WORKSHOP REPORT:

CLOSING IMMUNIZATION EQUITY GAPS USING HUMAN-CENTERED DESIGN APPROACHES

Madagascar

MOMENTUM Country and Global Leadership

USAID FROM THE AMERICAN PEOPLE

MOMENTUM A Global Partnership for Health and Resilience

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MOMENTUM works alongside governments, local and international private and civil society organizations, and other stakeholders to accelerate improvements in maternal, newborn, and child health services. Building on existing evidence and experience implementing global health programs and interventions, we help foster new ideas, partnerships, and approaches and strengthen the resiliency of health systems.

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ABBREVIATIONS

AMELP	Activity Monitoring, Evaluation, and Learning Plan
FP/RH	Family planning/Reproductive health
IL	Innovations and learning
IR	Intermediate result
KII	Key Informant Interviews
KM	Knowledge management
MCSP	Maternal Child Support Program
M&E	Monitoring and evaluation
MEL	Monitoring, evaluation and learning
MNCH	Maternal, newborn, and child health
PIRS	Performance Indicator Reporting Sheets
PY	Project year
SC	Strategic communications
STIR	Science, Technology, Innovation, Research
USAID	United States Agency for International
XM	Development cross-MOMENTUM

1. INTRODUCTION

In Madagascar, 33% of children 12–23 months of age are zero dose, and these children suffer a higher risk of poor health outcomes. According to the World Health Organization (WHO) and United Nations Children's Fund (UNICEF), there were approximately 462,000 zero dose children in Madagascar in 2021.[1] Additionally, in 2021, coverage of the BCG vaccine, which is given at birth, declined to 53% (from 72% in 2020)—meaning that nearly 1 in 2 children is missed by vaccination at birth.[2] The percentage of zero dose children in the 2021 national immunization coverage survey (NICS) for Madagascar was 18% and the WHO/UNICEF estimates of national immunization coverage for the same year was 33%.[3] Improving equity by targeting the many children not yet reached by immunization systems will require identifying new strategies and approaches.

Zero dose children are those children who have never received a vaccination and are therefore entirely missed by the Expanded Programme on Immunization (EPI) system and potentially the health system. Birth dose immunization refers to the vaccine(s) received immediately after birth and highlights the opportunity to better integrate maternal, neonatal, and immunization services. Operationally, zero dose can be defined as children 12–23 months who have not received the first dose of the pentavalent vaccine.

It's important to understand the un- and under-vaccinated population in Madagascar, the barriers they face, and the tools that can be leveraged to reach them. To achieve this, the immunization team of the MOMENTUM Country and Global Leadership project (MOMENTUM) conducted key informant interviews (KIIs) with: key EPI and hospital managers at national, regional, and district levels; health facility routine immunization and maternal, newborn, and child health service providers; community health workers; community leaders; and caregivers. The KIIs elicited solutions from the respondents, and focused on **four areas** that, if addressed, can close gaps in immunization equity: 1) zero dose vaccination, 2) birth dose vaccination, 3) missed opportunities for vaccination (MOV), and 4) urban vaccination. Assessing urban immunization will help in understanding the unique barriers that families in poor urban areas face in accessing vaccine services, as well as what the opportunities are to leverage platforms and partnerships beyond the health sector to achieve immunization equity goals. Lastly, understanding MOV will help identify approaches to better connect children who are seen in health facilities with immunization services. This work highlights important opportunities to integrate immunization services into other health services.

However, to generate a co-creative solution to barriers or challenges in the four pro-equity areas, there was a need to bring together key immunization stakeholders at one location for design sessions so the stakeholders own their solutions and ensure it they are implemented in a sustainable manner. Hence aa four-session human-centered design (HCD) workshop was held addressing the four different pro-equity areas of zero dose, birth dose, MOV, and urban vaccination.

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[1] World Health Organization and United Nations Children's Fund. (2021). *WHO/UNICEF estimates of national immunization coverage*. https://www.who.int/teams/immunization-vaccines-and-biologicals/immunization-analysis-and-insights/global-monitoring/immunization-coverage/who-unicef-estimates-of-national-immunization-coverage.

[2] Ibid.

[3] The disparity between the two data sources is due to the different methodology applied in arriving at the coverage value. NICs is a national survey, while the WHO/UNICEF number is an estimation derived yearly from the triangulation of immunization coverage from administrative data, surveys and government estimates.

2. WHO SHOULD USE THIS REPORT

This report is meant to be used by the EPI team, including partners and donors, at national, regional, and district levels (Antananarivo and Moramanga districts), as well as other health program officers at the Ministry of Public Health (MoPH) in Madagascar. This report will also be shared with MOMENTUM teams at the headquarters and the immunization focal persons at USAID headquarters and the USAID Mission in Madagascar. The purpose of sharing this report with these stakeholders is to stimulate discussions on how to reach the zero dose children and zero dose communities to ultimately improve routine immunization performance in the country.

