IHME estimates, nearly half of ZD children nationwide live in just 21 percent of districts. In addition to disparities in ZD status among geographic locations, disparities exist between ethnicities in Mali. Of the eight major ethnic groups in the country, the Touareg/Bella group has the highest proportion of ZD children (51.7 percent) followed by the Sonraï group (29.8 percent). Children in the Sarakole/Soninke/Marke ethnic groups are least likely to be ZD, with a ZD prevalence of 8.2 percent. **Learn more:** [Mali Zero-Dose Landscape](#).

IDENTIFY

Table 2. Identify Priorities and Activities

<i>Identify Priorities in Mali (EAF application)</i>	<i>Mali Learning Hub Identify Activities</i>
<ul style="list-style-type: none"> • Deploy electronic community immunization and birth registries in 15 priority districts. 	<ul style="list-style-type: none"> • Rapid assessment of burden of ZD and mapping interventions across the Identify, Reach, Monitor, Measure, Advocate (IRMMA) framework— includes an assessment of target population estimates and outliers, and barriers and system assessment.

Zero-Dose Methods & Context

In November–December 2023, the Mali Learning Hub conducted a rapid assessment to update the estimates of ZD and UI children across the country and identify areas where they are highly concentrated, examine the administrative system and its capacity to generate quality data and better understand the specific barriers to vaccination in different missed communities. The rapid assessment was carried out in eight purposively selected community health centers (centre de santé communautaire [CSCOM]) in four districts in Mali, using a mixed methods design including:

¹ IHME 2021 data cited in Gavi Secretariat “Mali Zero-Dose Analysis (2023)” (unpublished).

- **Desk review and secondary data analysis:** Utilizing existing health and vaccination data, including information from IHME and the District Health Information System (DHIS) 2, to explore methods for generating better estimates and establish baseline ZD numbers and trends.
- **Stakeholder interviews:** Engaging with local Expanded Programme on Immunization (EPI) officials, community leaders, and caregivers through key informant interviews and focus groups to gather insights on barriers and facilitators to vaccination.
- **Data quality assessment** in the eight selected CSCOM to compare facility registers and documentation with the data reported to the DHIS2.
- **Data triangulation:** Cross-verifying information from various sources to ensure accuracy and reliability of findings regarding ZD children and vaccination efforts.

The Mali rapid assessment report is currently in draft. The Learning Hub will present the results—including the barriers and data quality use—to the Centre National d’immunisation (National Immunization Center [CNI]) and partners in mid-2024, with a feedback loop to subnational levels for recommendations and actions for improving guidelines and practices.

The study areas for the rapid assessment were selected purposefully based in three criteria:

- High concentration of ZD children.
- Representation of the four district contexts: urban/peri-urban, rural/remote, conflict zone, and special populations.
- Safe accessibility for investigators.

The Learning Hub discussed the choice of study areas with CNI and identified four districts and eight CSCOMs, listed in the table below. Please note that for the subsequent implementation research, a different set of CSCOMs that meet the selection criteria listed above were selected to include sites where the interventions to be evaluated (Coach2PEV and Medexis) are planned for implementation.

Table 3. Study Areas

Region	District	CSCOMs	Context
Bamako	Commune VI	Senou, Yirimadio	Urban/peri-urban
Kayes	Kayes	Gouthioubé, Khasso	Other populations
Ségou	Ségou	Banankoro, Katièna	Rural/remote areas
Ségou	Tominian	Tominian central, Yasso	Conflict areas

Improved ZD Estimates

In the rapid assessment, the Mali CLH delves into the marked differences in the number of ZD children when comparing estimates from the IHME and DHIS2 from 2018–2022. Specifically, IHME estimated approximately 176,319 ZD children in Mali in 2019, which had climbed up to 227,189 by 2022. The jump in the 2022 estimates appears to be an outlier when examining the general trend of IHME estimates over time and might be due to an error or shift in data sources used, rather than a true increase in the number of ZD. The CLH is seeking more information among stakeholders in-country to provide more visibility on this issue. Nevertheless, the general trend paints a significant ZD burden, with an estimated 161,628 ZD children nationwide in 2021. By contrast, the estimates from DHIS2 consistently generated negatively trending estimates of ZD children (ranging from -87,598 in 2019 to -58,392 in 2022), indicating a clear problem with data quality, including an underestimation of

surviving children under one and inaccurate reporting of number of children immunized. Recognizing the gaps and limitations in the available data sources, the Mali CLH is exploring various ways to leverage the strengths of existing data and methods to generate more accurate estimates of ZD at the subnational level. The CLH has proposed an alternative approach for estimating the number of ZD in Mali that combines IHME coverage rates with data on administered doses from the DHIS2. While the CLH presented initial findings based on this new estimation method in the rapid assessment report, the accuracy of their approach has not yet been examined fully or vetted. It is also worth noting that the Ministry of Health and Demographic and Health Survey program recently completed data collection for the Mali Demographic and Health Survey 2023–24 and, once available, this report can serve as an additional, high-quality data source that can be used for triangulation with IHME and administrative data.

Data Quality Assurance

Mali faces challenges with data discrepancies between DHIS2 and IHME sources, and inconsistencies in health facility reporting including marked differences between vaccination data recorded in tally sheets, facility reports, and DHIS2. In response to these gaps, the Mali CLH undertook detailed assessments of current practices and data quality assurance (DQA) processes in their targeted study areas. The Learning Hub conducted DQAs in eight CSCOMs and focused on data from January through August of 2023. The data sources used for comparison included tally sheets, immunization registers, and summary reports submitted to districts as well as immunization coverage trends calculated by the CSCOMs.

