



ENDLINE STUDY REPORT

JUNE 2020

Regional Maternal Newborn and Child Health Strengthening in Tanzania

Project Partners:

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University of Calgary
Agriteam Canada Consulting Ltd
Canadian Paediatric Society
Mbarara University of Science and Technology
Save the Mothers
Mwanza Regional Health Management Team
Misungwi & Kwimba Districts



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Regional Maternal Newborn and Child Health Strengthening in Tanzania

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en santé du Canada



IDRC | CRDI

International Development Research Centre
Centre de recherches pour le développement international

Canada

Acronyms

| | |
|--------|--|
| ANC | Antenatal care |
| BEmONC | Basic Emergency Obstetric and Newborn Care |
| CEmONC | Comprehensive Emergency Obstetric and Newborn Care |
| CHMT | Council Health Management Team |
| CHW | Community health worker |
| CUHAS | Catholic University of Health and Allied Sciences |
| HFGC | Health Facility Governance Committee |
| HMIS | Health Management Information Systems |
| IDRC | International Development Research Centre |
| MNCH | Maternal, newborn and child health |
| MnM | Mama na Mtoto |
| PNC | Postnatal care |
| RHMT | Regional Health Management Team |
| RMO | Regional Medical Officer |
| U2 | Under two (child under two years old) |
| U5 | Under five (child under five years old) |
| W/VEO | Ward/Village Executive Officer |

Executive Summary

The *Regional Maternal, Newborn and Child Health Strengthening* (2016-2020) project, known locally as ‘Mama na Mtoto’ (mother and child) was implemented in Misungwi and Kwimba Districts (estimated combined population of 933,699) in Mwanza Region from 2016-2020. Mama na Mtoto aimed to reduce maternal and child mortality through a comprehensive maternal, newborn, and child health (MNCH) package addressing gaps at three levels: (1) district (through health system strengthening activities); (2) health facility (through training and some support for infrastructure and equipment); and (3) community (by supporting establishment of a volunteer community health worker network). Mama na Mtoto implementation was led by districts, integrated within existing plans and programs, and aligned with Government of Tanzania health policies.

An endline study was conducted in Misungwi and Kwimba Districts from April-September 2019 at the completion of Mama na Mtoto package implementation to assess and document MNCH status at project end. A series of data sources inform this endline report; key results are shown below.

A **Qualitative Inquiry** involving focus group discussions (n=24) and key informant interviews (n=11) documented perspectives and ‘*Stories of change*’ from a variety of stakeholders and beneficiary groups. Themes from each pre-determined category are presented below.

| Qualitative Inquiry Themes | |
|--|--|
| <u>Health Outcomes</u> <ul style="list-style-type: none"> • Perceptions of Reduced Maternal & Child Mortality • Improved Maternal Health Care-Seeking Behaviours • Perceptions of Improved Quality of Health Facility Services • Prioritization of Maternal Health Care at Health Facilities • Enhanced Child Wellness • Improved Home Hygiene and Sanitation Practices • Increased Reproductive Health & Family Planning Awareness | <u>Project Integration</u> <ul style="list-style-type: none"> • Building Strong Connections with the Community • Alignment with District Priorities • Political Challenges: Local Rules & Norms Undermining Project Goals |
| <u>Non-Health Outcomes</u> <ul style="list-style-type: none"> • Enhanced Male Engagement in Maternal & Child Health • Improved Gender Equality & Female Empowerment • Engagement in Entrepreneurship & Economic Development to Support Health | <u>District Leadership</u> <ul style="list-style-type: none"> • Leadership Capacity • District Engagement & Ownership <u>Community Health Worker (CHW) Network</u> <ul style="list-style-type: none"> • CHW Activities in the Community • Community Resistance Due to Community Attitudes & Beliefs • CHW Resource Challenges <u>Sustainability</u> <ul style="list-style-type: none"> • Leadership & Engagement • CHW Sustainability • Education & Training |

A **Health Facility Survey** was conducted at all operating government-supervised health facilities (49 in Misungwi, 58 in Kwimba) in target districts. MNCH service-related infrastructure, equipment, supplies, medications, staffing, and training were reported and observed. A total of 107 facilities were surveyed including 4 hospitals (2 Misungwi, 2 Kwimba), 10 health centres (4 Misungwi, 6 Kwimba), and 93 dispensaries (43 Misungwi, 50 Kwimba).

The following are percentage increases of select key facility indicators compared with baseline:

- Available functioning computer (Misungwi +67%, Kwimba +57%)
- Electronic Health Management Information System (Misungwi +76%, Kwimba +53%)
- Available key personal protective equipment (Misungwi +83%, Kwimba +69%)
- Available delivery beds (Misungwi +27%, Kwimba +37%)

Composite '*readiness*' scores were calculated by tallying all items related to an MNCH service area. Percentage increases (between 2016 and 2019) were seen in all key MNCH service areas in both districts:

- Antenatal Care (Misungwi +25%, Kwimba +21%)
- Newborn resuscitation (Misungwi +34%, Kwimba +35%)
- Labour and Delivery (Misungwi +29%, Kwimba +18%)
- Essential Newborn Care (Misungwi +42%, Kwimba +13%)

A **MNCH Coverage Survey** was used to assess key MNCH status, care-seeking, and practice indicators in Misungwi District. Survey participants included 2,073 women residing in 67 randomly selected hamlets. A comparison of key MNCH indicators between baseline and endline are presented in the following table.

| MNCH Coverage Survey Key Indicators | | | | |
|--------------------------------------|---------------------------------------|--------------------|-------------------|--------------------|
| Indicator | | Baseline (2016) | Endline (2019) | Absolute Change |
| MATERNAL & NEWBORN HEALTH | | | | |
| Antenatal Care (ANC) | ANC four or more times | 47% | 59% | +12% * |
| | ANC before 12 weeks | 13% | 20% | +7% * |
| Delivery | Delivery by a skilled birth attendant | 64% | 80% | +16% * |
| | Delivery at a health facility | 61% | 78% | +17% * |
| Postnatal Care (PNC) | PNC for mothers | 43% | 51% | +8% * |
| | PNC for babies | 51% | 56% | +5% |

*statistically significant based on comparison of 95% CI

A **CHW Registry** was used to track demographics and retention of CHWs. A total of 1,664 CHWs were initially recruited and trained in Misungwi (n=769) and Kwimba (n=895) Districts and deployed across 1,329 hamlets. The retention rate in Misungwi was 94% after two years, and 98% in Kwimba after one year. Of the 69 who had exited their CHW role, most (77%) had left for reasons unrelated to the role; the most common reason was due to moving or relocating. Some CHWs had left for reasons that were related to their role, such as community rejection, no longer being interested, or being too busy.

During widespread **dissemination** (December 2019-March 2020), endline results were reviewed with Misungwi and Kwimba stakeholders including district leaders (n=30), Council Health Management Teams (n=37), Councillors (n=34), Ward Executive Officers (n=45), and facility CHW Supervisors (n=102). These individuals, in turn, shared findings with their facilities and communities. At all levels, key achievements and gaps were identified, and action plans written. Further sharing with partners and regional/district stakeholders occurred at a March 2020 Mama na Mtoto Experience Showcase Symposium event. National and community dissemination will continue during 2020.

Key Mama na Mtoto **achievements** identified by stakeholders and beneficiaries include:

- Improved Facility-Based MNCH Service Provision
- Increased MNCH Care-Seeking at Facilities
- Active District-Wide CHW Network Increases MNCH Service Demand
- Enhanced Male Engagement in MNCH and Changing Gender Roles in Communities

Persisting **Gaps and Actions** include:

- Persisting Referral Chain Gaps Risk Maternal and Newborn Lives
- Community and District Supports Needed to Sustain CHW Network
- High Unmet Need for Contraception Persists: Facility Services Not Meeting Demand
- Opportunities for Facility Waste Disposal Improvements Remain

This mixed methods endline study, coupled with extensive stakeholder engagement, enabled broad reflection and comparison with district HMIS data. Importantly, its high levels of participation from stakeholders, implementers, and beneficiaries throughout data collection and dissemination periods allowed for meaningful interpretation and development of effective actions going forward.

1 Introduction

1.1 Project Description: Mama na Mtoto

The *Regional Maternal, Newborn and Child Health (MNCH) Strengthening* project, known locally as ‘Mama na Mtoto’ (mother and child) was implemented in Misungwi and Kwimba Districts in Mwanza Region from April 2016 to March 2020. The main goal of the project was to contribute to reduced maternal and child mortality through the following intermediate outcomes:

- Improved delivery of essential health services to mothers, pregnant women, newborns, and children under five (U5)
- Improved health practices and utilization of essential health services by mothers, pregnant women, newborns, and children U5

The project involved a coalition of partners who worked together with Misungwi and Kwimba Districts, including the University of Calgary (project lead), Agriteam Canada, Catholic University of Health and Allied Sciences (CUHAS)-Bugando (local implementing partner), Save the Mothers, the Canadian Paediatric Society, and Mbarara University of Science and Technology (Uganda).

‘Mama na Mtoto’ implementation in Tanzania built on the successful ‘MamaToto’ project activities in Uganda (Brenner et al., 2011), replicating and adapting MNCH programming best practices for the Tanzanian setting. The *Regional MNCH Strengthening* project used the ‘SOPETAR’ (Scan-Orient-Plan-Equip-Train-Act-Reflect) cycle developed in Uganda (Healthy Child Uganda, n.d.) to promote local engagement, leadership, and integration throughout implementation. In Misungwi and Kwimba Districts, local health leaders and health facility staff received direct training and mentorship, and a network of community health workers (CHWs) were selected and trained.

Project evaluation was built in during the planning stages through a separate sister project managed through the Innovating for Maternal Newborn and Child Health in Africa program through the International Development Research Centre (IDRC), led by Dr. Dismas Matovelo (CUHAS).

1.2 Study Context

1.2.1 MNCH in Tanzania

Tanzania has made significant efforts to improve MNCH through several important policy developments. *One Plan II* (Government of Tanzania, 2016b) was developed to accelerate reduction in preventable maternal, newborn, child, and adolescent mortality and morbidity building on the 2008-2015 *One Plan* (Government of Tanzania, 2008) and the 2014 *Sharpened One Plan* (Government of Tanzania, 2014), providing direction to MNCH program implementation and ensuring coordination of interventions and quality service delivery (Government of Tanzania, 2016b).

Tanzania has made progress towards MNCH mortality and morbidity reduction suggesting potential for further progress. By 2015, Millennium Development Goal 4 was achieved (U5 mortality reduced from 166/1000 in 1990 to 54/1000) and during the same period, maternal mortality declined from 870/100,000 to 432/100,000 (Alkema et al., 2016; Government of Tanzania, 2013); though the latter was a significant decrease, it was insufficient to attain Tanzania’s Millennium Development Goal 5 target. Newborn deaths, at 25/1000 live births (Government of Tanzania & ICF International, 2016), achieved Tanzania’s *One Plan 2010-2015* target, though comprise 37% of U5 deaths.

1.2.2 Tanzanian Health System

Two decades of Government of Tanzania health reform have aimed to improve access, quality, and efficiency. The 1998 *Decentralization by Devolution* policy transferred authority and responsibility for health care from the national Ministry of Health and Social Work—now the Ministry of Health, Community Development, Gender, Elderly and Children—level to local government authorities. Regional Health Management Teams (RHMTs) led by Regional Medical Officers (RMOs) coordinate efforts across their regions and ensure adherence with Government of Tanzania policy.

A major health sector reform focus is strengthening district level governance and service delivery through dispensaries, health centres, and hospitals. Council Health Management Teams (CHMTs) led by District Medical Officers (DMOs) report to and are financially supported through the District Executive Director's office. Health Facility Governance Committees (HFGCs) and Health Boards are mandated to participate in the governance of health facilities, including resource mobilization. Each health facility has a designated 'In-Charge' staff member who, in addition to clinical care, provides oversight for facility management. Communities contribute to local health facilities and participate in their management through HFGCs. CHWs are part of national policy to provide a liaison with facilities and support a variety of community-based services; however, training to date has only been done in select areas and CHWs often report to select development partner organizations.

A high national priority is safe, facility-based delivery care and implementation of Basic Emergency Obstetric and Newborn Care (BEmONC) and Comprehensive Emergency Obstetric and Newborn Care (CEmONC) at all facilities across the country. Achievement of BEmONC and CEmONC status involves a facility being able and ready to provide a series of specific interventions, called 'signal functions', to manage common and unpredictable complications during pre-, intra-, and post-partum. Table 1 lists the signal functions for routine delivery care, BEmONC, and CEmONC.

| Table 1: Signal Functions for Routine Delivery Care, BEmONC, and CEmONC | |
|---|--|
| Routine Delivery Care – All Women, All Facilities | |
| <ul style="list-style-type: none">• Respectful care for women and their families• Infection prevention practices• Partograph use for clinical decision-making• Active management of 3rd stage of labour• Immediate newborn care | |
| BEmONC Signal Functions | |
| <ol style="list-style-type: none">1. Parenteral antibiotics2. Uterotonic drugs3. Parenteral anticonvulsants for pre-eclampsia and eclampsia4. Manual removal of placenta5. Manual vacuum aspiration6. Assisted vaginal delivery (e.g. vacuum extraction)*7. Newborn resuscitation | |
| CEmONC Signal Functions | |
| Perform signal functions 1-7 (above) and: <ol style="list-style-type: none">8. Caesarean section9. Blood transfusion | |

*not commonly practiced in Tanzania

1.2.3 Misungwi and Kwimba Districts, Mwanza Region

Misungwi and Kwimba are two of eight districts in Mwanza Region. With a combined population of 933,699 (Table 2), these rural districts and others in the Lake Zone are considered to have amongst the worst MNCH indicators in the country (Government of Tanzania, 2016b; Kilonzo et al., 2001); the Big Results Now development policy (Government of Tanzania, 2015a) identified the Lake Zone as a priority for MNCH interventions. Administratively, Misungwi District is divided into four divisions, 27 wards, 113 villages and 724 hamlets. Kwimba District is divided into five divisions, 30 wards, 119 villages and 870 hamlets (Government of Tanzania, 2015b).

Table 2 provides estimated catchment populations for 2019, based on 2012 census data adjusted for an average annual growth rate of 3% in Mwanza Region (Government of Tanzania, 2013, 2016a); according to the same source, an average household comprises 6.5 residents.

| Table 2: Estimated 2019 Misungwi and Kwimba District Population | | | | |
|---|---------------------------|---|--------------------|---------------------|
| | Total District Population | Women of reproductive age (15-49 years) | Boys under 5 years | Girls under 5 years |
| Misungwi District | 433,041 | 102,071 | 39,046 | 39,076 |
| Kwimba District | 500,658 | 118,009 | 45,143 | 45,178 |
| Total | 933,699 | 220,079 | 84,190 | 84,255 |

1.3 Objectives of Endline Study

The aim of the endline study was to document the status of MNCH indicators at the end of the project and compare these with baseline findings to assess project outcomes. Endline results also provide an in-depth picture of current MNCH needs, potential barriers and enhancers, existing resources and capacity, and social, cultural, and gender influences; these will inform district planning, including sustainability plans and next steps as the implementation formally ends. Importantly, these results also contribute to the evidence base for determining the feasibility of scaling up similar MNCH programs in other districts or elsewhere in Sub-Saharan Africa.

2 Methodology

2.1 Project Evaluation Plan

This endline study was part of a longitudinal implementation evaluation (Figure 1) using an effectiveness-intervention hybrid (Type 2) design (Curran et al., 2012) and a RE-AIM evaluation model (Glasgow et al., 1999); in-depth information, including an overall study logic model, can be found in a more detailed *IMCHA Final Report* for IDRC. Baseline data was collected in 2016, prior to Mama na Mtoto implementation. Process evaluation and formative assessments were periodically conducted during implementation including activity-based embedded baseline/endline evaluations, operational activity data tracking, tabulation of outcome proxy measures using district Health Management Information Systems (HMIS), and participant tracking through project registries. An IDRC-funded sister-project enhanced opportunity for this evaluation and increased opportunities for knowledge sharing.

Endline data was collected in 2019 to coincide with completion of Mama na Mtoto package implementation. The main purpose was to assess MNCH status in Misungwi District (all main indicators) and Kwimba District (select service indicators). Key indicators measured at baseline (2016 in Misungwi and 2017 in Kwimba) were re-evaluated to assess any changes.