3. OBJECTIVES AND EXPECTED OUTCOMES

3.1. OBJECTIVES

1. To identify barriers or challenges to reaching zero dose children, reducing MOV, and improving birth dose vaccination and urban poor immunization, through HCD sessions with selected EPI managers at national, regional, and district levels; health facility immunization and non-immunization service providers; community health workers; community leaders; and caregivers.
2. To generate and compile creative solutions to the identified barriers to reach zero dose children, birth dose vaccination, MOV, and urban poor immunization, and share with EPI managers and partners in Madagascar for operationalization.

3.2. EXPECTED OUTCOMES

1. Barriers and challenges identified to reaching zero dose children, reducing MOV, and improving birth dose vaccination and urban poor immunization.
2. Creative solutions from the HCD workshop compiled and shared with EPI managers and partners in Madagascar for operationalization to reach zero dose children, reduce MOV, and improve birth dose vaccination and urban poor immunization.

3.3. PARTICIPANTS AND FACILITATORS

Workshop facilitators included: Five national EPI representatives, three MOMENTUM staff in Madagascar, and two MOMENTUM staff from Baltimore, USA. Participants included:

- Two regional EPI managers
- Two district EPI managers
- 40 health facility immunization service providers (10 per location)
- 20 community leaders (five per location)
- 20 caregivers (five per location)
- Two civil society organization (CSO) representatives
- One representative from UNICEF

4. METHODOLOGY

4.1. PLANNING MEETINGS

MOMENTUM teams in Madagascar and Baltimore met several times to plan for the HCD workshop in Antananarivo and Moramanga districts of Madagascar. There were two teams of facilitators. A team was assigned to a district, and each team comprised MOMENTUM members and national EPI representatives. A note taker was assigned to a team of facilitators to assist with note taking during the workshop and compilation of the final output from the workshop.

The facilitators in Moramanga district had a planning meeting with the district EPI managers a day prior to the workshop to ensure adequate preparation was in place. However, the Antananarivo facilitators were only able to hold a planning meeting in the early hours of Day 1 of the workshop in Antananarivo, because of conflicting program priorities. This led to delayed commencement of Day 1 of the workshop in Antananarivo district.

4.2. LOCATION AND DELIVERY STRATEGY

The HCD workshop was conducted in two districts, Antananarivo and Moramanga. These districts were selected from the list of 41 districts with the highest number of zero dose children in the country, and in collaboration with the EPI, as well as MOMENTUM in Madagascar.

In these districts, MOMENTUM conducted KIIs in four pro-equity areas of zero dose, urban immunization, birth dose, and MOV. The HCD workshop was conducted over four sessions (two sessions per district). MOMENTUM working with the district EPI managers from Antananarivo and Moramanga identified suitable venues within the districts for the workshop. The workshop lasted for three days per session in a given location. The workshop sessions were conducted between October 17–22, 2022 as indicated in the table below.

TABLE 1: LOCATION, SITES, AND DATES FOR THE HCD WORKSHOP

Districts	Session of Workshop	Area of Focus: Pro-equity Area	Dates
Moramanga	1	Urban Immunization	17–19 October
Antananarivo	2	Zero Dose	17–19 October
Moramanga	3	Birth Dose	20–22 October
Antananarivo	4	Missed Opportunity for vaccination	20–22 October

4.3. AGENDA

The outline of the agenda for the three-day workshop sessions was as follows. (The detailed agenda can be found in the annex).

DAY 1:

1. Presentation of key findings from KIIs based on a pro-equity area conducted in a district
2. Synthesis and analysis of information from the KIIs
3. Identification of key challenges/barriers to reaching the un-reached children in the communities, referring to other sources of data aside from the KIIs (e.g., surveys, supportive supervisory findings, monitoring, and life experiences on the field)

DAY 2:

1. Recap of Day 1
2. Generation of ideas to address the key challenges identified
3. Selection of key ideas
4. Prototype design for each idea

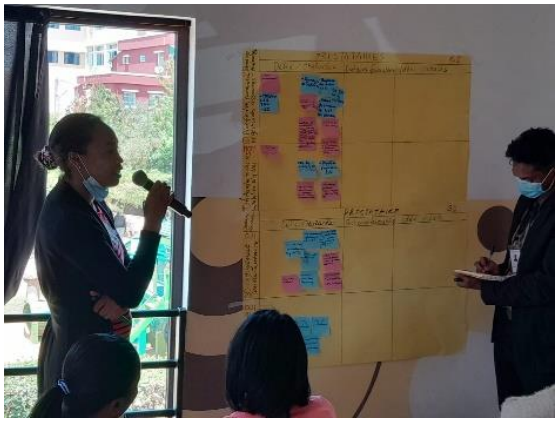
DAY 3:

1. Recap of Day 2
2. Prototype testing and evaluation
3. Collation of key challenges or barriers based on agreement/feedback
4. Collation of solutions or ideas based on final challenges or barriers
5. Collation of prototypes to ideas or solutions
6. Next steps

The modes of delivery of the workshop sessions were: presentations, group exercises, plenary, and discussion. Items used at the workshop were: flip charts, boards, markers, writing notes for each participant, pen for each participant, hired projector, and printer and photocopier.