For both Penta1 and Penta3, the DQA found marked discrepancies between the number of children immunized recorded on the tally sheets and the corresponding totals reported in DHIS2, with the latter always being higher and sometimes significantly so (from 1 to 62 percent in one case). Overreporting was more pronounced in urban and peri-urban settings. One possible explanation for this discrepancy is related to immunization services delivered by private and religious clinics as well as humanitarian agencies. Typically, CSCOMs should report these immunization service data to DHIS2, but the process for doing so is not clear. The Mali CLH aims to further investigate if, and to what extent, immunization services delivered by non-governmental entities can explain discrepancies in the reported data.

Determinants of Vaccination*

**Please note these are preliminary findings based on the draft report of the Mali rapid assessment. ZDLH will include additional information with more localized findings in the next semiannual update.*

Geographical/accessibility barriers: Children from rural areas are more than twice as likely to be ZD than children from urban areas. Notably, Mali is among the ten nations worldwide that have the largest gap in ZD children between urban and rural locations. Less populated northern regions of the country such as Kidal, Gao, and Timbuktu have a greater proportion of ZD children (ranging from 27.9 to 92.6 percent) compared with children in Bamako (6.7 percent). The Kidal Region has a particularly high ZD prevalence, with nearly 93 percent of children not having received vaccination compared with Gao, which has the second highest proportion of ZD children (43.3 percent). **Learn more:** [ZDLH Mali Zero-Dose Landscape](#).

Conflict and security barriers: The Mali rapid assessment underscores the impact of geographical remoteness and security concerns on the ability to reach ZD children. Children living in conflict-affected zones (e.g., Ménaka and Taoudénit Regions) and remote rural areas face significant access issues due to insecurity and the sheer remoteness of their locations. These factors severely limit the reach of health services and vaccination campaigns. Security issues, exemplified by the attack on the district of Bourem, necessitate relocations of vaccination efforts to safer areas like Tominian, indicating how conflict and insecurity disrupt routine immunization services and access to remote or conflict-affected populations.

Health system challenges: The rapid assessment findings point to the absence of key health staff, and limitations in health infrastructure hinder the consistent delivery of vaccines to those most in need. A review of the *Mali EPI Multi-Year Plan 2017–2021* revealed a shortage of human resources and insufficient fixed and advanced strategies with less than 90 percent implemented of planned fixed and advanced strategies, and only 74 percent implemented of the planned mobile strategy. The review further demonstrated vaccine stock shortages at different levels of the health system, specifically in 78 percent of EPI regional units, 83 percent of districts and 67 percent of health facilities. Mali has decided to extend the use of an already existing e-LMIS for the logistical management of other medicines to improve vaccine management. This intervention is planned in the FPP 2024–2029 and should allow real-time monitoring and visibility of vaccine stocks, to anticipate stock shortages and overstocks. Furthermore, the cold chain capacity is only sufficient for 57 percent of health facilities and 36 percent of them do not have cold chain equipment, making the storage of vaccines riskier and requiring a more frequent, or even more expensive, distribution system. The CNI wanted to overcome this difficulty by using the Cold Chain Equipment Optimization Platform (CCEOP) financing offered by Gavi, for which the country is eligible. The country wishes to submit its CCEOP funding request in September 2024.

Socio-economic barriers: The [Mali Zero-Dose Landscape](#) carried out by the ZDLH indicated that children from poorer households and with mothers who have received no education are significant predictors of lack of measles, Bacillus-Calmette Guérin, or Penta1 vaccination in Mali. The Mali rapid assessment likewise found that economic constraints and the physical inaccessibility of health facilities are important barriers to vaccination. The cost associated with reaching health services, including transportation and potential loss of daily income, discourages families from seeking immunization for their children. Additionally, the distance to health facilities poses a substantial challenge for many communities, particularly in rural areas. Security issues pose an additional barrier to demand as communities fear possible dangers walking to the CSCOM. The 2021 national strategy to reinforce EPI activities in conflict areas revealed that 5.1 million (27 percent of the total population in Mali) live in conflict-affected areas.

Socioeconomic factors: While still in draft, the Mali rapid assessment highlighted the complexity of behavioral and social factors influencing vaccine uptake. The rapid assessment drew on and underscored findings from the 2022 immunization coverage survey in Mali that showed low vaccination rates associated with parents' attitudes and beliefs (73 percent), including low interest in immunization (22.1 percent), lack of trust in vaccines (20.3 percent), traveling/absence (12.3 percent), and lack of immunization information (8.6 percent). The qualitative component of the rapid assessment revealed specific challenges in some communities. For example, the name of the vaccinator can lead to the rejection of vaccination services due to totem and myth. In some villages of Kayes and Tominian Districts, only the family chief or grandfather can make decisions about child immunization. In other communities, traditional medicines are preferred as there is little knowledge on the benefits of vaccines. Some mothers are reluctant to take their babies to the CSCOM because they delivered at home and are scared the health worker will stigmatize them for the home birth. Furthermore, health system factors (24 percent), including geographical distance (11.7 percent), unavailability of vaccines (4.9 percent), absence of vaccinators (3.7 percent) and immunization fee (3.7 percent) were also mentioned as barriers to vaccination.

Rapid assessment findings highlighted the role of information and awareness in influencing vaccine uptake. Common barriers included misinformation about vaccines and a general lack of awareness regarding the importance of immunization in protecting the child's health. The spread of false information through social media and word-of-mouth in communities exacerbates this without robust health education initiatives to counter them. Findings also indicated a lack of communication materials developed for and by special communities, and existing materials are not designed in a way that takes into account the local languages, cultures, and gender issues. Communication on the immunization calendar and upcoming advanced and mobile sessions were typically insufficient.