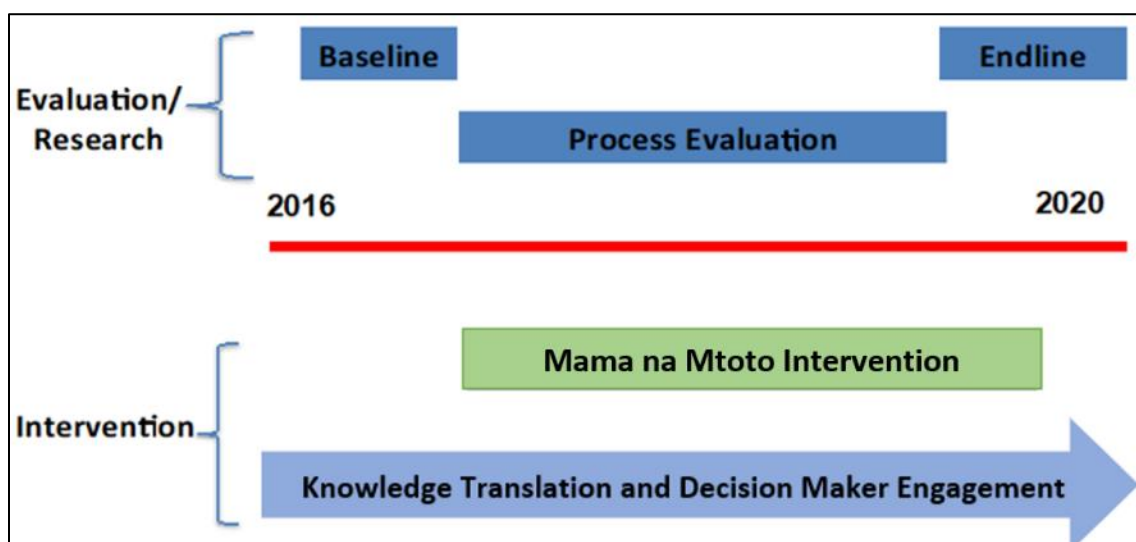


Figure 1: Mama na Mtoto Evaluation Timeline (2016-2020)

To promote objectivity, a dedicated monitoring and evaluation field team and a Canadian-based Research Coordinator oversaw project evaluation. Results were regularly shared with technical teams, field teams, CHMTs, and other stakeholder groups according to a knowledge sharing strategy, and implementation was adjusted based on findings during planning cycles.

2.2 Endline Study Overview

Endline data collection involved three main tools (mixed methods) conducted in Misungwi and Kwimba Districts between April-September 2019 (Table 3 summarizes methods used):

- 1) Qualitative Inquiry (focus groups and interviews) (Misungwi and Kwimba)
- 2) Health Facility Survey (Misungwi and Kwimba)
- 3) MNCH Coverage Survey (Misungwi only)

Other data sources for endline involved review of the CHW Registry (operational data).

| Table 3: Summary of Endline Study Research Methods | | | |
|--|--|---|--|
| | QUALITATIVE INQUIRY | HEALTH FACILITY SURVEY | MNCH COVERAGE SURVEY |
| Data Collection Period | April-May 2019 | July 2019 | September 2019 |
| Research Type | Qualitative | Quantitative | Quantitative |
| Method | Focus group discussions, key informant interviews | Cross-sectional survey | Cross-sectional survey, anthropometry |
| Tools | Semi-structured facilitator guides, observation notes | Health Facility Survey questionnaire (interviewer-administered on a tablet using REDCap) | Household Questionnaire, Woman Questionnaire, Child Questionnaire, anthropometric equipment (interviewer-administered on a tablet using Open Data Kit) |
| Key Indicators | Health and non-health outcomes, general successes and challenges, district integration, leadership capacity, district ownership, CHW networking, sustainability, stories of change | Health facility governance, infrastructure, equipment, supplies, staffing, and signal functions related to MNCH service provision | Demographics, household practices, equity, MNCH care-seeking, maternal and U5 morbidity and mortality |
| Target Participants | Regional and district government, health workers, health facility In-Charges, HFGC members, Village Executive Officers (VEOs), CHWs, mothers, fathers | Health facility In-Charges and staff | Household heads, women 15-49 years old, children U5 |
| Sampling | Purposeful sampling, convenience sampling (Misungwi and Kwimba Districts) | All government-supervised health facilities (Misungwi and Kwimba Districts) | Cluster sampling, wedge sampling (Misungwi District only) |
| Sample Size | 24 focus groups, 11 interviews, 224 participants | 107 health facilities | 67 hamlets, 1,835 households, 2,073 women, 2,223 children |
| Data Analysis | Deductive content analysis structured by facilitator guide domains | Descriptive statistics, composite indicators, paired sample sign test, paired sample Wilcoxon test (using R and Python) | Descriptive statistics, 95% confidence interval (using Stata) |

As part of the larger Mama na Mtoto evaluation, the endline study had institutional ethical clearance from the University of Calgary Conjoint Health Research Ethics Board (REB15-1919), the National Institute for Medical Research Lake Zone Institutional Review Board (MR/53/100/400), and the Catholic University of Health and Allied Sciences/Bugando Medical Centre Ethics and Review Committee (CREC/070/2015). The Mama na Mtoto intervention was also registered with ClinicalTrials.gov (NCT02506413).

2.3 Research Methods

2.3.1 Qualitative Inquiry

Focus group discussions and key informant interviews were used to gather '*Stories of change*'. A variety of participant groups were targeted from Misungwi and Kwimba Districts to collect diverse perspectives:

- 1) Regional and district government representatives
- 2) Health facility In-Charges
- 3) Health workers
- 4) HFGC members
- 5) VEOs
- 6) CHW Supervisors
- 7) CHWs
- 8) Mothers and fathers

2.3.1.1 Research Team

The data collection team consisted of CUHAS technical team members facilitating focus groups and interviews, research assistants supporting field logistics and note-taking, and transcribers transcribing and translating audio-recorded data. District CHMT members helped escort research team members to sites and make necessary introductions. Agriteam implementation staff also provided feedback on participant recruitment and clarified issues raised from data. All research team members participated in training between April 2-5, 2019 by an experienced CUHAS qualitative researcher, which included practice focus groups and interviews with the tools.

2.3.1.2 Sampling and Recruitment

Purposeful and convenience sampling methods were used to recruit participants to facilitate cost-effective data collection and analysis within a limited time period. Target participants were those who could speak Swahili to overcome limited translation capacity, and those who demonstrated strong engagement with the intervention (e.g. currently active in their role, participated in all necessary training sessions) to ensure relevant and rich discussions. Participants with diverse characteristics were also purposefully selected and took into consideration differences such as gender, age, profession, level of training, type of health facility, geographic location, or experience.

Eligible participants were identified using an operational database of project contacts and consultation with implementation staff. A maximum of 10 participants were invited to each focus group discussion, and only one individual was invited for each interview. Participants were only allowed to participate once.

2.3.1.3 Data Collection

Data collection was conducted between April 8-May 24, 2019 in Misungwi and Kwimba Districts. Each participant group had at least one focus group or interview conducted in each district, with an additional interview conducted at the regional health systems level. Data collection was staggered overall several weeks to allow the research team to read transcripts and review emerging themes between sessions, thereby facilitating an iterative and reflective approach to data collection.

Focus group and interview spaces were chosen based on ease of access, privacy, comfort, and minimal distractions. Informed written consent was obtained from all participants. All sessions were conducted in Swahili and recorded with a digital audio recorder. Participants did not receive any incentives to participate, aside from refreshments and a small transportation allowance.

Facilitators conducted focus groups and interviews using prepared semi-structured facilitator guides developed by University of Calgary, with input and revisions from CUHAS and Agriteam. These guides were organized into domains based on outcomes of the study logic model: a) clinical effectiveness outcomes, which included questions on health and non-health outcomes and impacts, and b) process outcomes, which included questions on general successes/challenges, district integration, leadership capacity, district leadership, district ownership, CHW networking, and sustainability. A master facilitator guide was adapted and personalized for each participant group according to relevance.

All audio recordings were transcribed verbatim into Swahili then translated into English transcripts. Research team members conducted quality checks of English transcripts by comparing Swahili audio recordings with English transcripts for translational accuracy, substantive accuracy, and to ensure that no information was missing.

2.3.1.4 Data Analysis

Data analysis of English transcripts was conducted by a Canadian research analyst from University of Calgary who had no previous involvement or familiarity with Mama na Mtoto. Deductive content analysis was used to analyze transcripts, structured by the pre-determined domains of the facilitator guide. The analysis process involved familiarization, annotating, coding, theming, member checking, and research team reflexivity through a theoretical lens of global MNCH (Creswell, 2009). Analysis progress was presented to the research team along the way for verification, language clarification, reflexive consideration, and to enhance coder reliability (Richards, 2015). Participant enrollment forms, notetaking forms, contact summary forms, and team debrief forms were also reviewed as supplementary documentation to help inform data analysis and provide context.

Deductive coding continued to the point of thematic saturation, where no additional patterns or themes emerged from the data and all meaning was captured (Braun & Clarke, 2013). Saliency analysis captured infrequent yet important or meaningful data points (Buetow, 2010). To maintain authenticity in reporting, quotations were not edited for grammar. Following a review of the coding tree by research and implementation team members, a final revision of themes was conducted by University of Calgary research staff, where the headings, quotes, and narrative interpretations were re-organized and re-written for clarity and to streamline key messages according to the pre-determined domains.

2.3.2 Health Facility Survey

The objective of the Health Facility Survey was to assess key indicators relevant to providing MNCH services at health facilities in Misungwi and Kwimba Districts, including governance, infrastructure, equipment and supplies, health management information systems (HMIS), and staffing.

2.3.2.1 Research Team

Data collection teams each consisted of one CUHAS clinical technical team member administering the survey questions, one research assistant recording survey responses, and a district CHMT member to help escort team members to sites and make necessary introductions. All research team members had participated in previous Health Facility Survey data collection; refresher training was provided between July 2-4, 2019.

2.3.2.2 Sampling and Recruitment

All government-supervised health facilities functioning at the time of data collection were surveyed; 49 health facilities in Misungwi and 58 in Kwimba. In-Charges were contacted in advance to plan visits and allow staff to prepare necessary documentation.

2.3.2.3 Data Collection

Data collection was conducted between July 8-15, 2019 in Misungwi and July 22-30, 2019 in Kwimba.

The Health Facility Survey questionnaire was developed by adapting the framework of the Averting Maternal Death and Disability 'Needs Assessment of Emergency Obstetric and Newborn Care' (Columbia University Mailman School of Public Health, n.d.), and incorporating validated questions from the *Big Results Now* 'Star Rating Tool' (Government of Tanzania, 2015a), Demographic and Health Surveys 'Service Provision Assessment' (The DHS Program, n.d.-b), and MamaToto 'Health Centre Audit' (Healthy Child Uganda, n.d.). Questions were adapted for the Tanzanian context and Swahili language with input from Tanzanian and Canadian decision makers and clinical technical team members. The final questionnaire was field tested for content and translation accuracy before data collection.

Research teams verbally administered the questionnaire to health facility In-Charges, validating responses through observation. If the In-Charge was not available, the next relevant facility staff member was interviewed. At Misungwi baseline the questionnaire was administered in paper format, whereas at endline an electronic version was used through the REDCap Mobile App (<http://projectredcap.org/>) on tablet devices. The electronic version was used at both baseline and endline for Kwimba District. GPS devices were also used to collect GPS coordinates.

2.3.2.4 Data Analysis

Data was analyzed by calculating descriptive statistics of key indicators (Table 4) and demographics. Baseline and endline results of key indicators were compared using 95% Clopper-Pearson confidence interval (CIs) and a paired sample sign test.

Composite indicators calculated achievement of BEmONC and CEmONC signal functions and 'readiness' to provide MNCH services. BEmONC and CEmONC achievement were analyzed with the 'assisted vaginal delivery' signal function excluded (i.e. out of a total of six and eight signal functions, respectively), since it is not commonly practiced in most Tanzanian facilities.

'Readiness scores' were assessed using pre-defined scoring criteria for seven key MNCH service areas: ANC, essential newborn care, newborn resuscitation, labour and delivery, family planning, ill child

management, and well child management. Scoring criteria were developed based on policy and guidelines from the Tanzania Ministry of Health, Community Development, Gender, Elderly and Children and WHO. A team of Mama na Mtoto experts ranked items considered and labelled each according to their perceived of importance in optimizing quality of care for that service (Table 5). Each item was assigned as 'Important', 'Very important', or 'Critical'; these scores then were used for 'weighting' in composite scoring during analysis. Baseline and endline results of readiness scores were compared using a paired sample Wilcoxon test (no confidence intervals reported).

| Table 4: Health Facility Survey Key Indicator Definitions | |
|--|--|
| Active Governance Committee | Percent of health facilities with a governance committee with records of at least one meeting in the past three months (quarter). |
| Active Quality Improvement Team | Percent of health facilities with a QI team with records of at least one meeting in the past three months (quarter). |
| Antibiotics for newborn infection | Percent of health facilities with recommended antibiotics for newborn infection (IM ampicillin & gentamycin). |
| Available delivery beds | Percent of health facilities that conduct deliveries with at least one clean empty delivery bed available for the next client. |
| Basic Emergency Obstetric and Neonatal Care (BEmONC) | Percent of health facilities that conduct deliveries with at least one staff who has ever trained in BEmONC. |
| Chemical disinfection | Percent of health facilities able to disinfect equipment in the delivery area today by chemical disinfection. |
| Client toilet or latrine | Percent of health facilities with access to adequate sanitation facilities for general outpatient client use. |
| Essential Newborn Care | Percent of health facilities that conduct deliveries with at least one staff who has ever trained in essential newborn care. |
| Facility-owned emergency transport vehicle | Percent of hospitals and health centres with a motorized vehicle that is functioning with fuel available today and is stationed at, operated by, and owned by the health facility. |
| Functioning communication device | Percent of health facilities with a communication device for referral that is supported by the health facility and is functioning today. |
| Functioning computer | Percent of hospitals and health centres with at least one computer available for general facility use that can access internet and is functioning today. |
| Handwashing in delivery area | Percent of health facilities with adequate handwashing facilities available in the delivery area today |
| Health Management Information Systems (electronic) | Percent distribution of an electronic type of system used to collect/send HMIS data among health facilities with a system in place. |
| Helping Babies Breathe | Percent of health facilities that conduct deliveries with at least one staff who has ever trained in newborn resuscitation. |
| Improved water source | Percent of health facilities with an improved water source within 500 metres of facility available today. |
| Key personal protective equipment available | Percent of health facilities with key PPE available today. |
| Know phone number for at least one referral site | Percent of health facilities that know the phone number for at least one referral site. |
| Patients sometimes pay for fuel or other costs to use transport vehicle | Percent of health facilities where patients sometimes pay for fuel or other costs to use emergency transportation that is owned by a government health facility. |
| Referring site reports calling before transfer | Percent of health facilities that normally call the referral site before sending a patient. |
| Reliable power source | Percent of health facilities with a reliable power source (central grid or functional generator with fuel or battery) without interruption for more than two hours during the last seven days. |
| Safe final disposal of contaminated medical waste | Percent of health facilities with safe final disposal of contaminated medical waste other than sharps. |
| Safe final disposal of sharps | Percent of health facilities with safe final disposal of sharps. |
| Sterilization | Percent of health facilities able to sterilize equipment for safe delivery today. |

| Table 5: Health Facility Survey MNCH Service Readiness Score Criteria | |
|---|--|
| Antenatal Care | <p><u>Critical:</u> Antenatal care offered today; BP machine; Fetoscope; ANC card; Syphilis Rapid Diagnostic Test (RDT); HIV test; Urine stick; Iron; Folic Acid; Hemoglobin RDT; Intermittent Preventive Treatment in Pregnancy (IPTP); Tetanus toxoid vaccine.</p> <p><u>Important:</u> ANC Guidelines observed in service area; Adult scale; Measuring tape.</p> |
| Essential Newborn Care | <p><u>Critical:</u> Any staff trained in ENC; Thermometer; Antibiotics for pneumonia; Oral polio; BCG vaccine; HIV Chemoprophylaxis.</p> <p><u>Very Important:</u> ENC guidelines observed in service; Weigh scale - infant; Intravenous (IV) infusion set for newborn (NB).</p> <p><u>Important:</u> Antibiotic eye medicine; Vitamin K.</p> |
| Family Planning | <p><u>Critical:</u> Family planning services offered today; Oral Contraceptive Pills (OCP); Injectable Contraceptives; Condoms.</p> <p><u>Very Important:</u> Guidelines observed in service area; Emergency Contraception (EC); IUD; Implant.</p> <p><u>Important:</u> Staff who can perform male sterilization; Staff who can perform female sterilization; BP machine.</p> |
| Ill Child Management | <p><u>Critical:</u> Ill child services offered today; Health worker present 24/7; Any staff trained in IMCI; Thermometer; Hemoglobin RDT; Malaria RDT; Vitamin A; Oral Rehydration Therapy (ORS); Zinc tablets; Oral antibiotics for pneumonia; Injectable antibiotics for pneumonia; Oral antimalarial; Injectable antimalarial.</p> <p><u>Very Important:</u> IMCI Guidelines observed in service site; Infant scale; Hanging scale.</p> <p><u>Important:</u> Height board; Stethoscope; MCH card.</p> |
| Labour and Delivery | <p><u>Critical:</u> Delivery services offered today; Skilled birth attendant present 24/7; Any BEmONC-trained providers; Soap and water or alcohol rub available; Functional incinerator; Placenta Pit; Antibiotics for treating infection during pregnancy; Anticonvulsants; Uterotonics; IV fluids; Blood Pressure Machine; Fetoscope; Stethoscope; Blank Partograph; IV infusion set for adult; Any Gloves (long, disposable, sterile); Privacy Screen; Labour and delivery bed without stirrups; Delivery set; Episiotomy set; PV set.</p> <p><u>Very Important:</u> Postpartum Hemorrhage Guidelines in delivery area; Maternal hypertension Guidelines; Maternal seizures Guidelines; Infection during pregnancy Guidelines; Reliable Power; Examination light; Urethral catheter; Long gloves; Cupboard for drugs; Labor and delivery bed without stirrups; Instrument trolley/tray; Speculum set.</p> <p><u>Important:</u> Vacuum Extractor; More than 1 sized cup for vacuum extractor.</p> |
| Newborn Resuscitation | <p><u>Critical:</u> Delivery services offered today, any staff trained in Helping Babies Breathe (HBB); Suction device; Infant face mask; Newborn ambu bag; Cord ties/clamp.</p> <p><u>Very Important:</u> HBB Guidelines posted in delivery area; Newborn resuscitation table.</p> |
| Well Child Assessment | <p><u>Critical:</u> Child health services offered today; Infant weighing scale (laying down); Hanging scale; Height or length measuring board; MCH card; Vitamin A Supplements; Deworming tablets; DTP+Hib+Hepb vaccine; Oral polio vaccine; polio vaccine (inj); Measles and rubella vaccine; BCG vaccine; Rotavirus vaccine; Pneumococcal vaccine; Tetanus toxoid vaccine.</p> |

2.3.3 MNCH Coverage Survey

The objective of the MNCH Coverage Survey was to assess the demographics, health status, care-seeking, and practices related to MNCH for women, children, and their households.