4.4. TEMPLATE FOR DOCUMENTATION AT THE WORKSHOP

A template was designed to document current practices in reaching zero dose vaccination children, urban immunization, birth dose vaccination, and MOV, as well as the key challenges, enablers, and initial ideas or solutions for each persona. The personas at each of the sites of workshop were: EPI managers (national, regional and district); health facility service providers; community leaders and caregivers; and representative of CSOs. There were four groups, with each group representing a persona.



Each group made a presentation at plenary. Presentations were discussed, and feedback provided to each group. The groups then incorporated the feedback into their work and submitted the final work to the note taker, who compiled all of the work into a template. Once compiled, it was further reviewed, edited, and formatted by the MOMENTUM team in Madagascar and Baltimore, USA.

4.5. WORKSHOP EVALUATION.

An evaluation of the workshop was carried out by the participants on the last day of the workshop. Participants were asked to provide feedback on what went well, what did not go well, and make recommendations. A compilation of the feedback is as shown below.

1. WHAT WORKED WELL:

1. Presence of competent facilitators and trainers, who had good knowledge of the topics discussed. They guided discussion in the workshop well.
2. The workshop was more participatory, as more time was given to group work and discussion. There was an in-depth probe of problems.
3. The workshop provided an opportunity for participants to understand the concept of personas and the views on immunization services, and stimulated discussion on the barriers and ideas on demand and supply of the immunization service to reaching the zero dose children and communities. It was an opportunity for a co-creation of ideas or solutions by the personas to identify problems.
4. The workshop was excellently organized and conducted, and materials were sufficient.

2. WHAT DID NOT WORK WELL

1. Poor time management.
2. Many thematic areas to be addressed for zero doses.
3. Poor quality of food.

3. RECOMMENDATIONS

1. In subsequent workshops, involve mothers of un- and under-vaccinated children, religious leaders, and private health facilities and other CSO entities.
2. Extend each training session to four or five days to have effective ideas.
3. Stick to four themes per program area of intervention per workshop.
4. Scale up the workshop so all districts of Madagascar benefit from the HCD approach.
5. There should be a workshop every three months.
6. Training of EPI team on zero dose concept and the strategies.

4.6. FACILITATORS EVENING MEETING

Every evening, facilitators met to review and discuss what went well and what did not go well. Issues encountered during the day raised were discussed and solutions given for better performance the next day.

5. WORKSHOP FINDINGS

A template was used by the participates to report on: 1) key challenges to zero dose vaccination, birth dose vaccination, urban poor immunization, and reducing MOV; 2) what the enablers are; and 3) initial ideas or solutions to the identified challenges identified by each persona and for each thematic area of each pro-equity area. The personas reported on this template in Malagasy, and the note taker assigned to each team of facilitators translated from Malagasy to French and then to English. The English version was reviewed and finalized by the MOMENTUM immunization team.

Some key challenges with zero dose vaccination, urban poor immunization, birth dose vaccination, and MOV include:

1. Zero dose concepts are poorly understood and there are no special strategies in place to reach zero dose children and communities.
2. The urban immunization vaccination approach is not well understood by the personas, despite the ongoing urban immunization supported by UNICEF.
3. There is no birth dose strategy guideline for vaccination at birth.
4. The concept of MOV is new to health care managers and providers; moreover, there is no MOV policy in place.

Key solutions to the challenges and how to carry out the solutions per thematic areas as proposed by the stakeholders are in the table on the following pages.

TABLE 2: PRO-EQUITY AREA: ZERO DOSE

Thematic Area	Challenges	Solutions	How to Carry Out the Solutions
1. Identify zero dose children and zero dose communities	Health care providers are not trained on zero dose identification	Development of a training for EPI managers and immunization service providers on how to identify zero dose children	1. Identify partners to finance the activity 2. Request sponsorship from donors 3. Develop concept note on zero dose identification training 4. Develop zero dose identification manual with technical partners 5. Validate the manual with the Ministry, Health Promotion Directorate, Directorate of Studies and Planning of the Information System (DEPSI) 6. Identify people to participate in the development of the zero dose manual 7. Develop and distribute the manual
	No register of newborns at the fokontany level	Creation and provision of registers or registration books at the fokontany level	1. Organize a meeting between fokontany chief, community agents, matrons, and basic health center (CSB) 2. Provide matrons and fokontany chief with recording books 3. Create together a standard model for all (surname-first name-address, etc.) 4. Advocate with the MoPH and technical and financial partners for the establishment of the standard register 5. Design and print register for newborn (with immunization status) at the fokontany
	Inadequate integration of immunization with private and public schools	Standardization of the right of entry to school: requirement of a vaccination diploma when children go to school	1. Collaborate between the MoPH and the Ministry of National Education (MoNE) 2. Request a ministerial note from the MoNE (vaccination status + compulsory diploma at school entry)
2. Reach/Access to vaccination (geographical, political, cultural etc.).	Poor boundary demarcation of CSBs (catchment areas)	Well-defined and well-studied sectorization (areas to be attached to the health center)	1. Hold a meeting between the CSB and the fokontany chief 2. Advocate with technical and financial partner for the financing of meetings (e.g., rooms to make the meeting) 3. CSB routine immunization service providers, working with community agents under them and assisted by the fokotany chief, develop lists of the fokontany they are serving and agree on the right immunization delivery strategies for each fokontany (microplan)