Lastly, building strong relationships with communities, leveraging trusted figures such as religious and traditional leaders, and engaging directly with families emerged as important ways to overcome vaccine hesitancy. These findings underline the importance of a nuanced approach to improving vaccination coverage in Mali, one that addresses the specific behavioral and social drivers within each community and demographic group. Tailored

strategies that respect and engage with local beliefs and practices, combat misinformation through effective communication, and enhance the accessibility and acceptability of immunization services are essential.

Identify Interventions

Based on the *FPP Narrative (2023)* and *Gavi Support Detail (2023)*, Gavi-supported ZD *Identify* interventions in Mali include deploying electronic community immunization and birth registries in priority districts, targeting diverse populations including those in conflict areas, rural/remote regions, urban/peri-urban areas, a refugee camp, and other groups such as island residents, IDPs, migrants, nomads, and desert communities. **Learn more:** [Annex 1. Gavi-Supported Zero-Dose Interventions in Mali.](#)

Emerging Lessons and Learnings: Identify

Initial results from the Mali rapid assessment revealed complex and varied barriers to reaching ZD and UI children. Addressing these challenges requires integrated strategies that combine security, cultural sensitivity, economic support, health system strengthening, and effective communication and education initiatives. Continuous updating of data, innovative outreach strategies, robust monitoring, and targeted advocacy are essential components for improving vaccination coverage—a multi-faceted approach, incorporating strong partnerships, community engagement, and data-driven decision-making to effectively reach ZD children in Mali. Emerging lessons include:

- **Data triangulation:** Expand the sources and mechanisms for updating data, their triangulation, and use to improve the identification and reach of ZD children. Given the differences in source data and estimation approaches, the true number (and location) of ZD children is not known. However, by triangulating the various estimates, we can determine where there is overlap and generate an informed estimate to use for broad planning purposes.
- **Routine health information systems:** Explore opportunities to strengthen the routine health information systems for immunization programs, particularly focusing on data quality. Improving data collection, processing, and analysis mechanisms can aid in better identification and tracking of ZD children.
- **Microplanning strategies:** Employ microplanning strategies through community health workers (CHWs), traditional and religious leaders, and civil society organizations (CSOs) to identify ZD children more accurately within communities. Community participation during these microplanning exercises allows for buy-in and ensures the success of these activities, providing community members with opportunities to propose local solutions to local problems.
- **Tailored approaches:** Develop context-specific strategies to guide ZD identification (and reach) based on the findings of the rapid assessment which pinpointed varying barriers to immunization by typology:
 - Urban and peri-urban districts primarily encounter demand-side challenges due to poverty and precarious living conditions in economically constrained areas, where day-to-day survival takes precedence over immunization.
 - Rural and remote districts deal with service delivery challenges due to scattered populations and significant distances to health centers, coupled with social and behavioral barriers such as traditional/cultural practices, religious beliefs, social norms, and vaccine hesitancy. Geographical challenges include difficult terrain like sand/stone deserts, mountains, and inadequate roads.
 - Conflict-affected areas experience similar issues to rural/remote districts, compounded by insecurity that heightens fear among health workers and communities regarding the provision and uptake of immunization services.
 - Special populations exist throughout all districts but are more concentrated in certain areas. Their primary challenges are on the demand side, influenced by strong social and behavioral factors that deter them from accessing immunization services, including high mobility (e.g., migrants, nomads, islanders, and desert dwellers).

- Across all districts, noted gender-related barriers included limited decision-making power of mothers, economic constraints, and the burden of mothers’ workload.

REACH

After identification of ZD children and UI communities, the next step is to develop and implement targeted strategies that respond to the identified barriers. Reaching ZD children and missed communities requires addressing both supply-side and demand-side barriers.

Table 4. Reach Priorities and Activities

Reach Priorities in Mali (EAF application)	Mali Learning Hub Reach Activities
<ul style="list-style-type: none"> • Extend the model of women and men leaders to address gender issues in 10 major urban cities (<i>target population: urban/peri-urban populations</i>). • Ensuring distribution of vaccines to hard-to-reach and conflict-affected communities with poor infrastructure (<i>target population: rural/remote</i>). • Conduct extended outreach in remote villages (<i>target population: rural/remote</i>). • Intensify engagement with community health workers. • Development and deployment of microplans in districts with highest ZD (<i>target population: 44 priority districts covering all target populations</i>). 	<ul style="list-style-type: none"> • Review of secondary data sources in conflict areas to produce CAPEV security risk index (relationship between security, access, and coverage) to rank districts.

Reach Interventions

Based on review of the *FPP Narrative (2023)* and *Gavi Budgeting Reporting Template (2023)*, Gavi-supported ZD Reach interventions in Mali encompass engaging communities in microplanning, validating integrated microplans, organizing mobile and weekend vaccination teams in conflict zones and urban areas, implementing advanced strategies in remote villages, integrating immunization into community care packages, supporting civil society organizations in vaccinator management, digitalizing supportive supervision and on-site trainings, recognizing efficient EPI staff, ensuring vaccine and consumables distribution in hard-to-reach districts, partnering with nongovernmental organizations (NGOs) in compromised security areas, and developing communication plans to address gender issues and reach underserved populations across all 44 priority districts. In conflict-affected zones, mobile vaccination teams operate, and logistics support such as motorcycles enhance accessibility. Community microplanning and the integration of immunization services within broader healthcare packages are critical strategies employed here. In urban and peri-urban areas, vaccination sessions during weekends aim to increase reach, complemented by leadership models that tackle gender issues and enhance community engagement. For remote and rural districts, the focus is on organizing mobile clinics and implementing advanced strategies for reaching isolated populations. Moreover, regions with internally displaced populations receive special attention with monthly mobile clinics to ensure continuity of immunization services. Throughout these initiatives, partnerships with NGOs and the use of honorary recognition ceremonies help motivate and support health workers, ensuring sustained efforts in immunization programs across Mali. **Learn more:** [Annex 1. Gavi-Supported Zero-Dose Interventions in Mali](#).