2.3.3.1 Research Team

The research team consisted of two groups: mappers and interviewers. Mappers were responsible for identifying and orienting eligible households prior to data collection and interviewers were responsible for administering questionnaires. Both groups were divided into smaller teams and each team had at least one mapper or interviewer who spoke Sukuma, the primary local dialect in Misungwi District.

Mappers were trained from August 26-31, 2019 and interviewers were trained from August 26-September 7, 2019 (first two days of training were combined). Training was conducted by CUHAS and University of Calgary technical team members and research staff, and included practice data collection in Ilemela District. Some research team members also had previous baseline experience participating in baseline data collection.

2.3.3.2 Sampling and Recruitment

Data collection was conducted in Misungwi District only. A two-stage stratified cluster sampling method was used, where clusters were district hamlets (the smallest identifiable geopolitical units) and stratification was by hamlet type (urban/mixed/rural). Based on a sample size goal of 2,000 households (calculated for three key MNCH indicators with 80% power and 0.05% precision) and a pre-determined cluster size of 30 households per hamlet (the expected number of households an interviewer team can survey in one day), a total of 67 out of 724 hamlets were randomly selected in the district: two urban, 25 mixed, and 40 rural. The same hamlets were used at baseline and endline.

In each hamlet, mappers used a novel wedge sampling method to identify the representative sample of households to survey. All households inside a determined geographic 'wedge' were documented and screened by mappers until 30 available households that met survey eligibility criteria were identified. Smaller hamlets (less than 40 households) were mapped entirely. Only households that were mapped were surveyed by interviewers. Mappers were also responsible for documenting navigation instructions, orienting community members about the survey in advance, noting the number of eligible women and children in each household, and documenting any other information helpful for data collection, such as days when community members would not be available (e.g. burials, weddings, market days). Local CHWs also accompanied mapping teams to facilitate navigation and communication with households.

2.3.3.3 Data Collection

The MNCH Coverage Survey tools were adapted from Johns Hopkins University's 'Real Accountability: Data Analysis for Results (RADAR) Coverage Survey' (RADAR Project, n.d.), with some questions and modules revised for project relevance and local context. The RADAR Coverage Survey, based on standard questions from the Demographic and Health Survey (The DHS Program, n.d.-a) and Multiple Indicator Cluster Survey (UNICEF, n.d.), was developed to measure priority MNCH coverage indicators for Global Affairs Canada's project investments. The tools comprised of three questionnaires for each household:

- 1) *Household Questionnaire* administered to the household head or adult household member knowledgeable about household composition and information
- 2) *Woman Questionnaire* administered to women aged 15-49 years that were usual residents or slept in the household the night before

- 3) *Child Questionnaire* administered to the caretaker of each child U5 (0-59 months) that were usual residents or slept in the household the night before

Survey tools were developed in English, translated to Swahili, converted into an electronic format using Open Data Kit (ODK) (<https://opendatakit.org/>), and field piloted prior to data collection. Sukuma translations were also verbally reviewed with research team members who could speak Sukuma.

Mapping was conducted between September 3-20, 2019 and interviewing was conducted between September 10-28, 2019. Staggered start dates were used to enable mappers to identify and orient households in advance of interviewing. Interviewers obtained informed written consent from eligible household participants and verbally administered the questionnaires using the ODK Collect app on tablet devices. When possible, participants who did not understand Swahili were assigned a Sukuma-speaking interviewer. Anthropometry measurements for the Child Questionnaire were conducted using a weight scale and height board. Due to limited equipment, only half of the interviewers (18) were asked to conduct the anthropometry module; this sampling for anthropometry was consistent with baseline methods.

Eligible survey participants that were not successfully interviewed (e.g. absent, ran out of time, etc.) were given two additional 'callback' attempts to complete the interview later that same day and then the next day. Interviews were not pursued after the third unsuccessful attempt. Callback interviews were not attempted for households that only had incomplete Child Questionnaires, and for individuals that were absolutely certain to be unreachable for a callback (e.g. away for an extended period). StatsReport, developed by Johns Hopkins University (<https://statsreport.io/>), was used as a data quality monitoring and assurance tool.

2.3.3.4 Data Analysis

Data was downloaded from the ODK server via StatsReport and merged and cleaned using Stata do-files developed by research analysts from University of Calgary and Johns Hopkins University. Merged data were analyzed using Stata statistical software according to pre-determined indicator definitions (Table 6). Data analysis used Taylor linearization to adjust standard errors for the effects of clustering. Key indicators are presented as weighted values with 95% CIs. Response rates and tabulated data for individual survey questions are presented as unweighted percentages and numbers.

| Table 6: MNCH Coverage Survey Key Indicator Definitions | |
|---|---|
| ANC four or more times | Percent of women attended antenatal care at least four times during pregnancy by any provider for reasons related to the pregnancy. |
| ANC before 12 weeks | Percent of woman attended antenatal care before the end of third month of pregnancy at health facility for reasons related to the pregnancy. |
| Antimalarial treatment | Percent of children aged 0-59 months receiving first line antimalarial treatment among those children with fever in the last two weeks who received any antimalarial. |
| Appropriate feeding practices | <u>Dietary diversity</u> : Percent of children 6-23 months of age who received foods from four or more food groups. <u>Meal frequency</u> : Percent of children 6-23 months of age who received solid, semi-solid, or soft foods the minimum number of times or more. <u>Minimal acceptable diet</u> : Percent of children 6-23 months of age who receive adequate nutrition. |
| Care-seeking for fever | Percent of children aged 0-59 months with fever in the previous two weeks for whom advice or treatment was sought. |
| Care-seeking for pneumonia | Percent of children aged 0-59 months with suspected pneumonia taken to an appropriate health provider. |
| Delivery at a health facility | Percent of all deliveries conducted at a health facility. |
| Delivery by a skilled birth attendant | Percent of births attended by skilled health personnel. |
| Deworming | Percent of children aged 12-23 months who received any drug for intestinal worms in the past 6 months. |
| Diarrhea in last two weeks | Percent of children aged 0-59 months with diarrhea in the 2 weeks preceding the survey. |
| Diarrhea treatment with oral rehydration salts | Percent of children aged 0-59 months with diarrhea receiving oral rehydration salts. |
| Diarrhea treatment with zinc | Percent of children aged 0-59 months with diarrhea receiving zinc supplementation. |
| Diphtheria, tetanus, and pertussis (DTP3) immunization | Percent of children aged 12-23 months who received 3 doses of DTP vaccine. |
| Early initiation of breastfeeding | Percent of newborns put to the breast within one hour of birth. |
| Exclusive breastfeeding | Percent of infants aged 0-5 months who are exclusively breastfed. |
| Fever in last two weeks | Percent of children aged 0-59 months with fever in the 2 weeks preceding the survey. |
| Measles immunization | Percent of children aged 12-23 months immunized with measles containing vaccine. |
| Met need for contraception | Percent of women aged 15-49, either married or in union, who have their need for family planning satisfied. |
| PNC for babies | Percent of babies who received postnatal care at a health facility within two days of birth. |
| PNC for mothers | Percent of mothers who received postnatal care at a health facility <48h post childbirth. |
| Prevalence of modern contraception | Percent of women aged 15-49, either married or in union, who report using modern family planning methods. |
| Stunted (moderate and severe) | Percent of children aged 12-23 months stunted below -2 SD of the 2006 WHO Child Growth Standards |
| Underweight (moderate and severe) | Percent of children aged 12-23 months underweight below -2 SD of the 2006 WHO Child Growth Standards |
| Vitamin A | Percent of children 6-59 months who received one dose of vitamin A during the previous 6 months. |
| Wasted (moderate and severe) | Percent of children aged 12-23 months wasted below -2 SD of the 2006 WHO Child Growth Standards |

2.3.4 CHW Registry

2.3.4.1 Data Collection

An operational database prospectively registered all Misungwi and Kwimba District CHWs during the intervention and recorded characteristics and attrition details. Demographic data, including date of birth, sex, highest formal education completed, village, and position start date, were collected during initial training workshops and entered into the database. CHW position start dates were defined as the last day of initial Mama na Mtoto training.

CHW Supervisors regularly reported details of any CHW attrition, including exit dates and reasons. CHW exit dates were estimated by their CHW Supervisors according to when they deemed a CHW had left their role and required replacement. 'Exit reasons' were defined based on pre-determined categories; reasons were self-reported by CHWs, when available, or from peers or CHW Supervisors (Table 7). At the end of the intervention, CHW Supervisors were contacted to confirm CHW status and capture or clarify any missing or conflicting data.

| Table 7: CHW Exit Reason Definitions | |
|---------------------------------------|---|
| Community Rejection | Community leaders have decided the CHW should not continue work and ideally will be replaced. |
| Completed - No Reapplication | CHW has completed a 'term' as determined by the community, and he/she does not choose to continue work and steps down for another to be selected. |
| Completed - Not Reselected | CHW has completed a 'term' as determined by the community, and he/she is not re-selected and another individual is selected to replace him/her. |
| Divorce or Separation | CHW divorced or separated from partner or spouse; did not require physically moving or relocating. |
| Family Duties or Health | CHW left to care for another individual in the family (e.g. children, sick or elderly family member). |
| Further Education | Enrolled in training for work or academic purposes; did not require physically moving or relocating. |
| Moved or Relocated | CHW moved and cannot complete role. Includes moving related to divorce or separation from partner or spouse, enrolling in training for work or academic purposes, taking on new paid work, or any other reasons requiring relocation. |
| New Job | CHW has taken on new paid work; did not require physically moving or relocating. |
| No Longer Interested | CHW expresses a loss of interest in CHW role. |
| Own Death | Death of CHW. |
| Peer or Supervisor Rejection | Other CHWs in the ward group and/or the CHW Supervisor are not satisfied with the CHW's performance and recommend their exit. |
| Poor Personal Health | CHW's own health has limited ability to volunteer. |
| Retired | CHW would like to 'retire' from the role, not necessarily due to any other reason in this table. |
| Spouse Opposed | CHW stopped because of objection of partner or spouse. |
| Too Busy – Personal Reason | CHW expresses that he/she is too busy to complete role for a reason other than specific changes in family care needs/work or further education. |
| Too Much Work or Too Difficult | CHW expresses he/she must exit because workload or expectations are too high, or unable to complete work because it is too difficult. Could also choose this option if literacy or comprehension is a problem requiring replacement. |

2.3.4.2 Data Analysis

Collected data were stored in a secure, password-protected, online database only accessible to the research team. Database cleaning was conducted prior to analysis to verify outlier values, duplicates, and missing data.

All initially trained CHWs were considered for retention analysis. Exit reason responses were classified as either 'Role-related' (i.e. death, moves, new job/workload change, poor personal health, family duties/family health, divorce/separation, further study) or 'Not role-related' (i.e. too busy, too much work/difficult, no longer interested, community rejection, peer/supervisor rejection, spouse opposed).

Analysis used IBM SPSS Statistics 25; descriptive statistics (means, standard deviation (SD), frequencies, and percentages) characterized the sample and described retention variables.

3 Results

3.1 Qualitative Inquiry

3.1.1 Participant Characteristics

A total of 24 focus group discussions were conducted across both districts, with 13 focus groups in Misungwi and 11 in Kwimba. The number of participants within a focus group ranged from 5-12 people.

In total, 11 key informant interviews were conducted: six in Misungwi, four in Kwimba, and one regionally. These interviews were with the RMO, District Council Executive Directors, and select CHMT members (District Medical Officers, Reproductive and Child Health Coordinators, CHW Coordinators, Immunization and Vaccinations Officer, and Nursing Officer).

Tables 8 and 9 summarize the number of focus groups and interviews per participant group and the number of participants in attendance per district. Out of a total of 224 qualitative participants, 40% were female and 60% were male. The mean age was 39 years old (range 19-68 years).

| Table 8: Qualitative Data Collection Summary, Misungwi District | | |
|---|--------------------|------------------------|
| Participant Group | Number of Sessions | Number of Participants |
| FOCUS GROUP DISCUSSIONS | | |
| Health Workers | 1 | 7 |
| In-Charges | 2 | 12 |
| HFGCs | 1 | 10 |
| CHWs | 5 | 49 |
| CHW Supervisors | 1 | 7 |
| VEOs | 1 | 9 |
| Mothers and Fathers | 2 | 16 |
| Total | 13 | 110 |
| KEY INFORMANT INTERVIEWS | | |
| District Government | 6 | 6 |
| Regional Government | 1 | 1 |
| Total | 7 | 7 |

| Table 9: Qualitative Data Collection Summary, Kwimba District | | |
|---|--------------------|------------------------|
| Participant Group | Number of Sessions | Number of Participants |
| FOCUS GROUP DISCUSSIONS | | |
| Health Workers | 1 | 7 |
| In-Charges | 1 | 8 |
| HFGCs | 1 | 9 |
| CHWs | 4 | 41 |
| CHW Supervisors | 1 | 10 |
| VEOs | 1 | 9 |
| Mothers and Fathers | 2 | 21 |
| Total | 11 | 105 |
| KEY INFORMANT INTERVIEWS | | |
| District Government | 4 | 4 |
| Total | 4 | 4 |

3.1.2 Key Qualitative Themes

Tables 10-15 list the key themes and sub-themes organized by domain, including an example quote, generated from the deductive content analysis. The six main domains are health outcomes, non-health outcomes, project integration, district leadership, CHW network, and sustainability.