Thematic Area	Challenges	Solutions	How to Carry Out the Solutions
	Inadequate capacity of EPI managers and health workers on reaching every child	Capacity building on reaching every child microplan development	1. Train EPI managers and immunization service providers about reaching every child microplan development 2. Identify source for funding among partners 3. Engage the fokontanies in the microplan development
	Lack of registry of zero dose children by the community leaders	Registry monitoring	1. Health care providers conduct door-to-door visits to register the names of zero dose children 2. Health sensitizers report to fokontany chief the number of zero dose children for each area 3. Design and print register for newborn (with immunization status) at the fokontany
	Lack of sensitization of religious leaders in the communities	Bringing together the different sects and informing them about state programs	1. Fokontany chiefs send invitation to relevant religious leaders, including date, time, topic to be discussed at the meeting 2. CSB chiefs, fokontany chiefs, and relevant religious leaders (pastor or representative) attend the meeting 3. In turn, religious leaders communicate to the faithful in their churches
3. Private health facilities engagement in immunization	Inadequate engagement or involvement of private health facilities in immunization activities	Advocacy with the first person in charge of private health training	1. Update the census of private health facilities 2. Identify private health facilities eligible for vaccination activities 3. Support private health facilities to develop a monthly routine immunization session plan 4. Train health care workers at private health facilities 5. Supervise activities by the district public health unit (aka SDSP) 6. Make recommendations at each level
	Outreach not conducted by private health facilities	Directive on the implementation of advanced strategy (outreach sessions) at the level of private health training	1. Organize a meeting on the design of feasibility criteria for an advanced strategy at the private sector level, on advocacy documents with partners of other programs (e.g., Family Health Directorate, technical and financial partners) 2. Organize a meeting with the private health facilities 3. Identify the number of private sectors involved in vaccination 4. Send directives to the Regional Directorate of Public Health, SDSPs, and CSBs

Thematic Area	Challenges	Solutions	How to Carry Out the Solutions
4. Advocate for/ demand services/ community engagement	Lack of mobilization of local partners for financing of immunization	Meeting of local authorities on vaccination	1. Conduct high-level advocacy for funds for immunization in hard-to-reach communities 2. The EPI Department (DPEV) to conduct a resource mobilization workshop to fund immunization activities in hard-to-reach communities in districts 3. Conduct mapping of hard-to-reach communities and cost implications for immunization in these communities 4. Identify partners who will finance the activity 5. Identify local authorities to participate in the development of operational plan 6. Develop costed operation plan indicating funding partners 7. Continuously engage local partners in planning, coordination meetings, and monitoring and supervision of activities
	Lack of cooperation between fokontany chief and head of CSB	Regular meetings between heads of CSBs and fokontany chiefs	Hold meetings at the beginning of each month between heads of CSBs, outreach leaders, and fokontany chiefs
5. Measure, monitor, and use data for action	Health care providers are not trained on monitoring and using data for action	Training of health care providers on monitoring and using data for action and identification of zero dose communities	1. Involvement of participants in practical vaccination training 2. Develop a request for training 3. Train health workers on zero dose analysis and operational plan development 4. Provide supportive supervision 5. Preparation of the supervision report 6. Develop recommendations to be followed after supervision 7. Implement recommendations for action
		Use of data to track zero dose children by the community	1. Heads of CSBs provide names of zero dose children to the community volunteers and fokontany leaders every month 2. Heads of CSBs hold monthly meetings with community volunteers and fokontany leaders to discuss efforts/strategies to track zero dose children
6. Integration with other health interventions/ programs	Insufficient cooperation between EPI and other programs	Request for collaboration with other entities (NGOs, MoNE) on integrating immunization with other interventions	1. Identify focal persons for other health programs in the CSBs to agree upon the right strategies/plan to integrate immunization with other interventions 2. Hold meeting with other ministries and NGOs on integration with other programs 3. Monitor the implementation of integration activities with other integrations at the operational level (CSBs and SDSPs) 4. Implement prescribed recommendations

Thematic Area	Challenges	Solutions	How to Carry Out the Solutions
7. Integration with nutrition interventions/ program	Non-existence of nutrition services in most CSBs	1. Assessment of integration of nutrition and immunization services in CSBs that have done it 2. Integration of nutrition services in CSBs that have not yet done it	1. DPEV/MOMENTUM to conduct an assessment of integration of immunization and nutrition where CSBs have integrated these services to understand what is taking place and why, and any enabling factors, barriers, and lessons learned 2. Conduct workshop on integration of immunization and nutrition services and commodities to develop road map/operational plan and standard operating procedures 3. Train health workers in all health facilities on integration of immunization and nutrition services 4. Conduct monthly meetings between immunization and nutrition officers at district and health facility levels 5. Hold quarterly coordination meetings at the national and regional levels 6. Collaborate between immunization program and food programs
8. Market vaccination	Market-level vaccination is not yet well-defined in Madagascar	Development of market-level guidance on vaccination	1. Identify partners who finance the activity 2. Identify participants to develop guidelines on vaccinations on the market 3. Develop directives on vaccination at the market 4. Send directives to each administrative health level (regional, district, CSB) 5. Follow up
		Vaccination outreach at market level	1. Obtain authorization at the hierarchical level (fokontany and commune) 2. Meet with market managers to request space or site for vaccination at the market 3. Plan for vaccinations at the market with the necessary equipment
		Dialogue between fokontany chiefs, health workers, and market managers	Fokontany chiefs inform market managers a week in advance of each market vaccination activity, so that the vaccination at market level can be done