Additional Operational Indicators

Additional supply-side barriers to vaccination limit the effectiveness of Reach interventions, including the availability and functionality of cold chain equipment in health facilities, the presence of vaccine stock, and the availability of sufficient and competent healthcare personnel. In Mali, the Health Resources and Services Availability Monitoring System (HeRAMS) provides essential data on health resource availability to guide decision-makers. Currently, discussions are ongoing on leveraging HeRAMS data to better reach ZD children. HeRAMS, supported by the World Health Organization (WHO) and informed by 75 health district focal points, provides annual updates on health resources, but can lack routine immunization details. Efforts are underway to enrich these reports with comprehensive data, including geospatial service access, to aid immunization efforts. Additionally, the Mali Learning Hub is enhancing data collection with HeRAMS and the Armed Conflict Location and Event Data project to create a security risk index correlating security, service delivery, and immunization rates. The Learning Hub seeks HeRAMS data on populations near immunization facilities and will discuss further data needs to improve targeting of ZD children and immunization planning, including stock-outs, coverage rates, and demand determinants like household-level barriers. This collaboration aims to fill data gaps and use geospatial insights for better immunization service planning in Mali.

Box 1. ZDLH-X Experience

In 2023, the ZDLH Learning Innovation Unit, held two Inter-Country Peer Learning Exchanges focused on ZD and UI children and missed-community challenges. The session provided an opportunity for national and sub-national practitioners from the two countries to share their experiences and learn from each other, and to strengthen networking within and across countries.

ZDLH conducted an analysis of pre-event questionnaire data (42 responses from Mali). Respondents from Mali identified most promising practices to reach ZD children as: community engagement approaches, utilizing community health workers/volunteers, and community outreach and mobilization.

Learn more: [Early Learning from Zero-Dose Practitioners in Bangladesh and Mali: Gavi ZDLH Inter-Country Peer Exchange \(ZDLH-X1\)](#)

Emerging Lessons and Learnings: Reach

Mali's rapid assessment reinforced the understanding that the barriers to reaching ZD and UI children are multifaceted and deeply rooted in various socio-economic, cultural, and infrastructural challenges. Findings underscore the need for tailored, context-specific strategies that address the unique circumstances of each district or community in the country. Engaging communities, including traditional and religious leaders, and establishing strong partnerships with local CSOs and humanitarian agencies are essential for overcoming barriers to vaccination in Mali. These partnerships can enhance trust in vaccines, address sociocultural barriers, and support the logistical aspects of vaccine delivery, especially in hard-to-reach areas.

Findings from the Mali rapid assessment also noted that a majority of CSCOMs lack cold chain equipment, which is essential for vaccine storage. The establishment of new health facilities and the introduction of new vaccines, including COVID-19 vaccines has exacerbated the situation. As a result, Mali has requested support from the CCEOP for the year 2024. Nationally, there have been stock-outs of the Bacillus-Calmette Guérin vaccine due to delays in disbursing funds for purchasing traditional vaccines. Additionally, at the decentralized level in 2023, vaccine stock-outs have been reported at the regional (78 percent), district (83 percent) and health facility (67 percent) levels in the last six months,² despite the availability of vaccines at the central level. These stock-outs pose an important barrier to vaccination access and discourage some caregivers from visiting vaccination posts multiple times, especially those who cannot afford multiple trips due to financial constraints. Prolonged

² Revue Externe du PEV au Mali, Mai-Juin 2023.

stock-outs discourage caregivers from bringing their children for vaccination, as repeated unsuccessful trips lead to frustration.

We outline emerging lessons and learnings below, although these are preliminary as the implementation research has not yet commenced:

- **Data-driven decision making:** Continuous data updating and the use of innovative outreach strategies based on accurate, localized data are crucial. The rapid assessment in Mali highlighted the value of microplanning and the use of CHWs for identifying ZD/UI children, underscoring the importance of local-level evidence-based planning and implementation.
- **Strengthening routine health information systems:** Focus on reinforcing routine health information systems, specifically for EPI, to ensure data quality and facilitate informed decision-making.
- **Addressing gender-related barriers:** Expand interventions to overcome gender-related obstacles to vaccination, recognizing the importance of including strategies that address specific needs and barriers faced by girls and women.
- **Strengthening cold chain infrastructure:** The assessment highlights the lack of cold chain equipment in many health centers, exacerbated by the introduction of new vaccines. This calls for significant investment in enhancing the cold chain infrastructure to prevent vaccine spoilage and ensure vaccines' availability when and where health workers need them.
- **Community engagement:** Address behavioral and social drivers of immunization by enhancing community engagement and education to counter vaccine hesitancy, misinformation, and cultural practices that lead to ZD.
- **Review strategies to reach ZD children in conflict areas:** Immunization coverage varies widely from region to region in Mali due in part to regional conflicts disrupting parts of the health system, including routine vaccination for children. ZD/UI children in areas affected by conflict (as well as displaced children and those in communities that are nomadic) are particularly challenging to reach. A number of partners have worked to develop immunization strategies in Mali's conflict areas. The Learning Hub will collaborate with them to document the existing efforts to reach ZD children in conflict areas and difficult to access communities.