3.1.2.1 Health Outcomes

| Table 10: Key Qualitative Themes, Health Outcomes | |
|---|--|
| Theme: Perceptions of Reduced Maternal & Child Mortality | |
| <p>The primary health outcome mentioned by all participant groups was a perception of reduced maternal and child deaths. Several participants linked the perception of reduced deaths with the work of Mama na Mtoto-trained CHWs, who mobilized communities by sharing education and increasing awareness to seek care at health facilities.</p> <p><i>"In my working areas, since the beginning of this Mama na Mtoto project, pregnant mothers and newborn deaths are reduced."</i> [CHW Focus Group]</p> | |
| Theme: Improved Maternal Health Care-Seeking Behaviours | |
| Increased Health Facility Attendance | |
| <p>Increased health facility attendance by women, children, and families—at all levels of care from dispensary to hospital—was reported by all participant groups. Several participant groups observed busier health facilities, with a particular increase in pregnant women accessing antenatal care. This increase in health facility attendance was attributed to CHW engagement in communities.</p> <p><i>"... we have seen increased number of clients coming to our health facilities ... yes ... mothers under 12 weeks ... the existing of CHWs has contributed to increase the number of clients, they visit to the community and direct the clients, and they come in the health facility and the improvement of our health facilities ..."</i> [Government Interview (CHMT Member)]</p> <p>However, this increased attendance has also put an increased pressure on health facility resources, resulting in overcrowding and long wait times.</p> <p><i>"There is a big response from the community. Children are measured at the clinic as well as pregnant mothers and other patients but ... we have few health workers ... you may find that there is one nurse, one doctor who is supposed to attend children and pregnant mothers. Children are waiting ... it become overcrowded and you have to leave there late. But if we could increase staff the service will be more ... providers are few..."</i> [Mothers Focus Group]</p> | |
| Accessing Earlier Antenatal Care | |
| <p>Many participant groups commented that pregnant women are seeking earlier antenatal care, largely attributed to CHW home visits and community education. Participants linked earlier care-seeking to CHW household visits and mobilization at the hamlet level, perceiving that health education is reaching woman and families.</p> <p><i>"For the positive results we have seen since the project began, first of all is the increased number of pregnant mothers who attending clinic with pregnant below 10 weeks. The numbers have been increased compared to before the implementation of Mama na Mtoto project started to train CHWs."</i> [CHW Supervisors Focus Group]</p> | |
| Increased Deliveries at Health Facilities | |
| <p>Most participant groups identified an increase in the number of pregnant women delivering in health facilities, compared to previously when many women delivered babies at home. Community members perceived health facilities to be a safer environment for giving birth. Health providers were particularly aware of the increase in women delivering at health facilities, attributing the outcome to increased community awareness and CHW support.</p> <p><i>"... the community are now aware on the importance of a pregnant woman to give birth at the health facility ... these CHWs whom you have trained and the village leaders now know the importance of giving birth at the hospital, when a mother feels labor pains she can't wait for anyone there at home she will be escorted with her fellow or the community health worker here at the facility."</i> [Health Workers Focus Group]</p> | |
| Increased Awareness of Birth Preparedness & Planning | |
| <p>Participants expressed that CHWs have been working with families in the communities to promote awareness around birth planning and preparedness, including the importance of saving early to buy birthing supplies. Community participants also reported giving value to being prepared for deliveries. The findings suggest that when women are prepared for birth, they are more likely to attend at a health facility for delivery, owing to a sense of increased confidence, security, and a diminished fear of judgment.</p> <p><i>"... mothers used to go to traditional birth attendant for delivery ... we didn't know the importance of attending clinic and take children for vaccinations. But after the introduction of this Mama na Mtoto project, I have come to learn those two important things. First, I should deliver at the hospital. But also, I was told that when I am pregnant you must have birth preparedness plan when the deliver days are closer, so that I can go to the dispensary."</i> [Mothers Focus Group]</p> | |

| Table 10: Key Qualitative Themes, Health Outcomes (Continued) | |
|---|--|
| Theme: Perceptions of Improved Quality of Health Facility Services | |
| Improved Delivery Health Outcomes | |
| <p>Participants, especially mothers and fathers, spoke about improved health outcomes related to deliveries, particularly with cases requiring intervention (e.g. C-sections, retained placenta). This was attributed to improved services provided by health providers in facilities, and CHWs assisting with accessing healthcare in a timely manner. In particular, participants reported situations where procedures conducted by health providers in facilities were critical in producing a good outcome, compared to getting treated outside the health facility.</p> <p><i>"The safe delivering services in [facility] I delivered but my baby was not breathing and the doctors served her which she breathed and she is safe up to now and I am very grateful for the help."</i> [Mothers Focus Group]</p> | |
| Enhanced Health Facility Experiences | |
| <p>Several participants described an improved service experience at health facilities, including being welcomed by health providers and receiving timely care, compared to past experiences when they may have had to wait a long time, were sent away, or felt somehow less important. Participants also noted that in some communities, CHWs help to clean health facility grounds, which not only contribute to a friendly and welcome environment for clients, but also help ease the workload of health workers. One HFGC representative attributed enhanced quality of health services to the Mama na Mtoto project training health workers on respectful communication.</p> <p><i>"... our client are so excited with the quality of service provided, you know when the client reach at the facility, she better get what she expecting to get and not be delayed. Should not be treated badly ... good language taught by Mama na Mtoto, most people have been coming to provide the service and they normally introduce themselves that they come from Mama na Mtoto ... through Mama na Mtoto people were trained ... pregnant mothers can even mention who helped her during delivery, she mention a name ... so through those trainings and clients are satisfied with the service provided."</i> [HFGC Focus Group]</p> | |
| Theme: Prioritization of Maternal Health Care at Health Facilities | |
| <p>Participants experienced a prioritization of maternal care at health facilities and linked this change to the Mama na Mtoto project. This was noted as a change from the past, when women would wait longer to receive health services. Whereas now, participants described health facilities to demonstrate a new priority for pregnant women and newborns, resulting in more efficient services and timely transfer of care when needed.</p> <p><i>"... before Mama na Mtoto project, I used to see in health facility like where I work, they were supposed to queue as normal patient to see health providers, but after Mama na Mtoto project there changes and there is a special place for mother and children and that is what I saw as significant changes and I congratulate the project ..."</i> [HFGC Focus Group]</p> | |
| Theme: Enhanced Child Wellness | |
| Overall Improved Under-Five Child Wellness | |
| <p>A recurring theme emerging from participant groups was perceptions of overall improved child wellness that was attributed to Mama na Mtoto implementation (particularly for children under five) in the areas of nutrition, immunization, disease prevention, and health facility visits.</p> <p><i>"The success brought by Mama na Mtoto project is that ... children under five are brought to the facility for weight measure but also children are coming for vaccination at the right time."</i> [CHW Focus Group]</p> | |
| Improved Nutrition | |
| <p>Participants described enhanced community education regarding nutrition for infants and young children. Some parents spoke about the impact of CHW education on breastfeeding and the health benefits of colostrum, introducing solid foods, food preparation, preventing malnutrition, and the availability of support from CHWs. Household visits from CHWs appear to positively impact families, leading to enhanced nutritional awareness and practices. Community members shared an increased willingness to seek help when needed.</p> <p><i>"... we have benefitted through our CHWs that the first milk is rich for the baby and it is nutrition and a cure, so we have that knowledge which is a benefit for us, in the community and family."</i> [Mothers Focus Group]</p> | |

Table 10: Key Qualitative Themes, Health Outcomes (Continued)

Increased Uptake of Vaccinations

When describing health changes resulting from Mama na Mtoto implementation, participants (particularly health and government leaders) spoke of increased uptake of child immunization services. Participants perceived that more children are receiving timely vaccinations, which was attributed to increased community awareness facilitated by CHWs.

"I have see the changes to my community, people have been motivated and increased awareness, majority are deliver at the clinic and children are getting vaccines at the right time. Before we find other children with three years without any vaccine even one vaccine, but for now they are no longer ... all of them are going to clinic and get vaccine. And for those who are sick, those mothers are staying at home while they are sick, now they are coming to clinic and get vaccine at the right time." [CHW Focus Group]

One CHW described an experience with a family who resisted vaccinations due to a fear that they would cause disability. However, through education and moral support, the CHW was able to convince the mother to take her children to the health centre for immunizations.

Improved Well Child Care-Seeking Behaviours

Participants shared a perception that overall more children are receiving health services and immunizations in Kwimba and Misungwi districts. Participants spoke of an increased willingness of families to bring infants and young children to health facilities for routine check-ups and immunizations as well as to address illnesses. Likewise, VEOs and health workers described health facilities receiving more child patients. Some of these participants also spoke about the role of the CHWs in encouraging postnatal care and health facility check-ups for children. However, specific discussion of postnatal care and follow-ups for women and mothers was not apparent from the data.

"Another positive result seen is for the children in the community with different health challenges. Through CHWs who have been trained by the Mama na Mtoto project they have been able to identify them and give the referrals to come to the health facilities, and these children have been attended immediately ... in case there are children who have not been given vaccinations, they are also given referrals and come, and these have been a positive results which has support us to identify children at the early stage." [CHW Supervisor Focus Group]

Theme: Improved Home Hygiene & Sanitation Practices

Numerous participants, particularly mothers and fathers, discussed the role of CHWs in encouraging people to live in a clean, healthy environment with proper sanitation for washing and food preparation. In particular, many participants mentioned an increased awareness around having proper latrines and toilets. Participants highlighted the impact of community education through CHW home visits and public meetings. Community members shared an awareness of the importance of healthy home practices, suggesting that many households have improved their living environments.

"There is a big understanding compared to the previous time ... before people were not aware about health regulations ... but they have come to sensitize about toilets, people nowadays are educated ... almost each household has a toilet and clean water ... people have this awareness after the Mama na Mtoto project." [Mothers Focus Group]

Theme: Increased Reproductive Health & Family Planning Awareness

Engagement of Youth in Reproductive Health

Participants shared that communities, particularly youth, were receptive to education surrounding safe reproductive health.

"... introducing CHW at the community level was there purposely to ensure availability of knowledge to the community members ... they were not utilizing it because of lack of knowledge ... now we're visiting secondary schools on reproductive health, it is good. In the future ... perhaps every community member will be aware ... after the Mama na Mtoto reproductive health education spread in the secondary school, everyone will be aware." [VEO Focus Group]

Uptake of Family Planning Education

Participants observed that CHWs are bringing family planning awareness to community members—men, women, and youth—through education. This includes using contraceptives to control the number of children in a family and the intervals between their births.

"... the CHWs are advising us to apply the family planning methods and spacing between children and get time to use contraceptives." [Mothers Focus Group]

3.1.2.2 Non-Health Outcomes

| Table 11: Key Qualitative Themes, Non-Health Outcomes |
|--|
| Theme: Enhanced Male Engagement in Maternal & Child Health |
| <p>Improved Family Dynamics</p> <p>Fathers, community leaders, HFGC representatives, and CHWs mentioned a noticeable increase in male engagement in maternal, newborn, and child health. Numerous participants commented on enhanced closeness, communication, and cooperation within families, particularly between husbands and wives. Fathers were particularly forthcoming when discussing male engagement and the positive impact on family relationships and functioning. Many participants commented that the increase in male engagement was, in large part, due to CHW home visits and education about the important role of fathers in antenatal care and birth preparedness.</p> <p><i>“Let me give another example about relationship, since the project began ... I think motivation has been there, we have peace now and the love been restored in our families ... speaking on the issues of mother and child, we were mobilized that if the mother maybe has another child, you as father you’re supposed to help her with other responsibilities in the household ... not a normal thing for men ... in that sense I think peace has been retained.” [Fathers Focus Group]</i></p> |
| <p>Increased Partner Attendance at Health Facilities</p> <p>Several participants commented on the role of men in encouraging pregnant women to attend health facilities for antenatal care, coupled with an observed increase in attendance at health facilities by pregnant women together with their male partners. All types of participants, but particularly men—including fathers, village leaders, and HFGC representatives—commented on an increased community awareness about the importance of men attending clinics with their pregnant wives, and the noticeable overall increase in male engagement at health facilities.</p> <p><i>“There is a personal change ... I was not aware on health education that I supposed to attend clinic with my wife, so I thought it was for her to go and come back or attend clinic alone. But now I have understood ... I thought it was mothers’ responsibility to go to clinic all alone. After educated I am aware that I have a chance to go and listen to the health expertise while educating on the reproductive health and child care sessions ... thank you ... there are so many thing we are educated, reproductive health, how to upbringing children ... so I am enjoying.” [VEO Focus Group]</i></p> <p>However, participants mentioned that some resistance from men still exists due to traditional attitudes and beliefs that men should not be involved in women’s health. Many participants identified the need for ongoing education to maintain the momentum of male involvement and further inform community members.</p> |
| <p>Male Desire to Lead by Example</p> <p>When speaking about male engagement, some male participants identified the importance of role modelling, indicating a personal desire to set a positive example for other men in the community. Several male participants also mentioned the personal benefits derived from becoming more involved in the health of their partners and children including education, awareness, leadership, and healthier families.</p> <p><i>“I personal I do get involved so that my community to know the importance of the project ... I attend clinic with my wife for health services ... sometimes they see us together, therefore through my involvement that why we can see that achievements ... yes, I am a role model ... that we have not brought something which is harmful to their health.” [VEO Focus Group]</i></p> |

| Table 11: Key Qualitative Themes, Non-Health Outcomes (Continued) |
|---|
| Theme: Improved Gender Equality & Female Empowerment |
| <p>Impact of Gender Equality Training</p> <p>Participants reflected on enhanced knowledge of gender equality in the community, including increased family cooperation and female empowerment, which in turn can lead to improved maternal, newborn, and child health, especially in the areas of birth preparedness, accessing timely care, and decreased family violence. This enhanced knowledge was attributed to the gender equality training that Mama na Mtoto provided to CHWs, health providers, and local leaders. This change in perspective may impact society at multiple levels: individuals, families, health facilities, and communities.</p> <p><i>“Changes which I see ... most of men have changed, we used to segregate work that these work are for women only and those are for men, but for now we are cooperating very well ... like fetching water we used to leave it for women, but as for now we have been educated we are close with them and we are helping each other heavy work.” [Fathers Focus Group]</i></p> <p>However, one participant noted that though the movement towards gender equality is important, it can be challenging in a society where male-dominated customs and beliefs are so entrenched in the local culture. Care must be taken to ensure that gender equality issues are addressed in a way that is still sensitive to existing social norms.</p> <p><i>“... there is something good from Mama na Mtoto I saw but is contradicting the community’s culture. It is really meant to improve the peoples’ health but is contradicting. The thing is this gender equality which good but when you go to the community it needs a great experience and it should go gradually and we later see its fruits but as per now it is a challenge in changing this community from chauvinism to feminism when things to consider is that people are born in an inequality men dominating world which is a normal thing in a community so it is like you are intervening their norms it is the thing that needs courtesy for you to move with the community.” [Health Facility In-Charge Focus Group]</i></p> |
| <p>Increased Female Empowerment</p> <p>In addition to gender equality, participants commented on the improved status of women in households and in society. Participants also noted increased female empowerment as more and more women are being seen in frontline roles, such as being a CHW. The role modelling and leadership of CHWs has improved the status of women in communities where women report feeling that their voices are now being heard. As the status of women increases, some participants identified this as an opportunity for women to step into a new leadership role of being advocates for and empowering other women.</p> <p><i>“I would like to talk about leadership, if I look in our area, in the past the community used to say that if a woman stand up and talk on something it seems as whatever she is talking is pointless, but if I look now, when I look at these CHWs in our village a big percent are women so through that the community see that even women can do something.” [Health Workers Focus Group]</i></p> |
| Theme: Engagement in Entrepreneurship & Economic Development to Support Health |
| <p>CHW Engagement in Community Entrepreneurship</p> <p>Participants mentioned increased entrepreneurship and enhanced economic development associated with the Mama na Mtoto project, particularly amongst CHWs. Though such activities were not a planned component of the project, CHWs reported working with their peers to establish entrepreneurial and income-generating activities for personal and community benefit. Activities included making and selling liquid soaps and textiles, animal husbandry such as keeping goats and chickens, and financial saving and lending. Through role modelling, CHWs have also played a role in mobilizing communities to participate in similar activities, recognizing the important connection between enhanced economic activity and community health, particularly for birth planning and preparedness.</p> <p><i>“... through CHWs they have been motivated that they should not stay idle ... they have established their groups which are existing to the moment, they have motivated each other, there are some CHWs who are keeping goats, others chicken ... others have been able to get income through these goats and other animals they are keeping ... it has helped even at their community and they continued to motivate other community members to establish groups and make sure that they are improved economically.” [Government Interview (CHMT Member)]</i></p> |
| <p>Recognized Linkage Between Economic Development & Community Health</p> <p>Participants discussed an increased recognition of the personal and community impact of economic mobilization on health, and vice versa. Many identified a correlation between financial wellbeing and improved maternal, newborn, and child health outcomes as well as overall community health, including health promotion awareness, birth preparedness, reduced deaths, reduced community burden, and increased community development. This gained knowledge was learned through Mama na Mtoto education or observations in their community. One community leader emphasized the noticeable impact of Mama na Mtoto education in his village, identifying a link between increased education and awareness with a reduced community burden, which in turn can yield greater opportunities for community members.</p> <p><i>“... on the point of economy I can say that Mama na Mtoto project has helped to a large extent when it provided enough education ... now everyone has enough education on the dangerous signs on the side of a woman, but also for the father to know on the importance of having good health to his partner and the children ... come to the hospital early instead of waiting for the problem to become worse ... get the right treatment and goes back at home and continue with their economic activities and to increase the national income.” [Health Workers Focus Group]</i></p> |