TABLE 3: PRO-EQUITY AREA: URBAN IMMUNIZATION

Thematic Area	Challenges	Solutions	How to Carry Out the Solutions
1. Planning, coordination, and management of resources	Inadequate number of health workers	Recruitment of health workers by the MoPH and technical and financial partners, as permanent or contractual staff	1. Establish the human resource needs of the CSBs 2. Adapt the number of (vaccination) providers according to the populations served 3. Send the line manager a request to meet the identified human resource needs, along with proposed names of volunteers 4. Follow up on the request with the human resources department
	Poor motivation of health workers	Motivation of service providers in the long term per standards (material and financial)	1. Provide travel/transport allowances for outreaches, open recognition of high performing staff, reward of performance, appreciation letters, and promotion (this should be costed in annual workplan) 2. Partners advocate with MoPH to consider incentives to motivate health workers
	Poor or lack of visibility of immunization sites or centers	Posting of clear, legible posters about vaccination at SDSP and fokontany offices	Request posters to be posted in high-traffic areas
	Non-engagement of community leaders or agents in planning for outreaches in the community	Plan for outreach (advance strategy)	1. Hold meeting between community workers, health workers, and fokontany chief 2. Conduct sensitization of parents through community agents 3. Inform parents about the dates and days of planned vaccination (post calendar in the fokontany offices) 4. Health workers then approach parents to provide the vaccination
2. Reaching all eligible populations (human resources, service delivery, vaccines, and logistics)	Lack of mass mobilization of the public on immunization	Raising awareness through media and mass communication (CSO Radio Station).	1. Develop spots about routine vaccination with CSO Radio Station 2. Conduct social mobilization 3. Advocate with the authorities concerned 4. Plan the broadcast of mass communication spots 5. Monitor the implementation of awareness raising activities
	Lack of planning to reach homeless people	Identification of the homeless (0 to 5 years)	1. Collect data on the homeless 2. Analyze vaccination data 3. Submit vaccination data to local authorities 4. Ensure division of labor between health workers and the community 5. Conduct census and identify the homeless 6. Plan vaccination campaign to reach the identified homeless people

Thematic Area	Challenges	Solutions	How to Carry Out the Solutions
	Inadequate community sensitization of immunization	Community sensitization meetings	1. Providers conduct community sensitization meeting with district supervisor present 2. Include testimony of other mothers during sensitization (i.e., mothers who have immunized their kids speak during sensitization session)
	Inaccurate census population or figure	Census redesign for children under five	1. Make an annual count of children under five 2. Conduct micro planning to be validated by the DPEV/SDSP 3. Involve health workers, fokontany chief, and communal agent 4. Make a count by sector accompanied by the head of the sector (over period of 15 days, with daily allowances as follows: health worker: 40,000 AR for health workers and 30,000 AR for fokontany chief and community agent)
3. Integration with other urban health and non-health interventions/ programs	Lack of involvement of the private sector	Strengthened collaboration with private health facilities attached to the CSB	1. Identify the private health facilities attached to the CSB 2. Visit private health facilities to advocate for vaccination
	No integration of immunization activities with other social programs	Regularly inquiry about social activities with the integration authority	1. Identify NGOs participating in social activities 2. Carry out vaccination activities with social activities
	No collaboration with local establishments	Request for sponsorship from local companies	1. Conduct mapping of local businesses 2. Hold a meeting at the relevant CSB to present the vaccination situation to the local companies to present needs 3. Establish the sponsorship request according to agreements
		Coordination meeting with other entities	1. Identify the entities concerned (e.g., schools, churches, markets, traditional healers, private health training, NGO) 2. Conduct advocacy with relevant entities 3. Request collaboration with the entities concerned 4. Ensure feedback between CSBs and relevant entities