MONITOR AND MEASURE

To effectively address ZD children, interventions must be closely monitored and data systems improved to ensure accurate identification and outreach. Poor data quality and inconsistencies, including discrepancies in target population estimates, hinder progress by complicating coverage rate calculations and the true scope of ZD and UI.

Table 5. Monitor and Measure Priorities and Activities

<i>Monitor & Measure Priorities in Mali (HSS, EAF)</i>	<i>Mali Learning Hub Monitor & Measure Activities</i>
<ul style="list-style-type: none"> • Improved supervision and performance management systems using Coach2PEV mobile application. • Integrate vaccine data into eLMIS: Medexis. • Conduct periodic lot quality assurance survey (LQAS) for Gavi 5.0 metrics. • Establishing accountability frameworks with community representatives. • Conduct Service Availability and Readiness Assessment (SARA). • Conduct effectiveness studies on urban strategy, Strategy for Strengthening Immunization Activities in Conflict Areas, digitization of community birth registries. • Conduct impact assessment on capacity of governance and technical bodies in reducing ZD. 	<ul style="list-style-type: none"> • Implementation research on Coach2PEV which aims to improve motivation and retention of health workers and, ultimately, delivery of services and quality of care; and eLMIS (Medexis) which aims to improve vaccine distribution and reduce stock-outs. • Rapid assessment of ZD includes a data quality assessment component. • Convening of meeting with HeRAMS to discuss use of humanitarian data for ZD learning. • Dissemination of findings through the Learning Hub Collaborative Intelligence platform to connect EPI stakeholders and partners.

Gaps in Available Data

The ability to monitor ZD and UI children at the subnational level is necessary to track progress towards national EPI goals, monitor program performance and ensure accountability to both donors and communities. IHME data is not suitable for tracking progress and performance at the subnational level while data quality, including unreliable estimates of surviving children under one at the district level, pose a major challenge with DHIS2.

National administrative data (DHIS2) from 2021 estimate Penta1 coverage at above 100 percent in Mali, resulting in a negative number of ZD children. However, the quality of administrative data can be problematic, evidenced by coverage rates of over 100 percent, which indicates an error in the documentation of the number of children receiving Penta1 vaccines and/or in the estimates of the total number of children. The DQA conducted as part of the rapid assessment uncovered significant gaps between different types of registers and forms used in the health facilities to record and report data and discrepancies when comparing data recorded in health facility registers and in DHIS2, with the latter being consistently higher. Despite these caveats, DHIS2 data can prove useful for monitoring progress in specific priority areas or facilities over time or for microplanning purposes.

IHME projections should help generate highly-specific geospatial estimates of immunization coverage for health workers and practitioners to combine with additional data to generate coverage estimates. IHME uses household survey data as well as national data and covariates of immunization (such as residence or mother’s level of education) when calculating estimates. Using this data, IHME models immunization coverage at a hyper-local level (a five-by-five kilometer area) and then incorporates additional higher-level data to model coverage estimates at the national, regional, and district levels. The resulting estimates provide more insight into the probable locations of ZD children within a country, but also include more assumptions and potential error than estimates derived from household surveys or administrative data. As such, IHME estimates can serve as a data source for tracking trends over time at the national and subnational levels and prove useful for data triangulation with DHIS2 and other sources. **Learn more:** [ZDLH Mali Zero-Dose Landscape](#).

Digital Platform

The Learning Hub has developed a collaborative intelligence platform to connect local EPI stakeholders and partners. This centralized platform will allow immunization stakeholders to share data and learning products—a mechanism to engage national stakeholders in the design, adoption, implementation, and monitoring of the ZD program in Mali. Some examples of planned learning products include webinars, policy briefs, briefing notes, infographics, case studies, and storytelling that translate and showcase the results from the rapid assessment and implementation research into useful and tailored information. This platform will play a critical role in enhancing data use, facilitating better tracking of immunization status, sharing information, and enabling targeted interventions.

Implementation Research

The Learning Hub proposes evaluating two supply-side interventions being implemented in Mali with Gavi support, e-LMIS and Coach2PEV, through its implementation research. The Learning Hub is currently finalizing the draft implementation research protocol. The team is developing the theory of change of the two selected activities:

- **Learning and performance management system:** How does the introduction of [Coach2PEV](#) as a performance management system help strengthen staff capabilities in achieving ZD children and missed communities? Coach2PEV is a digital formative supervision system based on performance coaching.
- **eLMIS:** Does Gavi’s support for innovation help Mali put in place logistics management information systems (Medexis) to reduce stock-outs which constitute one of the main causes of ZD and UI children? Facilities are using the eLMIS approach already for other health products in 26 districts in Mali, the majority of which are part of the 44 priority districts.

The Mali Learning Hub implementation research will include eight CSCOM in four districts prioritized for delivery of the Coach2PEV and eLMIS interventions. The eight selected CSCOM represent four ZD typologies: conflict, rural remote, urban/peri-urban, and special communities/other. Discussions are still ongoing to finalize the sites, tools, and protocol of the IR. The Learning Hub will finalize the research protocol in Q3 2024.