3.1.2.3 Project Integration

| Table 12: Key Qualitative Themes, Project Integration |
|---|
| Theme: Building Strong Connections with the Community |
| <p>Visible CHW Presence in Communities</p> <p>Participants described a visible and felt CHW presence in the communities, emphasizing that CHWs have been able to reach families and cultivate a real community connection through building trusting relationships. This highlights a success of the project to establish the CHW network in their communities.</p> <p><i>“We have been seeing them helping in the communities ... when they visit household to household. They ... advise on issues of health related issues ... they have been good people for visits us on the issues of health, even on the use of the latrine, you are supposed to have a good latrine ... they have done a lot of seminars to teach women and us old men, they have taught us a lot of things.” [Fathers Focus Group]</i></p> |
| <p>Appreciation for Community-Based Efforts</p> <p>Some participants described the importance of activities that aim to reach families deep in the community, as opposed to only addressing issues at the health service level, for example. Participants expressed appreciation for Mama na Mtoto’s use of CHWs to facilitate sustainable changes within the community; as a result, community members felt impacted by this project, which encouraged participation, empowerment, and local ownership.</p> <p><i>“... a lot of projects aimed at the health service providers, to teach us how to do our tasks, but they hadn’t gone too deep in the community itself because the community is the source of everything, if the community does well at their level and we here in the health facilities perform well it will be better. So a lot of projects have based in teaching us on family planning how to do it, how it is but they haven’t reach the families.” [Health Workers Focus Group]</i></p> |
| Theme: Alignment with District Priorities |
| <p>Participants noted that a defining characteristic of Mama na Mtoto project implementation was its efforts to align activities with pre-existing district priorities and systems, as opposed to initiating a new system. This was considered a key factor to implementation success and it was attributed to the project’s efforts to engage participation at all levels, from the hamlets to the Ministry of Health. A Regional Health representative recognized this as a key factor to sustainability.</p> <p><i>“... the most important thing is that the project used the existing structures, the project has not come with staff, apart from the project management team, in all other levels we have used the existing health providers and where there was an addition it was through the existing system. We have used the existing staff in the health facilities, health committees they have not come with a new committee structure, they have used the existing one ... that has been our concern that partners should not come with new things, rather they should align with the government structures that will ensure sustainability after the projects.” [Government Interview (RHMT Member)]</i></p> |

Table 12: Key Qualitative Themes, Project Integration (Continued)

Theme: Political Challenges: Local Rules & Norms Undermining Project Goals

Bylaws Affecting Women Without a Partner

In an effort to increase male engagement in women's pregnancies, many communities established local government bylaws requiring women to be escorted by their male partners to health facilities for antenatal visits. However, this has posed a challenge for pregnant women who do not have actively engaged partners or those whose partners are unavailable to attend, potentially alienating them from health facility care. As a result, participants described some women being turned away from health facilities or feeling reluctant to go altogether for fear that they will be berated by health workers. In some instances, women without a partner have even been advised to find any man to act as their partner and escort them. In other instances, providing the woman a CHW referral form or letter from a hamlet chairman helped to facilitate access to care without male accompaniment. Health facility and community leaders commented on this challenge, highlighting some problem-solving that has been done to support women without partner attendance. However, these are short-term solutions that still do not address the larger ongoing issue of health facilities not accepting all pregnant women for care, raising questions of health equity and fairness.

"... pregnant women were asked to come with their spouse so that women came and told me 'they refused to attend me' why? ... 'she said 'because I did not go with my husband for the starting day ... I don't have husband, I just got impregnated.' So, I told her if she wants to be accepted in the facility, take even your brother and go with him pretending he is your spouse so that you can get service ... I was not aware that is Mama na Mtoto who introduced that system that husband ... should go to the clinic and diagnosed as well." [HFGC Focus Group]

Interestingly, one HFGC representative seemed to believe that the bylaw was invented or insisted by the project. Another representative requested for particular, concrete guidance on the issue. These comments demonstrate an implementation process challenge with leadership training, as the Mama na Mtoto project has in fact already made efforts to train and problem-solve with health leaders and in-charges about the bylaw.

Home Delivery Bylaws

In an effort to encourage health facility deliveries, some villages have also implemented a local bylaw of fining home deliveries. However, a participant described one case of corruption where a village government took advantage of this bylaw for financial gain. Families who preferred home deliveries and could afford the fine simply used the bylaw as an excuse to bribe village leaders, who then pocketed the money for personal income. This ultimately undermined the project's messaging about the importance and safety of delivering at a health facility.

"Another bad thing from the village government, it seems Mama na Mtoto started from the district then the villages and the government has the right knowledge over the hospital-delivery and one day we decided to provide an education but they kept delivering at homes and one day we passed that let's write a guideline whoever delivers at home, local attendants or to the traditional healer must be penalized and the village government saw its applicability where they started to charge them silently and I was told to remain silent and all end at the village executive officer who collected ten to fifty thousand money as charges and they changed but soon later that habit was resumed because they just talk with the village chairperson and it is over. This hindered our efforts on hospital-delivering and they agreed that you just stay at home and while in the final stage just rush to the hospital and they win because when you try to call the district they scold you harshly so you pamper them for five minutes and things are alright so they inform one another about the situation and this is a challenge . . . and the community knew when you deliver at home you will be fined and they just follow the chairperson and everything is settled so the devotion declined massively." [Health Facility In-Charge Focus Group]

While this case has only been reported in one village so far, a participant identified a concern about potential corruption, as a village government cannot truly emphasize the importance of health facility deliveries to the community while profiting from home delivery fines.

Table 12: Key Qualitative Themes, Project Integration (Continued)

Conflicting Messages Regarding CHW Community Works Contributions

In order to motivate and disburden CHWs who were volunteering in one or more of these areas, some CHWs were assured that they would be exempted from community works and related duties. While village governments acknowledged the importance of supporting CHWs in their training and work, some villages ultimately did not honour the exemption, resulting in some CHWs feeling conflicted between their health promotion and civic duties. In at least one village, CHWs reported feeling burdened with the expectation of contributing to community works while working as a CHW. This failure by the local government to honour the original agreements represents a failure in the project's implementation process to work with local leadership to support the CHW network.

"... for non-health impacts I have a negative one that while they were getting CHWs training, ward leaders who participated, during launching the trainings there was a part in the training stating the responsibility of the village's government is responsible for motivating the CHWs for them to perform their duties effectively in the villages and during closing the training they assured to exempt CHWs from community works; in the duties like collecting the building stones or contributing for the school chairs' costs but the government denied all these agreement and saying that you must all contribute, collect the sands, and participate to buy school chairs and they said we better contribute the money but not going to collect the sands and they were disappointed over the government's denial, they expected a discount and I tried to ask for their exemption only to be told write a minute for us to compare the work with and without them but when do you find a VEO he will stay two years in the office with the meeting minutes and this became a challenge on my side because I expected an acceptance and the nature of our environment is muddy and she comes twenty kilometers just to collect the sands which is hard and it became that a certain household must be visited and while on the way she got a call there a woman who is in labor pain come and escort her so it is challenge indeed." [Health Facility In-Charge Focus Group]

Political Influence in Care-Seeking Decisions

In some communities, health workers face the multidimensional challenge of supporting patients and families who refuse important aspects of care, which undermines the project's goal to improve maternal and child health. One health worker described an experience in which a pregnant adolescent should have been transferred to a hospital for high-risk delivery care, but her husband (who had high political influence) and the local councillors refused. This resulted in a challenging birth experience at a local dispensary instead. Health facility staff did their best to care for the young woman and newborn in suboptimal circumstances, but they were later blamed for the poor outcomes, which led to social criticism and repercussions from political figures.

"We still face a challenge of political leaders ... I faced something at the facility. I received a patient that was fourteen years old who was pregnant, she attended her clinic more than five times ... but ever since she began her clinic she never came with her husband even once ... she was the fifth wife to that man who was a traditional healer and that traditional healer was very famous to the politicians, so on the day of delivering she came ... the influence of the councillors ... they were instructed ... go at the district hospital and get services there, but those people refused ... so that girl remained ... her outlet it was still small for the baby to pass ... we tried explaining, but they said 'she will just give birth' ... so that girl remained there ... she gave birth but instead of the child to pass at its normal way the mother tore between the vagina and anus ... not to find a person to stitch her was difficult ... came to help us there was a young man ... had experience so he stitched her ... Now the problem came to the person who helped her give birth, Councillor asking 'why did the child pass through the wrong path and not its normal way' so it brought conflict between the facility staff and the councillors ... they came straight until to the district ... and complaining I am not attending the patients well, honestly that hurt me a lot. So now with politicians we still face a lot of problems with them, especially with the councillors and also other politicians." [Health Worker Focus Group]

Even so, health workers expressed that their Mama na Mtoto training has prepared them well for such challenging experiences, attributing training to an increased sense of leadership, collaboration, unity, solidarity, and hope.

3.1.2.4 District Leadership

| Table 13: Key Qualitative Themes, District Leadership | |
|---|--|
| Theme: Leadership Capacity | |
| Enhanced Leadership & Communication | <p>Several participants with a leadership role in the project perceived enhanced leadership capacity as a result of Mama na Mtoto training and implementation, both in their own ability to lead and in the leadership capacity of their colleagues. Participants described being better at effective communication and decision-making, which are skills that can also be used in their personal lives.</p> <p><i>“First they trained me how to be a good leader, and there were things which we used to do which were not correct for what a good leader is supposed to do, to be harsh and harass your subordinate on how you are supposed to talk to and direct them. Those are the things [Mama na Mtoto] directed me. But also they have been able to help me one thing which I see it to be more big, I was enabled to become a teacher which I never thought about that. So I have come to find that sometimes I became a teacher to another districts and I understand that I gained this knowledge through Mama na Mtoto project.” [Government Interview (CHMT Member)]</i></p> |
| Strengthened Supportive Supervision | <p>Both health district representatives and health workers highlighted the value of the supportive supervision training that Mama na Mtoto provided to health leaders, particularly in strengthening interpersonal relationships with colleagues. Health district representatives commented on improved collaboration with health facilities, and conversely health workers expressed being managed and treated better by CHMTs, including their efforts to gather feedback on the supervision experience. These relationships not only improve work dynamics, but can also enhance the quality of healthcare at facilities.</p> <p><i>“... what I have seen in the district ... supervisions they were not going well ... but we appreciate this time when there is supervision we are given the timetable ... so this helps us to have a mind preparation ... you have a peaceful mind ... you cooperate well and direct each other compared to before ... after the supervision they give a chance to share your opinions, how do you see the supervision, how does it help you ... things like that.” [CHW Supervisor Focus Group]</i></p> |

Table 13: Key Qualitative Themes, District Leadership (Continued)

| Theme: District Engagement & Ownership |
|---|
| <p>Stakeholder Engagement</p> <p>Leaders from the districts, health facilities, and communities expressed valuing the practical knowledge and engagement brought by Mama na Mtoto project implementation and training. Participants appreciated being involved in decision-making processes, which enabled them to guide project initiatives so that they were relevant to the population and aligned with district needs and goals.</p> <p><i>“... as a human being and a leader I am learning every day. ... Mama na Mtoto has its scope, but it welcomed other ideas from us as leaders, so it has been so helpful even to sharpen our leadership skills rather than just to leave the project to be implemented ... this project it allowed innovations to be done, so as a leader I have to sit and think what kind of innovation ... because the project allowed that innovation, if the innovation is for improvements it was accommodated ... involvement which has helps us to increase innovation as leader I using the available resources to maximize our implementations.” [Government Interview (CHMT Member)]</i></p> <p>However, there were also some comments suggesting room for improvement, particularly in communicating ongoing Mama na Mtoto project implementation progress. Although all participant groups were generally aware of project goals and benefits, not all participants expressed a clear sense of implementation timelines or objectives in their specific community or health facility.</p> <p><i>“The involvement was good and to some extent we have enjoy the feedback which were shared after the implementation. But also there are some areas which are not clear for the implementation of Mama na Mtoto project ... there was a project of implementing the staff houses, construction and improvement of health facilities ... but of today we are not informed that how does that implementations going on, my facility was one of the area which was selected for that implementations, but we have not get any feedback ... so we have not been well involved we are not aware what is going on.” [CHW Supervisor Focus Group]</i></p> |
| <p>Good Leadership Accountability</p> <p>District health leaders acknowledged the importance of good leadership accountability and governance for successful project implementation and sustainability. They expressed that accountability in the project has generally been good, particularly amongst individuals who have been very involved in activities.</p> <p><i>“... accountability in the project is good, majority, especially for those who are direct involved in the Mama na Mtoto activities. Challenge might be for those ... have not been fully involved ... then accountability might not be high. But for those who directly involved their accountability is high and that why we have been able to see the positive changes.” [Government Interview (CHMT Member)]</i></p> |
| <p>Community Engagement</p> <p>In addition to district and facility engagement, participants also discussed the importance of community ownership and engagement for successful project implementation and sustainability. Participants appreciated the project’s efforts to also involve individuals that do not have a traditional leadership role, including health workers, CHWs, and families.</p> <p><i>“What interesting me in this project is how they have involved the community in general. They have involved from the top leaders, middle leaders and the low leaders, health providers, CHWs and the final beneficiaries. Therefore it has been easy because everyone was involved ... so the good thing is that involvement from the higher to the low levels. That means we are not getting more challenge, because the community is aware ... we are the recipient of the service.” [CHW Supervisor Focus Group]</i></p> |

3.1.2.5 CHW Network

Table 14: Key Qualitative Themes, CHW Network

| Theme: CHW Activities in the Community |
|--|
| <p>CHWs Taking Action</p> <p>All participants expressed awareness of CHWs actively working in their communities. Participants were able to identify various CHW activities including community education, household visits, promoting earlier antenatal care at health facilities, attending health facilities with women and families, escorting pregnant women to deliver at health facilities, working at health facilities to ensure a clean environment and positive client experience, supporting healthcare staff, promoting child wellness, and educating households about reproductive health and family planning. Participants shared that, through income-generating activities and the establishment of CHW networks and groups, many district areas have been able to establish a sustainable, functional CHW network in and for their communities. Participants identified that, through their outreach and work, one important CHW role has been to identify specific challenges in their hamlet or village. Local challenges are communicated through CHW reporting so that government and health leaders are positioned to help stakeholders take action. Where CHWs have identified a specific community challenge or need, they have been able to offer community education through household visits and local forums.</p> <p><i>“These CHWs are accountable in the community by visit the households and provide health education but also to support the community to be able to take action on health issues ... they must provide a report to their supervisor at every health facility ... we go through report and see in case there is any challenge ... we go the specific areas to solve it in order to support the CHWs in their implementation.” [Government Interview (CHMT Member)]</i></p> |
| <p>CHW Home Visits</p> <p>Participant groups discussed the importance of CHW home visits in their communities. By building personal relationships with families through home visits, CHWs have been successful in educating households about maternal and child health and bridging previous community resistance to seek health facility care.</p> <p><i>“Indeed we appreciate Mama na Mtoto people for what they have done, we had big problems, but currently those problems have reduced. Here I am, have a baby, when a baby is sick I don’t know Swahili, I cannot go and tell the doctor my child has a boil at the buttock, I am afraid. Mama na Mtoto have brought us CHWs, they visit us every day, I mean every day. Even when you have a problem they come at your home and ask you ‘how are you, how is your child,’ I say ... and he has already take you to the doctor and you get good service.” [Mothers Focus Group]</i></p> |
| <p>CHW Referrals to Health Facilities</p> <p>Participants discussed the impact of CHW referrals to health facilities in encouraging families to attend health facilities. Numerous participants also commented on the important role of CHWs in enhancing the care-seeking experience, particularly for pregnant women. This includes CHWs providing referral forms for mothers and children, helping to arrange transport, or even personally escorting clients to the facilities.</p> <p><i>“In my working area, CHWs they have done good things ... giving referrals to the patients to come in the facility ... giving reasonable referrals ... referral letters ... accompanying pregnancy mothers to deliver at the health facility, they have been very helpful to accompany pregnant mothers who are coming from far areas ... but also CHWs have been involved in the cleanness activities at the facility ... before conducting the meeting they will come at least half an hour before and conduct cleanness at the facility. So those are some of the good things that have been identified and conducted by CHWs in our area.” [CHW Supervisor Focus Group]</i></p> <p>However, many CHWs also discussed some challenges with carrying out the referrals, where clients or health facilities may not always honour the referral forms. These challenges highlight an area that may require further implementation support.</p> <p><i>“The challenges I have come across ... in my hamlet when I visited a client either mother or child, and she has not normal symptoms, I must give her a referral, and then she will go to the health facility and bring back the piece of paper from that referral during home visits ... when a client go with that referral once she reach the health facility they will read it, it has written where she is from, name of CHW. They give back that referral to the client saying ‘take your paper ... we don’t know’ ... the client is given back that referral paper as it was, so this is reduced the trust to the client and me.” [CHW Focus Group]</i></p> |

Table 14: Key Qualitative Themes, CHW Network (Continued)

Theme: Community Resistance Due to Community Attitudes & Beliefs

When discussing challenges to implementing project activities, participants described stories of community resistance from men and women, sometimes due to misunderstandings but in other cases due to deeply entrenched attitudes, beliefs, and fears. Such resistance has particularly been a barrier for CHWs in their efforts to educate and motivate families to seek care at health facilities. Examples included value differences, community members not trusting CHWs due to misunderstandings about their volunteer role, men not agreeing to attend clinics with their partners due to traditional perceptions about the role of men, women delaying their care-seeking due to cultural norms around pregnancy and childbirth, or families expressing fears towards health facilities and vaccinations. Despite these challenges, CHWs have worked hard to educate and build relationships with community members to promote maternal, newborn, and child health.