Thematic Area	Challenges	Solutions	How to Carry Out the Solutions
	No inter-ministerial collaboration on immunization	Interdepartmental collaboration	1. Advocate at the level of other ministries 2. Develop terms of reference with the inter-ministerial committee for the vaccination of children in urban poor areas. 3. Hold meeting between the various ministries (MoNE, the Ministry of Population, Social Protection, and the Promotion of Women, etc.) 4. Put in place an inter-ministerial action plan for the vaccination of zero dose children 5. Ensure continued inter-ministerial cooperation for mutual assistance on immunization 6. Introduce the vaccination item in the new "fokontany booklet" (neighborhood diaries) that are about to be digitized
4. Community engagement activity and motivation of community efforts	Insufficient advocacy to APART (religious and traditional administrative political authority)	Motivation of APART according to vaccination performance	1. Establish performance criteria for APART in routine immunization 2. Evaluate the performance of APART 3. Specify the types of motivation 4. Search for and identify sponsorship 5. Establish the state of distribution of motivations 6. Provide a new register per community agent (updated register)
5. Supportive supervision	Lack of integrated supervision	Provision of integrated supervision	1. Organize a meeting of primary health care program managers to commence discussion on possible areas of integration (and define the integration) 2. Hold working meeting to revise supervision guidelines (review and understand the current challenges with the supportive supervision process, quality and tool, in order to come up with guidelines that address all the issues and provides guide on integration) 3. Field test the new supervision guidelines 4. Finalize the supervision guidelines by inserting inputs based on field test feedback 5. Submit request for training on integrated supervision for health workers 6. Train supervisors on integrated supportive supervision 7. Monitor and evaluate integrated supportive supervision
6. Monitoring and data use	Insufficient data analysis skills among health workers	Training on data analysis and use for action	1. Identify participants and trainers for training on data analysis and use. 2. Submit request for training to the Directorate of Service Delivery 3. Conduct training 4. Monitor the effectiveness of the application of learning from the training on data analysis and use

Thematic Area	Challenges	Solutions	How to Carry Out the Solutions
	Too many paper-based management tools to fill	Computerization of immunization registration	1. Submit request for technical assistance for the computerization of vaccination data at the level of health centers (e.g., from the DPEV) 2. Provide computer equipment

TABLE 4: PRO-EQUITY ZONE: BIRTH DOSE VACCINATION

Thematic area	Challenges	Solutions	How to Carry Out the Solutions
1. Birth dose vaccination strategic guidelines	Lack of birth dose vaccination guidelines	Development of birth dose strategic guidelines and distribution across all levels	1. Organize all stakeholders and hold a four-day working session to develop the birth dose immunization strategy/guidelines 2. Regional and district coordinators ensure that the strategic guidelines are made available to all health facilities 3. Provide free consultations or other incentives to parents who have given their child all birth doses of vaccines
2. Health facility deliveries and vaccination of newborns (at birth)	Lack of vaccination of newborns in labor and maternity wards	Pre-position of vaccines at labor and postnatal wards	1. Train immunization officers on stock management to ensure that stock-outs are detected early, and new stock is requested on time 2. Pre-position vaccines at labor wards and postnatal wards
	Vaccinations are only given on scheduled dates	Provision of daily vaccination	Inform the vaccination service to hold vaccination activities daily
	Fear of vaccines wastage; since BCG comes in vial of 20 doses, health facilities resist opening a vial to vaccinate a single child	Reduction of doses in a vial (e.g., one vial contains five doses)	1. Advocate at the national level for the provision of 20-dose- vials 2. Train immunization officers on the use of multi-dose vials 3. Institute a multi-dose policy in the health facilities

Thematic area	Challenges	Solutions	How to Carry Out the Solutions
	Weak collaboration between immunization officers and matrons	Strengthening of the collaboration between immunization service providers and matrons	1. District EPI managers to organize a meeting with the officers in charge of vaccination and postnatal services/matrons 2. Create a reporting system where all children visited by the postnatal service will have their vaccination status checked 3. Open a register at the level of the matrons for the referral of children for birth dose immunization
	Inadequate knowledge of health workers on birth dose vaccination	Capacity building of health workers around birth dose vaccination	1. Train all regional EPI managers and all health facility service providers including matrons in practical EPI, cold chain, and management tools for recordkeeping, such as the Monthly EPI Activity Report 2. Discuss birth dose vaccination at monthly review meetings 3. Provide annual refresher course
3. Integration of immunization with other health services, including nutrition services	Integration of EPI activities into other programs is not a habit or practice Insufficient staffing	Monthly integrated meeting	1. Implement a system of coordination between all existing staff at the health facility level 2. MoH to provide guidelines on integration of primary health care services 3. Each health facility to organize facility-based workshop to develop operational plan for integration of services at the health facility 4. EPI managers at the district and region participate in the facility-based workshop
4. Community mobilization	Lack of awareness of birth dose vaccination among the population	Awareness raising	1. Raise awareness of vaccination and health care offered in the CSBs, during quarterly community meetings and home visits in collaboration between health workers, community workers and local authorities, and also during cultural events (e.g., radio crochet, sketch) 2. Health workers raise awareness on birth dose among community workers, local authorities, and matrons through local announcements and radio