Table 6. Districts and Interventions

Type of Districts	Intervention	Districts	Health Area 1	Health Area 2
Urban/peri-urban	C2P	Commune VI	Asaconia	Asocoyir
Conflict zone	C2P	Yorosso	Karangana	Gouélé
Rural/remote	eLMIS	Niono	M’Bewani	N’Debougou
Other	eLMIS	Bougouni	Bougouni Ouest	Niamala

Monitor and Measure Interventions

Based on review of the *FPP Narrative 2023* and *Gavi Budgeting Reporting Template 2023*, Gavi-supported ZD Monitor and Measure interventions in Mali include conducting effectiveness and impact studies on strategies for immunization in conflict areas, urban vaccination strategies, digitization of birth registries, performance management systems, and integrating vaccine data into electronic logistics systems. These efforts also encompass periodic LQAS surveys, biannual vaccination data reviews, establishing accountability frameworks, coaching for EPI staff performance, supporting EPI Data Quality Groups, and conducting the SARA study, covering all 44 priority districts with a focus on conflict, rural/remote, urban/peri-urban areas, and various under-served populations. In conflict-affected districts, studies carried out by UNICEF, GaneshAID, Dalberg, WHO are evaluating the

effectiveness of ZD strategies tailored to these areas. Urban and peri-urban strategies include effectiveness studies focused on adapting and improving immunization delivery in major cities, while digital initiatives, such as the digitization of community birth registries, aim to enhance data accuracy and accessibility. For broader regional support, vaccine data integration into advanced electronic management systems and regular monitoring through various performance metrics ensure continuous improvement and accountability in immunization practices. Additionally, specialized approaches, such as coaching for healthcare staff and periodic quality assessments, support ongoing staff development and system efficacy across all priority districts. **Learn more:** [Annex 1. Gavi-Supported Zero-Dose Interventions in Mali](#).

Emerging Lessons and Learnings: Monitor and Measure

There’s a critical need for Mali to continually update its data sources and mechanisms, ensuring data triangulation and utilization to improve identification and targeting of ZD children. The Learning Hub’s efforts to examine and compare existing data sources highlight the importance of accurate and current data in strategizing and implementing interventions.

- **Integrated and coordinated data review process:** Integrate the process of capturing, analyzing, and utilizing data into the EPI system with coordination and backing from various stakeholders and partners. This collaboration should emphasize data aimed at reaching ZD communities in Mali.
- **Data-driven decision making:** Implement an evidence-based, decision-making system that allows country stakeholders to adapt its theory of change and FPP work plan according to the analyzed data.
- **Learning and evaluation:** Establishing methods for the monitoring, learning, and evaluation of pro-equity interventions is crucial. This involves assessing the level of implementation, challenges, best practices, and the capacity for scaling up successful interventions. The collaborative intelligence platform established will allow EPI stakeholders and partners to share data and learning products.

ADVOCATE

Strong political leadership is crucial for advancing immunization equity and sustaining progress through domestic financing. Targeted advocacy efforts are key to fostering and maintaining political will.

Table 7. Advocate Priorities and Activities

Advocate Priorities in Mali (EAF application)	Mali Learning Hub Advocate Activities
<ul style="list-style-type: none"> • Training CSO partners on gender and inclusivity challenges. • Organization of community sensitization sessions (<i>target populations: special populations —migrants, refugees, islanders, desert dwellers</i>). 	<ul style="list-style-type: none"> • Collaborative intelligence platform. • Co-creation processes with EPI.

Country Policies

Mali’s latest Plan Décennal de développement sanitaire et social (Ten-Year Health and Social Development Plan [PDDSS]) is the government’s main document for outlining immunization-related priorities. The PDDSS does not describe any strategies specifically targeting ZD children. However, strategies to achieve the broader immunization objectives include strengthening community-level health services by employing more community health agents who can respond to the social and cultural contexts of their service areas; establishing national quality standards for care at the health facility level; strengthening vaccine storage and management capacity at community-level sites; and introducing a national import mechanism for vaccines. The PDDSS places a strong focus on strengthening

community-level health systems as a strategy for reaching rural, sparsely populated and/or hard-to-reach areas, and nomadic communities for immunization. **Learn more:** [Mali Zero-Dose Landscape](#).

Advocate Interventions

Based on the *FPP Narrative 2023* and *Gavi Budgeting Reporting Template 2023*, Gavi-supported ZD Advocate interventions in Mali include training the CSO platform association de santé communautaire (community health association [ASACO]) on gender and inclusivity issues such as youth and disabilities, and organizing community theater sessions to sensitize community leaders and parents on the benefits of vaccines in all 44 priority districts, targeting conflict, rural/remote, urban/peri-urban areas, and various underserved populations including IDPs, migrants, nomads, islanders, and desert-dwellers. **Learn more:** [Annex 1. Gavi-Supported Zero-Dose Interventions in Mali](#).

Stakeholder Engagement Methods

Regular engagement with national stakeholders in Mali has included working together with the CNI and Mali EPI members to co-create a new innovative and collaborative platform through workshops to share and validate the terms of reference for a collaborative intelligence group. The Mali Learning Hub also worked in close partnership with the CNI and Mali's zero-dose group to plan and execute the rapid assessment. In the development of the study protocol, the Learning Hub held a workshop with the CNI and local stakeholders to pinpoint relevant data sources and indicators, understand barriers to reaching zero-dose children, and assess the administrative system. The CNI and members of the Mali's zero-dose group then reviewed and validated the protocol through virtual workshops, which played a crucial role in its ethical approval. An initial version of the rapid assessment report will be presented to the CNI and partners for national approval during the data reporting workshop scheduled for early 2024.

In planning for the implementation research, the CLH has employed a cooperative approach with the CNI to select learning questions from the FPP and to refine the study methodology. The CLH is additionally seeking to establish partnerships and coordinate with various stakeholders during the implementation research, including collaboration with HeRAMS to include their cold chain data into the study.