“... whenever there is success there is also a small challenges. The challenge which our CHWs come across is, because our community is not used to get education, so sometimes they are not getting enough cooperation to some of the household, due to different beliefs, some of them might be pregnant although it might be small but they afraid to say, maybe if she say might bewitched, or make people know about it, so she hide it.” [CHW Supervisor Focus Group]

Theme: CHW Resource Challenges

CHW Transport & Mobility Barriers

Another challenge identified by several participant groups as a barrier to carrying out CHW activities was the burden of CHWs to commute within and around their communities to visit households and health facilities. This is particularly challenging for hamlets that are physically large or located in a remote area. Suggestions were made to provide CHWs access to transport and bicycles.

“Another challenge from this project is a lack of transport for CHWs. Most of the time CHWs are working far from the health facility. For example, in my facility ... some of the CHW have to travel about 5kms to the dispensary ... when they reach to the community maybe there is a pregnant mother ... the community is not aware to prepare transport, they depend on the CHWs to prepare everything to enable that mother to reach in the health facility. So transport challenge is among the things which have slow down the implementation in some areas due to geographical locations.” [CHW Supervisor Focus Group]

Lack of CHW Access to Protective Equipment

In addition to transport means, CHWs made requests for access to rain gear, stationary, and equipment. One repeated request communicated by several CHWs was access to disposable protective gloves to enable CHWs to safely support women and newborns. This request derived from situations where CHWs wanted to better support women during situations that might require proper personal protective equipment. For example, while CHWs were not trained to deliver babies, many of them described experiences of inadvertently finding women delivering outside of a health facility and feeling troubled about touching the mother or newborn without gloves. CHWs also described the usefulness of gloves to facilitate health assessments during home visits.

“I am requesting for us as CHWs during our home visits ... when I find that a mother who has delivered, I have to carry the baby and for her to go with a motorcycles but I don’t have gloves, you see, we were not given gloves. Sometimes you may visit a mother while registering with your books, you find she is sick, and if you have gloves you can touch and look at her and give her referrals, but we were not given gloves. So we would like to ask ... for CHWs, you might find a mother and look for her a transport and you cannot touch her with bare hands, as CHW I should act in a healthy manner.” [CHW Focus Group]

3.1.2.6 Sustainability

| Table 15: Key Qualitative Themes, Sustainability |
|--|
| Theme: Leadership & Engagement |
| <p>Strengthened Community Relationships</p> <p>Participants expressed that the Mama na Mtoto project has built important relationships—or strengthened existing ones—between many levels of the community structure. All types of community members, including mothers, fathers, children, traditional healers, health providers, and community leaders, were described to have been interconnected by the project in some way, and many participants felt that they have benefitted. This includes CHWs developing supportive relationships with their peers, CHWs establishing better linkages with the health system and local leaders, improved reporting and communication about household issues, and facilitation of peer-to-peer mentorship and training between health district staff, health workers, CHWs, and community members. These strengthened community relationships may help to ensure that the project benefits can be sustained in the long term.</p> <p><i>“My advice to any other district ... to implement Mama na Mtoto project, they should not only expect benefits for mother and children ... they should expect that the project will improve health service in their area including the skills of the health providers ... capacity building and mentorship from the project it has a benefit to the staff. But more than that, is to the community in general ... it helps them to get health education from the hamlet level ... help to link the community and the health providers ... link health providers and make sure the health services are provided well ... the project is helping to link community and community because it provided trainings to the health committees ... better techniques to implement health services in their areas.” [CHW Supervisor Focus Group]</i></p> |
| <p>Importance of Strong Leadership & Collaboration</p> <p>Participants discussed the importance of continued leadership, accountability, and collaboration to maintain sustainability of project activities. Many participants felt this was possible due to their involvement with the project’s decision-making and planning thus far, creating a feeling of ownership. However, they also recognize that this cannot be done without putting in the work. While participants recognized that the Mama na Mtoto project would ultimately come to an end, they hoped that a system of supports could be implemented through collaboration with government and health leaders in order to sustain project activities and goals for the ongoing benefit of communities. Many stakeholders expressed hope that, with structures and supports in place, CHW activities could continue without Mama na Mtoto oversight.</p> <p><i>“We want to build that sense in the community or to our government structures that every project should be sustainable ... we have trained CHWs ... knowing that s/he will be trained ... will be recognized in the community, but the issue is how are we support CHWs to implement their responsibilities through the existing structures. We know that ... this is our people and we can continue to use them I other programs which will be conducted ... so that will enable to sustain that people ... even if the project has stopped or Mama na Mtoto have finished their time ... activities will continue to be implemented ... the most important thing on accountability to enable the project sustained in the community.” [Government Interview (CHMT Member)]</i></p> |

Table 15: Key Qualitative Themes, Sustainability (Continued)

| |
|--|
| Theme: CHW Sustainability |
| <p>CHWs Will Continue to Exist</p> <p>Many participants were optimistic that activities, including CHW involvement in communities, would endure after project completion. Reasons provided were that the CHW network was established within pre-existing structures, CHWs have built skills and capacity, CHWs have developed good relationships with their communities, and CHWs have demonstrated strong collaboration and a commitment to their volunteerism, including starting their own income-generating activities. One government representative also felt optimistic due to the success of the sustained CHWs in Uganda, describing appreciation for learning from their successes and failures.</p> <p><i>“CHWs will continue to exist, because they have the capacity and they can be sustainable, for example ... they have established their groups, whereby some of the groups have been for money lending, and others is for economic empowerment ... we believe these CHWs groups will continue to work ... they have their coordinator at the district level ... there is a need to have CHWs coordinator at the district level, he is there and collaborates with them, in report collection to ensure that they are going ahead under the district leadership.” [Government Interview (CHMT Member)]</i></p> |
| <p>Reduced CHW Motivation Threatens Sustainability</p> <p>While all participants wish to see continued positive outcomes, particularly through CHW involvement, many also recognized challenges to sustaining their volunteer roles, highlighting motivation as a potential sustainability barrier. Specifically, participants mentioned the lack of remuneration, coupled with a heavy workload as having an affect on deteriorating motivation. Suggestions were made to provide CHWs allowances to sustain their motivation after the project.</p> <p><i>“The challenge we are facing ... it is a voluntary work, what they get is not enough to cover for their family needs ... we have drop outs, some of them caused by family responsibilities, because of the limited incomes. If we could be able to add for what they are getting, we could be able to sustain their performance ... they are using a lot of time to serve the community, it is a tough job, it is real tough ... they should volunteer but it is a difficult job.” [Government Interview (RHMT Member)]</i></p> |
| <p>CHW and Supervisor Requests for Equipment & Transport Support</p> <p>CHWs and CHW Supervisors also articulated the need for ongoing provision of their working tools and supplies, as well as support to continue their group meetings. For instance, there was a concern that CHW register and report books would not be replenished, or that the team meetings would not be sustained after the project. Additionally, a recurring theme was a request for provision of equipment and transport that may help CHWs to better serve their area, including notebooks, protective gloves, rain gear, bicycles, or other transport supports. CHWs expressed a concern about attending to women and families in a timely way, especially in the night and particularly if they serve a geographically large area.</p> <p><i>“I am worried if the project activities will continue after the end of the project, for example ... submission of monthly report, this may not continue because CHWs may have a limited working tools such as register and report books ... my request to the Mama na Mtoto project ... would look more on how to strengthen CHW groups ... enable them to be together for a long time ... enable them to meet regularly and discuss important issues which they can sustain.” [CHW Supervisor Focus Group]</i></p> |
| Theme: Education & Training |
| <p>Learned Knowledge & Skills Will Remain</p> <p>Participants spoke about the benefits of the training and education provided by the project, indicating that their new leadership skills and health promotion knowledge are unlikely to be forgotten. Community members also discussed sharing their knowledge to other community members or the future generation so that the education can be sustained.</p> <p><i>“This activity will be sustained because every one of us, through CHWs, we have learned ... the way we have been taught for example, in my family I am already a teacher to my generations, when my child grow up I will direct her on how to care about the pregnant ... they will continue in the future generation even when this project come to an end, we as mothers will already have the knowledge so it will not be much problem, we will be benefitting.” [Mothers Focus Group]</i></p> |
| <p>Request for Continued Education</p> <p>While participant groups discussed the positive impact of the education and training they have received through the project, several participants identified the need for ongoing education and support, particularly for volunteer CHWs. Village leaders highlighted the importance of ongoing community education to promote health facility attendance and ensure continued results.</p> <p><i>“There are some changes in my village ... before the Mama na Mtoto project and now. The education has been very useful to majority of people, they are now aware on the importance of attending to clinic at the right time ... whenever you go to educate the community, you expect good result, so when you see a good result you must be proud of it that we are in a good situation ... yes, we are heading in a good place although we are still needing the education.” [VEO Focus Group]</i></p> |

3.2.1 Health Facility Characteristics

[illegible]

Misungwi District

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| Table 16: Health Facility Characteristics, Misungwi District | | | | | |
|--|------------------------------------|-----------------|---------|----------------|---------|
| Characteristic | | Baseline (2016) | | Endline (2019) | |
| | | Number | Percent | Number | Percent |
| Facility Level | All | 45 | 100% | 49 | 100% |
| | Hospital | 2 | 4% | 2 | 4% |
| | Health Centre | 4 | 9% | 4 | 8% |
| | Dispensary | 39 | 87% | 43 | 88% |
| Ownership | Public | 41 | 91% | 44 | 90% |
| | Private – Faith Based Organization | 3 | 7% | 3 | 6% |
| | Private – For-Profit | 1 | 2% | 2 | 4% |
| Facility Location | Urban | 3 | 7% | 1 | 2% |
| | Mixed | 13 | 29% | 3 | 6% |
| | Rural | 29 | 64% | 45 | 92% |
| Conducts Deliveries | | 45 | 100% | 48 | 98% |
| Facility Deliveries in Last 12 Months | Total | 11,033 | | 19,954 | |
| | Mean per Facility (SD) | 245 (416) | | 407 (464) | |
| U5 Outpatients in Last 7 Days | Total | 1,641 | | 1,989 | |
| | Mean per Facility (SD) | 40 (48) | | 41 (22) | |

Kwimba District

Characteristics of health facilities in Kwimba, surveyed in 2017 and 2019, are shown in Table 17. All facilities (n=58) were reported functioning during the Health Facility Survey in 2019 where 55 (95%) facilities reported conducting deliveries. Most facilities are publicly owned (91%) and in rural settings (81%). In 2019, there were 7 additional facilities located in a mixed setting compared to none in 2017. Facilities also reported conducting 5,000 more deliveries compared to baseline, which is a 50% increase. Similarly, there was a 75% increase in the number of U5 outpatients seen in the last seven days.

| Table 17: Health Facility Characteristics, Kwimba District | | | | | |
|--|------------------------------------|-----------------|---------|----------------|---------|
| Characteristic | | Baseline (2017) | | Endline (2019) | |
| | | Number | Percent | Number | Percent |
| Facility Level | All | 52 | 100% | 58 | 100% |
| | Hospital | 2 | 4% | 2 | 3% |
| | Health Centre | 5 | 10% | 6 | 10% |
| | Dispensary | 45 | 87% | 50 | 86% |
| Ownership | Public | 50 | 96% | 53 | 91% |
| | Private – Faith Based Organization | 1 | 2% | 2 | 3% |
| | Private – For-Profit | 1 | 2% | 3 | 5% |
| Facility Location | Urban | 4 | 8% | 4 | 7% |
| | Mixed | 0 | 0% | 7 | 12% |
| | Rural | 48 | 92% | 47 | 81% |
| Conducts Deliveries | | 48 | 92% | 55 | 95% |
| Facility Deliveries in Last 12 Months | Total | 10,986 | | 16,472 | |
| | Mean per Facility (SD) | 211 (508) | | 284 (474) | |
| U5 Outpatients in Last 7 Days | Total | 1,136 | | 1,987 | |
| | Mean per Facility (SD) | 23 (17) | | 35 (27) | |

3.2.2 Key Health Facility Indicators

Misungwi District

Key indicators are presented for 45 health facilities that had complete data from both 2016 and 2019 survey data collection (Table 18). At endline, there were important improvements across many indicators. Facilities that conducted deliveries (48) saw a considerable increase in the use of key personal protective equipment (+83%) and staff trained in BEmONC (+75%). There was also a 24% increase in facilities with a functioning communication device and a 76% increase in usage of electronic HMIS. Regarding emergency referral indicators, all facilities reported knowing the phone number of at least one referral site, and calling before referral sites before transferring patients, compared to 44% and 47%, respectively, at baseline. There was also a 24% decrease in patients sometimes paying for costs related to a transport vehicle.

The absolute change between baseline and endline was statistically significant for nearly all key indicators except for active quality improvement teams (+16%), the ownership of a functioning computer (+67%), and the ownership of a facility-owned emergency transport vehicle (no change).

| Table 18: Health Facility Survey Key Indicators, Misungwi District | | | | |
|---|---|-----------------|----------------|-----------------|
| Indicator | | Baseline (2016) | Endline (2019) | Absolute Change |
| Active Governance Committee (documented meeting in last 3 months) | | 36% | 62% | +26% * |
| Active Quality Improvement Team (documented meeting in last 3 months) | | 20% | 36% | +16% |
| Reliable power source | | 27% | 51% | +24% * |
| Functioning communication device | | 20% | 44% | +24% * |
| Functioning computer (hospitals and health centres only) | | 33% | 100% | +67% |
| Emergency Referral | Facility-owned emergency transport vehicle (hospitals and health centres only) | 50% | 50% | 0% |
| | Patients sometimes pay for fuel or other costs to use transport vehicle (public health facilities only) | 29% | 5% | -24% * |
| | Know phone number for at least one referral site | 44% | 100% | +56% * |
| | Referring site reports calling before transfer | 47% | 100% | +53% * |
| Health Management Information Systems (electronic) | | 13% | 89% | +76% * |
| Client toilet or latrine | | 40% | 82% | +42% * |
| Improved water source | | 36% | 78% | +42% * |
| Safe Equipment Processing ¹ | Sterilization | 36% | 58% | +22% * |
| | Chemical disinfection | 16% | 53% | +37% * |
| Key personal protective equipment available ¹ | | 4% | 87% | +83% * |
| Handwashing in delivery area ¹ | | 49% | 84% | +35% * |
| Safe final disposal of contaminated medical waste | | 31% | 84% | +53% * |
| Safe final disposal of sharps | | 30% | 86% | +56% * |
| Trained Staff ¹ | Essential Newborn Care | 44% | 91% | +47% * |
| | Helping Babies Breathe | 69% | 93% | +24% * |
| | Basic Emergency Obstetric and Neonatal Care (BEmONC) | 18% | 93% | +75% * |
| Available delivery beds ¹ | | 62% | 89% | +27% * |
| Antibiotics for newborn infection | | 9% | 51% | +42% * |

*statistically significant based on $p < 0.05$

¹Of health facilities reporting delivery services

Kwimba District

Key indicators are presented for 52 health facilities that had complete data from both 2017 and 2019 survey data collection (Table 19). At endline, the 48 facilities that conducted deliveries also saw a large increase in the use of key personal protective equipment (+69%) and all facilities reported having at least one staff member trained in Essential Newborn Care (+52%), Helping Babies Breathe (+48%), and BEmONC (+52%). There was also a 65% increase in facilities with a functioning communication device and a 53% increase in usage of electronic HMIS. Emergency referral indicators only changed slightly, though less patients sometimes paid for related costs (-32%). Nearly all facilities reported following sterilization practices for safe equipment processing (90% at endline compared to 58% at baseline), however there was a 15% decrease in the use of chemical disinfection though this change was not statistically significant.