TABLE 5: PRO-EQUITY AREA: MISSED OPPORTUNITY FOR IMMUNIZATION

Thematic area	Challenges	Solutions	How to Carry Out the Solutions
1. Planning and coordination	Lack of national policy on MOV	Development of national policy for MOV	DPEV to set up a three-day workshop with all stakeholders, using available data, to develop the MOV policy
	Weak/lack of collaboration or referral between immunization and other services	Inter-service or department collaboration system	1. Organize an orientation meeting with all heads of departments to orient them on integration with immunization service 2. Organize a monthly meeting between the immunization service and other services (care, hospitalization, family planning, etc.) to analyze MOV and design strategies in reducing MOV
	Lack of health facility MOV plan	Develop health facility-specific MOV action plans	District EPI managers to bring together all members of the health facility in a one-day workshop to develop a health facility MOV action plan
2. Collaboration between immunization providers and health care providers in outpatient and inpatient departments, and between antenatal care providers and maternal health care providers in labor wards and postnatal services	Inadequate training on integration of immunization services and other services among health care providers	Training of health care providers	1. Organize facility-based workshop between department/unit heads in health facilities to develop plans for integration of services and commodities between departments/units 2. MoPH to develop guidelines on integration of services and commodities at the health facilities/hospitals 3. Training of all health care providers on integration of services at health facilities/hospital
	Inadequate or no communication between provider and hospital services	Regular monthly meetings	
	Providers not accustomed to checking vaccination status (risk of invalid dose)	Training of health care providers	

Thematic area	Challenges	Solutions	How to Carry Out the Solutions
3. Collaboration with other health services (e.g., nutrition service, consultation, circumcision specialist)	Lack of collaboration mechanism in the health facilities	Monthly integration meeting	Head of health facilities to initiate platform for inter-service collaboration in their health facility
	Lack of motivation and training of health workers	Monthly workshops	Train all department heads and staff on inter-service collaboration
	Work overload	Task shifting and task sharing	Develop a simplified guide and tool that can enable other services to practice task sharing and task shifting at health facilities
4. Supportive supervision	Inadequate/lack of supportive supervision	Frequent supervision across all levels Creation of electronic platforms for supportive supervision reporting	1. Managers work with all stakeholders to put in place the resources for effective supervision 2. Provide the supervision team with the relevant supervision tools 3. Digitize data management tools for real-time supportive supervision reporting
5. Community engagement	Community leaders or members are not aware of MOV interventions or strategies and their roles	Community leaders to create awareness on MOV in the community	1. Provide community leaders with the information about MOV to create awareness in the community 2. Invite community leaders to monthly review meetings at CSBs

6. SWOT ANALYSIS OF HCD WORKSHOP

6.1. STRENGTHS

- Participation of DPEV leadership at national, regional, and district levels in the planning and coordination of HCD workshop sessions at Antananarivo and Moramanga districts
- Provision of translators attached to non-French speaking facilitators
  - Logistical and administrative support provided by Jhpiego office in Madagascar
  - Participation of community leaders
  - Participation of CSOs

6.2 CHALLENGES

- Language barrier for the non-French facilitators, despite the presence of translators, making the sessions require additional time for translation

6.3 THREATS

- Several competing activities distracted some of the national, regional, and district managers at the workshops

6.4. OPPORTUNITIES

- Existence of non-health ministries for integration of services
- Existence of food programs in the country for integration with immunization
- Existence of radio stations owned by CSOs that are ready to provide free services for immunization

7. CONCLUSION AND WAY FORWARD

The HCD workshop provided a platform for key immunization stakeholders in Antananarivo and Moramanga to come together to brainstorm on the challenges with zero dose vaccination, birth dose vaccination, urban poor immunization, and MOV in their districts and collectively co-designed ideas or solutions to address these challenges.

The proposed way forward is:

1. EPI team in Antananarivo and Moramanga to call a meeting with heads of all CSBs to deliberate on how to implement the co-designed solutions in the districts.
2. The national EPI managers to call for a review meeting of immunization partners in the country to review the outcome of the HCD workshop and identify solutions from the list of proffered solutions that can be scaled up to the remaining 41 districts with highest number of zero dose children. DPEV should engage partners outside immunization, both within and outside the health sector, that are vital to reaching zero dose children in Madagascar.
3. In addition, national EPI managers to consider carrying out HCD workshops in the remaining 41 high-priority districts in Madagascar.
4. MOMENTUM immunization team to review the findings from the HCD workshop to identify solutions or activities they can implement that are covered or can be accommodated in their Year 4 workplan and budget.

ANNEX: AGENDA FOR HUMAN-CENTERED DESIGN WORKSHOP

DAY 1						
Session #	**Time**	**Duration**	**Topic**	**Methods**	**Responsible Person Group A**	**Responsible Person Group B**
1	8:00–8:30	30 min	Registrations		All	All
2	8:30–8:35	5 min	Opening prayers		Volunteer	Volunteer
3	8:35–9:00	25 min	Self-introduction		All	All
4	9:00–9:05	5 min	Welcome remarks		District EPI Manager	District EPI Manager
5	9:05–9:15	10 min	Remarks by partners			
6	9:15–9:20	5 min	Opening remarks		Regional EPI Manager	Regional EPI Manager
7	9:20–9:30	10 min	Workshop objectives and expected outcomes	Presentation	Tahina	Chizoba Wonodi/ Mbianke
8	9:30–10:00	30 min	Tea break			
9	10:00–10:20	20 min	1. Presentation of key findings from KIIs, based on a pro-equity area conducted in a district	Presentation	JeanPierre Rakotovoa	Tokinirina Raveloarison
10	10:20–10:30	10 min	Discussions	Discussion		
11	10:30–10:45	15 min	Recap on discussion on key findings from KIIs		JeanPierre Rakotovoa	Tokinirina Raveloarison
12	10:45–13:00	135 min	2. Identification of key challenges/barriers to reaching the un-reach children in the communities. (Referring to other source of data aside the KII-e.g., surveys, supportive supervisory findings, monitoring, and life experiences on the field).	Discussion	Dr. Zo/Tahina/Daniel Ali/ Partner	Tokinirina Raveloarison/ Mbianke Livancliff/ Partner
13	13:00–14:00	60 min	Lunch/prayer			