Leveraging Community Health Networks

The Learning Hub highlighted the importance of partnering with the Cluster Santé (Health Cluster) reflecting a strategic approach to leveraging existing community health networks. The Cluster Santé serves as a collaborative forum for health sector stakeholders, including United Nations agencies, organizations, and non-governmental organizations, who engage at the community level and convene in monthly meetings facilitated by WHO. The Mali Learning Hub is considering joining these monthly gatherings to enhance partnerships with other entities, particularly those operating in hard-to-reach areas, to facilitate gathering data for implementation research. Such partnerships are instrumental in extending the reach of immunization programs and ensuring that on-the-ground realities inform data collection efforts.

Emerging Lessons and Learnings: Advocacy

Successful strategies in reaching ZD children involve collaborative efforts among government entities, international organizations, NGOs, private sector, animal health (OneHealth) and community groups. Engaging with communities directly, especially through trusted figures like CHWs, traditional, and religious leaders, is crucial for overcoming vaccine hesitancy and misinformation. Tailoring communication and advocacy efforts to respect and incorporate local cultural beliefs and practices can enhance the acceptance and success of immunization campaigns. ZDLH will highlight emerging learnings and recommendations in future reports.

ANNEX 1. GAVI-SUPPORTED ZERO-DOSE INTERVENTIONS IN MALI

Grant	Implementer/ Sub-Recipient	Activity Description * > \$ 1 Million USD	Identify, Reach, Monitor, Measure, Advocate (IRMMA)	Level	Geographic Focus	Target Populations	Learning Hub Support
EAF	UNICEF	4.3.1 Deploy the electronic community immunization and birth registries in 15 priority districts.	Identify	District / local government areas (LGA)	Priority districts	Conflict, rural/remote, Urban/peri-urban, 1 refugee camp, other populations (island, IDPs, migrants, nomads, desert)	–
EAF	District Ministry of Health (MOH)	1.1.1 Engage the community in the development of microplans.	Reach	District / LGA	All 44 priority districts	Conflict, rural/remote, Urban/peri-urban, 1 refugee camp, other populations (island, IDPs, migrants, nomads, desert)	Findings from rapid assessment—barriers to equity and immunization.
EAF	District MOH	1.1.2 Support the validation of integrated microplans in the 15 health districts with the highest number of ZD children (2 days).	Reach	District / LGA	All 44 priority districts	Conflict, rural/remote, Urban/peri-urban, 1 refugee camp, other populations (island, IDPs, migrants, nomads, desert)	Findings from rapid assessment—target population and outliers (webinar); meeting with Gavi, HeRAMS and GaneshAID to discuss opportunities to use HeRAMS data.
EAF	District MOH	1.1.3 Organize mobile teams in the 6 districts located in conflict zones.	Reach	District / LGA	22 conflict districts	Conflict	–
EAF/ HSS	District MOH	1.1.4 Organize vaccination during weekends in the 10 major HSS priority cities.	Reach	Community	2 urban/peri-urban areas	Urban/peri-urban	–

Grant	Implementer/ Sub-Recipient	Activity Description * > \$ 1 Million USD	Identify, Reach, Monitor, Measure, Advocate (IRMMA)	Level	Geographic Focus	Target Populations	Learning Hub Support
HSS	District MOH	1.1.5 Organize the advanced strategy in remote villages within a radius of five kilometers.*	Reach	Community	10 rural/ remote districts	Rural/remote	–
EAF	District MOH	1.1.5b Organize monthly mobile clinics in the 10 prioritized districts with internally displaced populations.	Reach	Community	10 sub- population districts	Sub-populations (IDPs, migrants, nomads, islanders, desert-dwellers)	–
HSS	District MOH	1.1.6 Provide “rolling” logistics in the 13 priority island districts: 121 motorcycles (advanced strategy), 13 pinnacles (island areas), in inaccessible areas.	Reach	Community	10 rural/ remote districts	Rural/remote	–
EAF	District MOH	1.2.1b Integrate immunization into the community care package with an eligibility framework (strategy implementation).	Reach	District / LGA	22 conflict districts	Conflict	–
EAF	District MOH	1.4.1 Support ASACO (civil society organizations) in the management of at least 1 vaccinator.*	Reach	–	–	–	–
EAF	District MOH	2.3.3 Prioritizing successful health areas in the identification and reach of ZD and UI children, involves organizing honorary	Reach	District / LGA	All 44 priority districts	Conflict, rural/remote, urban/peri-urban, 1 refugee camp, other populations (island, IDPs, migrants, nomads, desert)	–

Grant	Implementer/ Sub-Recipient	Activity Description * > \$ 1 Million USD	Identify, Reach, Monitor, Measure, Advocate (IRMMA)	Level	Geographic Focus	Target Populations	Learning Hub Support
		recognition ceremonies including the (non-monetary) certificate to value motivated and efficient EPI staff.					
HSS	District MOH	3.3.2 Ensure the distribution of vaccines and consumables from the regional capital to hard-to-reach districts (Gao, Timbuktu).*	Reach	District / LGA	22 conflict districts	Conflict	–
EAF	Regional MOH	1.4.2 Partnering with NGOs and humanitarian agencies through civil society in areas of compromised security to support immunization activities (advanced strategies, mobile teams, and communication).	Reach	District / LGA	22 conflict districts	Conflict	Review of secondary data sources (HeRAMS and Armed Conflict and Location and Event Data) in conflict area to produce CAPEV security risk index and assess relationship between security, access, and coverage.
HSS	Regional MOH	6.3.1 Organize a workshop to develop communication operational plans for the 8 regions.	Reach	District / LGA	All 44 priority districts	Conflict, rural/remote, Urban/peri-urban, 1 refugee camp, other populations (island, IDPs, migrants, nomads, desert)	–
HSS	UNICEF	1.6.1 Extend in the 10 major cities of the routine immunization strengthening support priority districts, the model of women and men leaders (urban) tested	Reach	Community	2 urban/peri-urban areas	Urban/peri-urban	–