Like in Misungwi District, most key indicators for Kwimba District showed statistically significant changes. Indicators that did not show a significant change were for presence of a reliable power source (+1%), ownership of a functioning computer (+57%), ownership of a facility-owned emergency transport vehicle (no change), knowing the phone number for at least one referral site (+6%), presence of a client toilet or latrine (+13%), and chemical disinfection for safe equipment processing (-15%).

| Table 19: Health Facility Survey Key Indicators, Kwimba District | | | | |
|---|---|-----------------|----------------|-----------------|
| Indicator | | Baseline (2017) | Endline (2019) | Absolute Change |
| Active Governance Committee (documented meeting in last 3 months) | | 58% | 73% | +15% * |
| Active Quality Improvement Team (documented meeting in last 3 months) | | 35% | 60% | +25% * |
| Reliable power source | | 37% | 38% | +1% |
| Functioning communication device | | 8% | 73% | +65% * |
| Functioning computer (hospitals and health centres only) | | 29% | 86% | +57% |
| Emergency Referral | Facility-owned emergency transport vehicle (hospitals and health centres only) | 100% | 100% | 0% |
| | Patients sometimes pay for fuel or other costs to use transport vehicle (public health facilities only) | 36% | 4% | -32% * |
| | Know phone number for at least one referral site | 94% | 100% | +6% |
| | Referring site reports calling before transfer | 90% | 100% | +10% * |
| Health Management Information Systems (electronic) | | 33% | 86% | +53% * |
| Client toilet or latrine | | 52% | 65% | +13% |
| Improved water source | | 88% | 94% | +6% |
| Safe Equipment Processing ¹ | Sterilization | 58% | 90% | +32% * |
| | Chemical disinfection | 69% | 54% | -15% |
| Key personal protective equipment available ¹ | | 21% | 90% | +69% * |
| Handwashing in delivery area ¹ | | 56% | 98% | +42% * |
| Safe final disposal of contaminated medical waste | | 35% | 77% | +42% * |
| Safe final disposal of sharps | | 35% | 77% | +42% * |
| Trained Staff ¹ | Essential Newborn Care | 48% | 100% | +52% * |
| | Helping Babies Breathe | 52% | 100% | +48% * |
| | Basic Emergency Obstetric and Neonatal Care (BEmONC) | 48% | 100% | +52% * |
| Available delivery beds ¹ | | 46% | 83% | +37% * |
| Antibiotics for newborn infection | | 15% | 50% | +35% * |

*statistically significant based on $p < 0.05$

¹Of health facilities reporting delivery services

3.2.3 MNCH Service Readiness

Misungwi District

MNCH Service Readiness indicators are presented for 45 health facilities that had complete data from both 2016 and 2019 survey data collection (Table 20).

In 2019, facility readiness ranged from 74%-95% across the seven MNCH service indicators, compared to 46%-74% at baseline. The largest increases were in essential newborn care (+42%) and newborn resuscitation (+34%). All other MNCH service areas showed a 24%-29% increase in facility readiness, except for family planning which showed no change; however, the latter was not a key intervention area for Mama na Mtoto.

| Table 20: Health Facility MNCH Service Readiness, Misungwi District | | | |
|---|-----------------|----------------|-----------------|
| MNCH Service | Baseline (2016) | Endline (2019) | Absolute Change |
| Antenatal Care | 63% | 88% | +25% * |
| Essential Newborn Care | 46% | 88% | +42% * |
| Newborn Resuscitation | 60% | 94% | +34% * |
| Labour and Delivery | 50% | 79% | +29% * |
| Family Planning | 74% | 74% | 0% |
| Ill Child Management | 62% | 90% | +28% * |
| Well Child Assessment | 71% | 95% | +24% * |

*statistically significant based on $p < 0.05$

Kwimba District

MNCH Service Readiness indicators are presented for 52 health facilities that had complete data from both 2017 and 2019 survey data collection (Table 21).

In 2019, facility readiness ranged from 81%-95% across the seven MNCH service indicators, compared to 60%-88% at baseline. The largest increases were in newborn resuscitation (+35%), antenatal care (+21%), and family planning (+13%). All other MNCH service areas showed a 13% increase in readiness, except for well child assessment (+4%). All changes were statistically significant.

| Table 21: Health Facility MNCH Service Readiness, Kwimba District | | | |
|---|-----------------|----------------|-----------------|
| MNCH Service | Baseline (2017) | Endline (2019) | Absolute Change |
| Antenatal Care | 74% | 95% | +21% * |
| Essential Newborn Care | 73% | 86% | +13% * |
| Newborn Resuscitation | 60% | 95% | +35% * |
| Labour and Delivery | 63% | 81% | +18% * |
| Family Planning | 69% | 82% | +13% * |
| Ill Child Management | 77% | 90% | +13% * |
| Well Child Assessment | 88% | 92% | +4% * |

*statistically significant based on $p < 0.05$

Districts Combined

Figure 3 illustrates the general upwards trend of the average readiness scores for both districts combined.

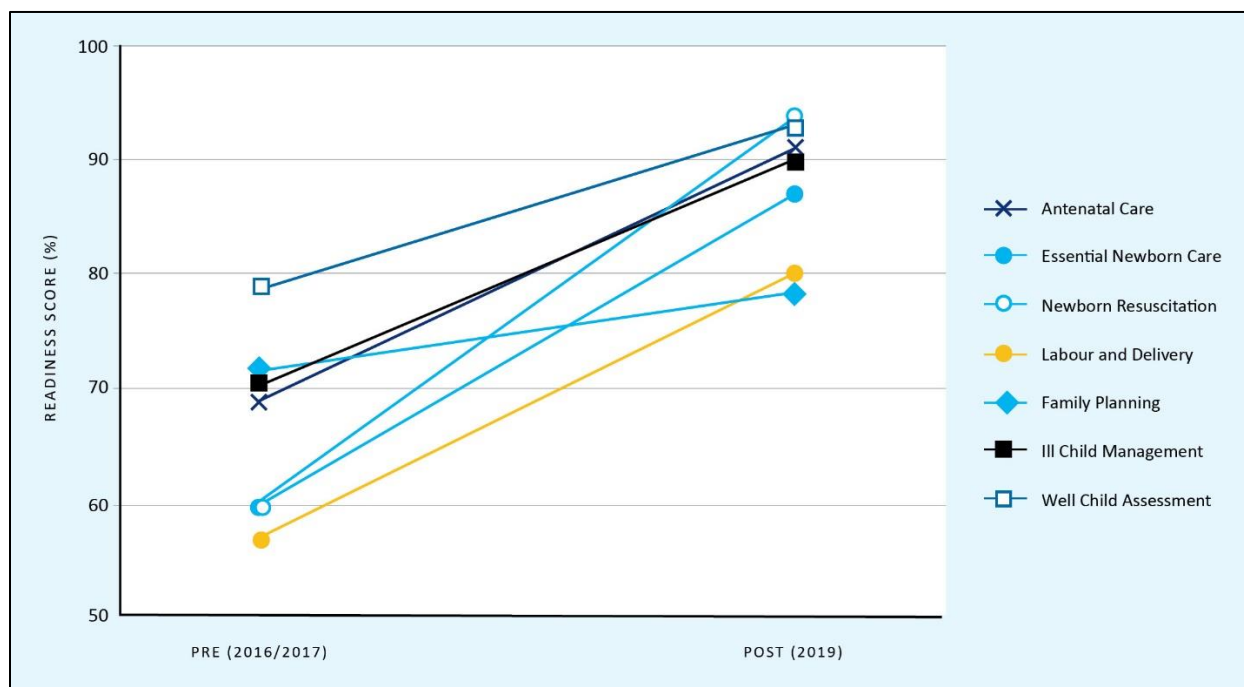


Figure 3: Health Facility Survey, MNCH Service Readiness Scores, Districts Combined

3.2.4 BEmONC and CEmONC Signal Functions

BEmONC and CEmONC signal function analysis is presented as the percent of health facilities that were able to demonstrate *ever* achieving each signal function, with the assisted vaginal delivery (AVD) signal function excluded. Only health facilities that reported providing delivery services were analyzed (48 in Misungwi, 55 in Kwimba).

Misungwi District

In 2019, the percent of health facilities achieving each signal function ranged from 46%-100% with an overall BEmONC achievement of 27%; this is in comparison to a baseline range of 27%-98% with an overall BEmONC achievement of 11% (Table 22). Overall, there was a 16% increase in health facilities demonstrating total BEmONC achievement.

The largest increase was seen in the use of anticonvulsants for pre-eclampsia and eclampsia (+19%) and use of parenteral antibiotics (+10%). Only marginal increases were found in the use of oxytocin as a uterotonic drug (+2%) and use of newborn resuscitation, though the former signal function already had nearly 100% achievement at baseline. Two signal functions that had decreased facility achievement were vacuum aspiration to remove retained products (-20%) and the manual removal of placenta (-10%); these decreases were mostly attributed to fewer achievement by dispensaries.

| | Baseline (2016) | | | | Endline (2019) | | | | Absolute Change (All) |
|--|-----------------|-----------------|----------------------|---------------------|----------------|-----------------|----------------------|---------------------|-----------------------|
| | All (n=45) | Hospitals (n=2) | Health Centres (n=4) | Dispensaries (n=39) | All (n=48) | Hospitals (n=2) | Health Centres (n=4) | Dispensaries (n=42) | |
| Parenteral Antibiotics | 71% | 100% | 50% | 72% | 81% | 100% | 75% | 81% | +10% |
| Oxytocin | 98% | 100% | 100% | 97% | 100% | 100% | 100% | 100% | +2% |
| Anticonvulsants | 27% | 100% | 50% | 21% | 46% | 100% | 75% | 40% | +19% |
| Manual Removal of Placenta | 62% | 100% | 100% | 56% | 52% | 100% | 75% | 48% | -10% |
| Removal of Retained Products | 91% | 100% | 75% | 92% | 71% | 100% | 75% | 69% | -20% |
| Newborn Resuscitation | 73% | 100% | 75% | 72% | 79% | 100% | 100% | 76% | +6% |
| Total BEmONC Achievement (no AVD) | 11% | 100% | 25% | 5% | 27% | 100% | 75% | 19% | +16% |

Regarding CEmONC achievement in Misungwi, four facilities (two hospitals, two health centres) reported providing caesarian delivery services in 2019, compared to three facilities in 2016 (one less health centre). All of these facilities demonstrated 100% achievement of CEmONC signal functions (not including AVD) during both baseline and endline.

Kwimba District

In 2019, the percent of health facilities achieving each signal function ranged from 58%-96% with an overall BEmONC achievement of 44%; this is in comparison to a baseline range of 23%-100% with an overall BEmONC achievement of 8% (Table 23). Overall, there was a 36% increase in health facilities demonstrating total BEmONC achievement.

The largest increase was seen in the use of anticonvulsants (+39%), followed by manual removal of placenta (+25%), newborn resuscitation (+20%), and parenteral antibiotics (+18%); these are mostly attributed to increased achievement by dispensaries. The use of oxytocin as a uterotonic drug and vacuum aspiration to remove retained products stayed nearly the same (small decreases of 2% and 1%, respectively), though the former signal function already had 100% achievement at baseline.

| | Baseline (2017) | | | | Endline (2019) | | | | Absolute Change (All) |
|--|-----------------|-----------------|----------------------|---------------------|----------------|-----------------|----------------------|---------------------|-----------------------|
| | All (n=48) | Hospitals (n=2) | Health Centres (n=5) | Dispensaries (n=41) | All (n=55) | Hospitals (n=2) | Health Centres (n=6) | Dispensaries (n=47) | |
| Parenteral Antibiotics | 69% | 50% | 100% | 66% | 87% | 100% | 100% | 85% | +18% |
| Oxytocin | 100% | 100% | 100% | 100% | 96% | 100% | 100% | 96% | -4% |
| Anticonvulsants | 23% | 100% | 40% | 17% | 62% | 100% | 50% | 62% | +39% |
| Manual Removal of Placenta | 33% | 100% | 60% | 27% | 58% | 100% | 67% | 55% | +25% |
| Removal of Retained Products | 77% | 100% | 80% | 76% | 76% | 100% | 83% | 74% | -1% |
| Newborn Resuscitation | 69% | 100% | 100% | 63% | 89% | 50% | 100% | 89% | +20% |
| Total BEmONC Achievement (no AVD) | 8% | 50% | 20% | 5% | 44% | 50% | 33% | 45% | +36% |

Regarding CEmONC achievement in Kwimba, three facilities (two hospitals, 1 health centre) reported providing caesarian delivery services in 2019, compared to just two hospitals in 2017. During both baseline and endline, only one hospital demonstrated 100% achievement of all CEmONC signal functions (not including AVD).

3.3 MNCH Coverage Survey

3.3.1 Household Characteristics

In 2019, 1,835 unique households were interviewed, representing 90% of eligible sampled households in Misungwi District (Table 24). Of the 202 households that were excluded, 123 did not have a competent respondent present (6% of total sample), 64 were absent for an extended period (3%), and 15 were vacant, destroyed, or not found (<1%). Less than 1% of households refused, which was comparable to baseline.

At baseline, a total of 1,977 households were interviewed, representing 97% of eligible households. The response rate was much lower for endline compared to baseline due to a higher number of households that did not have a competent respondent present (15 at baseline) or were absent for an extended period (21 at baseline). This may be attributed to the change in callback data collection procedures.

| Table 24: Household Characteristics, Misungwi District | | | |
|---|-------------|-----------------|----------------|
| Description | | Baseline (2016) | Endline (2019) |
| Number of Households Included | | 1,977 (97%) | 1,835 (90%) |
| Number of Households Excluded (Not Considering Refused) | | 39 (2%) | 202 (11%) |
| Number of Households Refused | | 13 (<1%) | 11 (<1%) |
| Mean Household Size (SD) | | 6.8 (3.6) | 6.8 (3.6) |
| Hamlet Location | Rural | 1,327 (67%) | 1,038 (57%) |
| | Mixed/Urban | 650 (33%) | 791 (43%) |

Composition

In 2019, a total of 12,518 individuals lived in surveyed households, representing approximately 3% of the total population of Misungwi District. Similar to baseline findings, the average household size was 6.8 (SD 3.6, Range 1-33) with an average of 2.6 rooms for sleeping in each residence (SD 1.4, Range 1-9). Heads of households were mostly male (73%).

Table 25 shows the gender distribution of household residents based on age, which did not vary greatly from 2016. A small number of participants (<1%) surveyed at endline did not have age or gender information.

| Table 25: Household Residents by Gender and Age | | | | | | |
|---|-----------------|--------|----------|----------------|--------|----------|
| Age | Baseline (2016) | | | Endline (2019) | | |
| | Total | % Male | % Female | Total | % Male | % Female |
| 0-4 Years | 2,797 (21%) | 49% | 51% | 2,387 (19%) | 50% | 50% |
| 5-14 Years | 4,138 (30%) | 50% | 50% | 4,007 (32%) | 50% | 50% |
| 15-49 Years | 5,132 (38%) | 49% | 51% | 4,766 (38%) | 49% | 52% |
| 50+ Years | 1,297 (9%) | 46% | 54% | 1,333 (11%) | 48% | 52% |
| Don't Know | 0 | 0% | 0% | 25 (<1%) | 48% | 52% |

Religion and Ethnicity

In 2019, 91% of household heads described their ethnicity as part of the Sukuma tribe, compared to 96% at baseline. Religious affiliation by household was 76% Christian, followed by 29% no religion, 5% Muslim, and <1% traditional; baseline data showed similar distributions.

Household Assets

Most households surveyed in 2019 reported using firewood for cooking fuel (83%), followed by charcoal (14%). Agricultural assets decreased somewhat, including 10% fewer households owning livestock (68%) and 8% fewer owning agricultural land (62%).

Ownership of other household assets did not vary greatly from baseline, including connected electricity (13%), a working radio (34%), and a working watch (16%). Refrigerators or freezers (3%) and computers (1%) remained uncommon. Some increases were noted with communication devices, including 12% more households with mobile phones (80%) and 9% more with televisions (14%).

Regarding transportation, many households still reported owning a bicycle (57%), though this was a 10% decrease from baseline. Ownership of other modes of transport remained less common, including motorcycles (8%), animal-drawn carts (4%), vehicles (2%), or motorboats (<1%).

3.3.2 Woman Characteristics

In 2019, a total of 2,073 women completed the Woman Questionnaire, representing 86% of eligible women from sampled households (Table 26). Of the 327 women that were excluded, 297 were not at home (12% of total sample) and 26 were not competent (1%); this higher number of non-responses compared to baseline could be attributed to the change in callback data collection procedures. The proportion of refusals (<1%) did not change between baseline and endline.

There were minor changes in women's demographics between 2016 and 2019. Of note is a 12% decrease in women living in rural hamlets and a 17% increase in urban hamlets; however, rural residences remain more common. There were also small increases in attendance of secondary (+6%) and higher education (+2%; 9 at baseline and 46 at endline), and a greater proportion of women are now married (+21%). Literacy results also suggest that more women are becoming literate, however caution should be taken in interpreting these results due to a data entry error at endline resulting in unknown literacy status for women who did not attend school; it is very likely that the number of women who are not literate is underreported. Sukuma (92%) and Christianity (84%) remain the majority ethnic group and religion, respectively.