DAY 1						
Session #	**Time**	**Duration**	**Topic**	**Methods**	**Responsible Person Group A**	**Responsible Person Group B**
14	14:00–15:45	105 min	3. Identification of key challenges/barriers to reaching the un-reach children in the communities. (Referring to other source of data aside the KII-e.g., surveys, supportive supervisory findings, monitoring, and life experiences on the field).	Discussion	Dr. Zo/Tahina/Daniel Ali/ Partner 1	Tokinirina Raveloarison/ Mbianke Livancliff/ Partner 2
15	15:45–16:15	30 min	Plenary	Discussion		
16	16:45–17:00	15 min	General discussion		All	All
17	17:00		Closing			
18	17:00–17:30	30 min	Facilitator's meeting			

DAY 2						
Session #	**Time**	**Duration**	**Topic**	**Methods**	**Responsible Person Group A**	**Responsible Person Group B**
1	8:00–8:30	30 min	Registrations		All	All
2	8:30–8:35	5 min	Opening prayers		Volunteer	Volunteer
3	8:35–9:00	25 min	Recap of Day 1		All	All
4	9:00–9:30	30 min	Discussion			
5	9:30–10:00	30 min	Tea break			
6	10:00–10:20	20 min	4. Generation of ideas to key challenges identified in Day 1	Guide to discussion	Dr. Zo Ramiandrasoa/ Tahina/Daniel Ali/Partner	Tokinirina Raveloarison/ Mbianke Livancliff/ Partner
7	10:20–11:20	60 min	Practical session 1	Discussion		

DAY 2						
Session #	**Time**	**Duration**	**Topic**	**Methods**	**Responsible Person Group A**	**Responsible Person Group B**
8	11:20–11:50	30 min	Plenary			
9	11:50–12:20	30 min	Practical session 2 (finalization and collation of list of ideas from discussion)	Discussion		
10	12:20–13:35	75 min	5. Generation of Ideas continues	Discussion	Dr. Zo Ramiandrasoa/ Tahina/Daniel Ali/Partner	Tokinirina Raveloarison/ Mbianke Livancliff/ Partner
11	13:35–14:35	60 min	Lunch/Prayer			
12	14:35–15:35	60 min	Practical session 2 (selection of key ideas from discussion)	Discussion		
13	15:35–15:50	15 min	6. Prototyping of key ideas agreed upon, and prototype testing and evaluation	Guide to discussion	Dr. Zo Ramiandrasoa/ Tahina/Daniel Ali/Partner	Tokinirina Raveloarison/ Mbianke Livancliff/ Partner
14	15:50–16:50	60 min	Practical session 1	Discussion		
15	16:50–16:20	30 min	Plenary			
16	16:20–16:50	30 min	Practical session 2	Discussion		
17	16:50–17:00	10 min	General discussion		All	All
18	17:00		Closing			
19	17:00–17:30	30 min	Facilitator's meeting			

DAY 3						
Session #	**Time**	**Duration**	**Topic**	**Methods**	**Responsible Person Group A**	**Responsible Person Group B**
1	8:00–8:30	30 min	Registrations		All	All
2	8:30–8:35	5 min	Opening prayers		Volunteer	Volunteer
3	8:35–9:00	25 min	Recap of Day 2		All	All
4	9:00–9:30	30 min	Discussion			
5	9:30–10:00	30 min	Tea break			
6	10:00–11:20	80 min	7. Prototyping of key ideas agreed upon, and prototype testing and evaluation	Discussion	Dr. Zo Ramiandrasoa/Tahina/Daniel Ali/Partner	Tokinirina Raveloarison/Mbianke Livancliff /Partner
7	11:20–11:50	30 min	Plenary			
8	11:50–12:20	30 min	Practical session 2			
9	12:20–13:00	40 min	8. Collation of key challenges or barriers, solutions or ideas based on final challenges or barriers, prototypes to ideas or solutions	Discussion	Note taker	Note taker
10	13:00–14:00	60 min	Lunch/prayer			
11	14:00–14:30	30 min	Plenary			
12	14:30–15:30	60min	9. Collation of key challenges or barriers, solutions or ideas based on final challenges or barriers, prototypes to ideas or solutions		Note taker	Note taker
13	15:00–15:30	30 min	Next steps		Dr. Zo Ramiandrasoa	Tokinirina Raveloarison
14	15:30		Closing			
15	15:30–16:00	30 min	Facilitator's meeting			

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