Grant	Implementer/ Sub-Recipient	Activity Description * > \$ 1 Million USD	Identify, Reach, Monitor, Measure, Advocate (IRMMA)	Level	Geographic Focus	Target Populations	Learning Hub Support
		in Bamako and rural community platforms to take into account gender issues to reduce ZD and missed children.*					
EAF	Dalberg	4.3.3. Conduct an effectiveness study on the Strategy for Strengthening Immunization Activities in Conflict Areas.	Measure	District / LGA	22 conflict districts	Conflict	Collecting learnings (with Dalberg) to disseminate via CAPEV platform.
EAF	Dalberg	4.3.6 Conduct an impact assessment of the capacity of governance and technical bodies to reduce ZD/UI.	Measure	District / LGA	All 44 priority districts	Conflict, rural/remote, Urban/peri-urban, 1 refugee camp, other populations (island, IDPs, migrants, nomads, desert)	–
EAF	GaneshAID	4.3.5 Conduct an implementation study in districts using performance management systems (Coach2PEV).	Measure	District / LGA	All 44 priority districts	Conflict, rural/remote, Urban/peri-urban, 1 refugee camp, other populations (island, IDPs, migrants, nomads, desert)	Planned implementation research on Coach2PEV— (GaneshAID).
EAF	UNICEF	4.3.2. Conduct an effectiveness study on the Urban Strategy in the 10 major cities including Bamako.	Measure	Community	2 urban/ peri-urban areas	Urban/peri-urban	–
EAF	UNICEF	4.3.4 Conduct an effectiveness study on the digitization of community birth registries.	Measure	District / LGA	All 44 priority districts	Conflict, rural/remote, Urban/peri-urban, 1 refugee camp, other populations (island, IDPs, migrants, nomads, desert)	Learnings disseminated through CAPEV.

Grant	Implementer/ Sub-Recipient	Activity Description * > \$ 1 Million USD	Identify, Reach, Monitor, Measure, Advocate (IRMMA)	Level	Geographic Focus	Target Populations	Learning Hub Support
HSS	Clinton Health Access Initiative	3.4.1 Integrate vaccine data into an existing electronic logistics information management system Medexis and interoperable with DHIS2.*	Monitor	District / LGA	All 44 priority districts	Conflict, rural/remote, Urban/peri-urban, 1 refugee camp, other populations (island, IDPs, migrants, nomads, desert)	Implementation Research on eLMIS (Medexis).
HSS	District MOH	4.1.3. Conduct periodic LQAS surveys against Gavi 5.0 LQAS indicators.*	Monitor	District / LGA	All 44 priority districts	Conflict, rural/remote, Urban/peri-urban, 1 refugee camp, other populations (island, IDPs, migrants, nomads, desert)	–
HSS	District MOH	4.2.1. Conduct the biannual review of vaccination data at the <i>District Sanitaire</i> level with diphtheria, tetanus, and pertussis.*	Monitor	District / LGA	All 44 priority districts	Conflict, rural/remote, Urban/peri-urban, 1 refugee camp, other populations (island, IDPs, migrants, nomads, desert)	Findings from implementation research and DQA should feed into routine data reviews.
EAF	District MOH	6.4.2. Establish accountability frameworks with community representatives to monitor implementation of commitments.*	Monitor	Community		–	–
HSS/ EAF	GANESHAID	2.3.2 Deploy coaching of performance of EPI staff via Coach2PEV an app for learning and performance management (online and offline) in the 15 districts with high ZD.	Monitor	District / LGA	All 44 priority districts	Conflict, rural/remote, Urban/peri-urban, 1 refugee camp, other populations (island, IDPs, migrants, nomads, desert)	Planned implementation research on Coach2PEV.

Grant	Implementer/ Sub-Recipient	Activity Description * > \$ 1 Million USD	Identify, Reach, Monitor, Measure, Advocate (IRMMA)	Level	Geographic Focus	Target Populations	Learning Hub Support
HSS	UNICEF	7.2.7 Support the EPI Data Quality Group at National and Regional Levels.	Monitor	District / LGA	All 44 priority districts	Conflict, rural/remote, Urban/peri-urban, 1 refugee camp, other populations (island, IDPs, migrants, nomads, desert)	Findings from DQA as part of rapid assessment to be used as part of EPI data quality review.
HSS	WHO	4.1.2 Conduct the Service Availability and Readiness Assessment (SARA) study.	Monitor	District / LGA	All 44 priority districts	Conflict, rural/remote, Urban/peri-urban, 1 refugee camp, other populations (island, IDPs, migrants, nomads, desert)	
EAF	District MOH	6.4.1. Train ASACO on gender and inclusivity issues (youth and disabilities).	Advocate	District / LGA	All 44 priority districts	Conflict, rural/remote, urban/peri-urban, 1 refugee camp, other populations (island, IDPs, migrants, nomads, desert)	–
EAF	GaneshAID	6.2.5 Organize community theater sessions to sensitize community leaders, fathers and mothers on the benefits of vaccines, especially at ceremonies and markets, so that CSOs can reach children (special population areas).	Advocate	Community	10 sub-population districts	Sub-populations (IDPs, migrants, nomads, islanders, desert-dwellers)	–

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JSI Research & Training Institute, Inc.
2733 Crystal Drive
4th floor
Arlington, VA 22202
USA

ZDLH website: <https://zdlh.gavi.org/>