Birth history characteristics did not change much since baseline. 1,626 women (79%) reported ever giving birth, with a total sum of 7,538 live births and an average of 4.6 live births per woman (SD 2.8, Range 1-14). A small proportion of women (3%) reported experiencing at least one stillbirth in the last two years. Additional information regarding maternal health indicators can be found in Table 28.

| Table 26: Woman Characteristics, Misungwi District | | | | |
|--|---|--------------------|-------------------|--------------------|
| Description | | Baseline (2016) | Endline (2019) | Absolute Change |
| Number of Women Included | | 2,438 (93%) | 2,073 (86%) | -7% |
| Number of Women Excluded (Not Considering Refused) | | 177 (7%) | 327 (14%) | +7% |
| Number of Women Refused | | 14 (<1%) | 15 (<1%) | 0% |
| Mean Age (SD) | | 28.3 (9.5) | 28.9 (9.9) | - |
| Hamlet Location | Rural | 69% | 57% | -12% |
| | Mixed | 29% | 23% | -5% |
| | Urban | 3% | 20% | +17% |
| Highest Level of Education Attended | Did Not Attend School | 22% | 19% | -2% |
| | Primary | 69% | 63% | -6% |
| | Secondary | 9% | 16% | +6% |
| | Higher | <1% | 2% | +2% |
| Literacy Level ¹ | Literate / Secondary School or Higher Education | 54% | 62% | +7% |
| | Partly Literate | 10% | 7% | -3% |
| | Not Literate | 35% | 11% | -24% |
| | Unknown | <1% | 19% | +18% |
| Marital Status | Married | 32% | 53% | +21% |
| | Living in a Union | 31% | 14% | -17% |
| | Not in a Union | 36% | 33% | -4% |
| Ethnic Group | Sukuma | 96% | 92% | -5% |
| | Other | 4% | 8% | +5% |
| Religion | Christian | 85% | 84% | -1% |
| | Muslim | 2% | 4% | +2% |
| | Traditional / Other | <1% | <1% | -<1% |
| | No Religion / Pagan | 12% | 12% | 0% |
| Ever Gave Birth | | 81% | 79% | -2% |
| Ever Had Live Birth | | 80% | 79% | -1% |
| Number of Live Births Ever | Total | 8,592 | 7,538 | - |
| | Mean per Woman (SD) | 3.5 (3.0) | 4.6 (2.8) | - |
| Had One or More Stillbirth in Last 2 Years | | 3% | 3% | 0% |

¹Endline literacy status unknown for women who did not attend school

3.3.3 Child Characteristics

At endline, Child Questionnaires were completed for 2,223 U5 children, representing 94% of eligible children from sampled households (Table 27). One hundred twenty of the children that were excluded were due to their caretaker not being present to respond to the questionnaire (5% of total sample), compared with 54 children at baseline. Less than 1% of caretakers refused, which was comparable to baseline.

| Table 27: Child Characteristics, Misungwi District | | |
|--|-----------------|----------------|
| Description | Baseline (2016) | Endline (2019) |
| Number of U5 Children Included | 2,723 (98%) | 2,223 (94%) |
| Number of U5 Children Excluded (Not Considering Refused) | 58 (2%) | 139 (6%) |
| Number of U5 Children Refused | 7 (<1%) | 11 (<1%) |

Regarding the anthropometry module, 1,162 of children who completed the Child Questionnaire (49%) were successfully measured for height and weight. Reasons for non-response were not being selected to receive anthropometry measurements (37%), the child being absent (7%), and the child not being able to be measured due to a disability (1%). Some caretakers also refused height measurements only (5%), refused weight measurements only (<1%), or refused all measurements (1%).

Overall, there was an even gender distribution among children (49% Male, 51% Female) and most lived in rural settings (61%). The mean age was 2 years (SD 1.3), and approximately two out of five children were born during the Mama na Mtoto intervention period; 41% were under two and 22% were less than one year old. Additional information regarding newborn and child health indicators can be found in Table 28.

3.3.4 Key MNCH Indicators

Comparison of key MNCH indicators between baseline and endline are presented in Table 28.

| Table 28: MNCH Coverage Survey Key Indicators, Misungwi District | | | | | |
|--|--|-------------------------|--------------------|-------------------|--------------------|
| Indicator | | | Baseline (2016) | Endline (2019) | Absolute Change |
| MATERNAL & NEWBORN HEALTH | | | | | |
| Antenatal Care | ANC four or more times | | 47% | 59% | +12% * |
| | ANC before 12 weeks | | 13% | 20% | +7% * |
| Delivery | Delivery by a skilled birth attendant | | 64% | 80% | +16% * |
| | Delivery at a health facility | | 61% | 78% | +17% * |
| Postnatal Care | PNC for mothers | | 43% | 51% | +8% * |
| | PNC for babies | | 51% | 56% | +5% |
| Family Planning | Met need for contraception | | 73% | 70% | -3% |
| | Prevalence of modern contraception | | 17% | 15% | -2% |
| CHILD HEALTH | | | | | |
| Breastfeeding | Exclusive breastfeeding (<6 months) | | 50% | 55% | +5% |
| | Early initiation of breastfeeding (<1 hr) | | 16% | 26% | +10% * |
| Nutrition | Appropriate feeding practices (6-23 months) | Dietary diversity | 12% | 67% | +55% * |
| | | Meal frequency | 28% | 23% | -5% |
| | | Minimal acceptable diet | 4% | 7% | +3% * |
| Immunizations & Supplements | Measles (12-23 months) | | 82% | 83% | +1% |
| | Diphtheria, tetanus, and pertussis (DTP3) (12-23 months) | | 87% | 85% | -2% |
| | Vitamin A (6-59 months) | | 73% | 77% | +4% |
| | Deworming (6-59 months) | | 52% | 57% | +5% * |
| U5 Diarrhea | Diarrhea in last two weeks | | 16% | 12% | -4% * |
| | Diarrhea treatment with oral rehydration salts | | 52% | 56% | +4% |
| | Diarrhea treatment with zinc | | <1% | 5% | +4% * |
| U5 Fever | Fever in last two weeks | | 30% | 25% | -5% * |
| | Care-seeking for fever | | 53% | 70% | +17% * |
| | Antimalarial treatment | | 95% | 83% | -12% |
| U5 Pneumonia | Care-seeking for pneumonia | | 56% | 70% | +14% |
| U2 Anthropometry | Underweight (moderate and severe) | | 14% | 10% | -4% |
| | Wasted (moderate and severe) | | 7% | 5% | -2% |
| | Stunted (moderate and severe) | | 27% | 29% | +2% |

*statistically significant based on comparison of 95% CI

Modest increases were documented for ANC and PNC indicators since 2016. A higher proportion of women reported attending four or more ANC visits (+12%) and accessing ANC services prior to 12 weeks of pregnancy (+7%). An increase in PNC service access for mothers (+8%) and babies (+5%) was documented, though the latter was not statistically significant. These trends are illustrated in Figure 4.

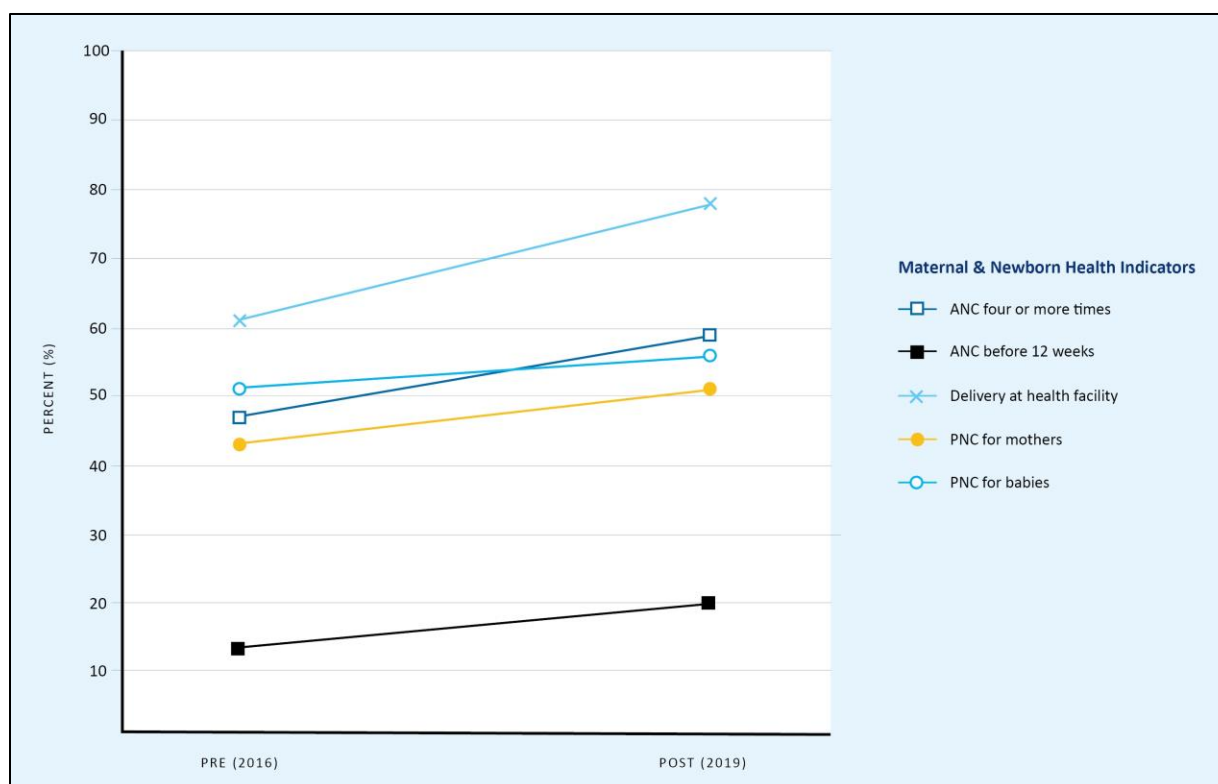


Figure 4: MNCH Coverage Survey, Key Indicators, Misungwi District

Regarding newborn and child health indicators, some statistically significant changes were noted between 2016 and 2019. There was a 10% increase in newborns being breastfed within one hour after birth, a 55% increase in young children receiving a diverse diet (foods from four or more food groups), and a 3% increase in young children receiving adequate nutrition. With morbidity, U5 diarrhea and fever have reduced since baseline (-4% and -5%, respectively), and care-seeking practices have improved, including the use of deworming medication (+5%), zinc for diarrhea (+4%), and seeking advice or treatment for fever (+17%). There was also a 14% increase in care-seeking for pneumonia, though this was not considered statistically different from baseline, among others.

3.3.5 CHW Activity

In 2019, the MNCH Coverage Survey reported an increase in CHWs engaging with households in Misungwi District. Since baseline, there was a 30% increase in women who were able to name at least one CHW, a 33% increase in women who reported a visit from a CHW since their last birth, and a 30% increase in women who reported receiving help or advice for their sick child (Table 29).

| Table 29: Community Health Worker Activities, Misungwi District | | | |
|---|-----------------|----------------|-----------------|
| Indicator | Baseline (2016) | Endline (2019) | Absolute Change |
| Respondent can name one CHW | 23% | 53% | +30% |
| CHW visited woman's home since last birth | 5% | 38% | +33% |
| CHW provided help or advice for sick child | 6% | 36% | +30% |

3.4 CHW Registry

3.4.1 CHW Characteristics

A total of 1,664 volunteer CHWs completed initial training in Misungwi (n=769; 46%) and Kwimba (n=895; 54%) Districts in 2017 and 2018, respectively. They were distributed amongst 1,329 hamlets in both Districts, with an average of one CHW per hamlet (SD 1). Overall, 46% of CHWs were females and 54% were males with an average age of 36 years (SD 9, Range 20-77 years). Figure 5 illustrates the breakdown of gender between districts.

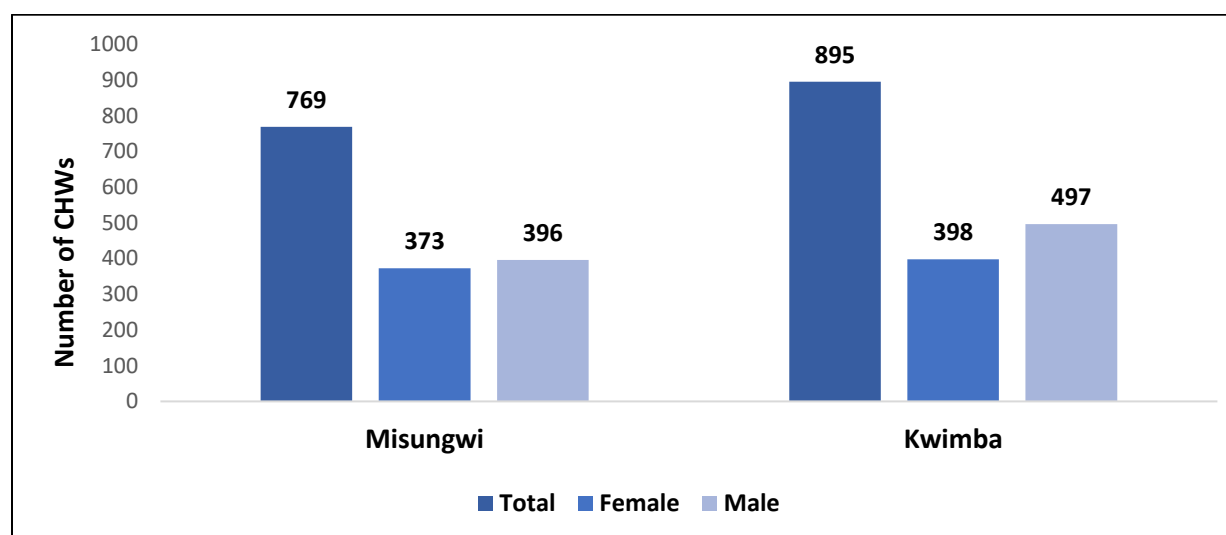


Figure 5: CHW Distribution by Gender, Misungwi & Kwimba Districts

3.4.2 CHW Supervisors

A total of 106 CHW Supervisors in Misungwi (n=53) and Kwimba (n=53) met regularly with groups of CHWs at their facilities. Fifty-nine percent of supervisors were female, and there was an average age of 36 years (SD 9.5, Range 22-61 years). Figure 6 illustrates the breakdown of gender between districts.

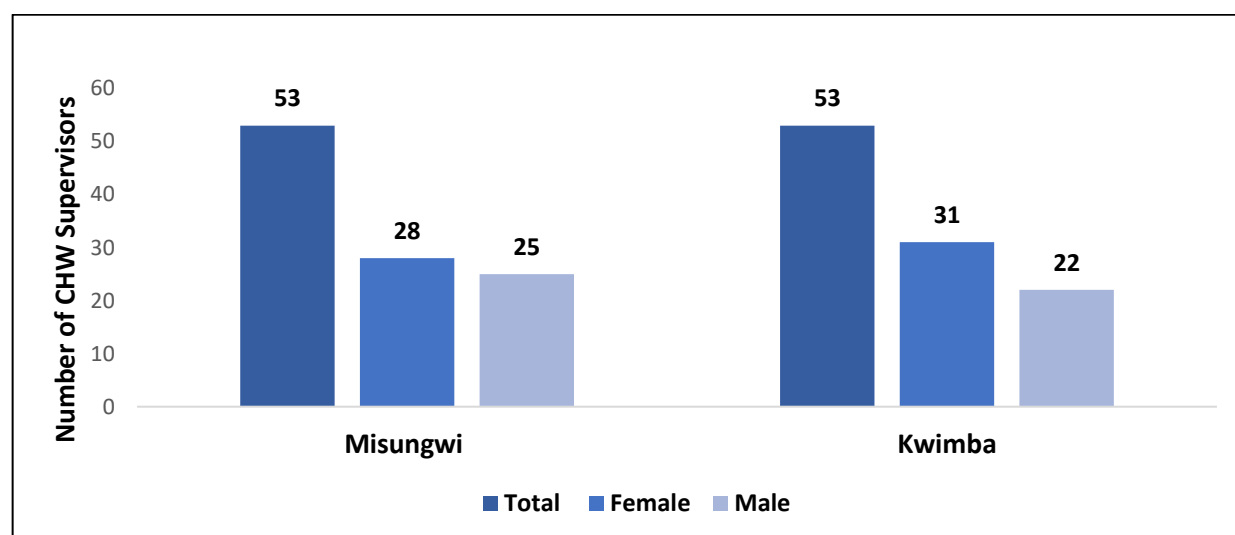


Figure 6: CHW Supervisor Distribution by Gender, Misungwi & Kwimba Districts

3.4.3 CHW Retention

After two years, 49 of the 769 CHWs in Misungwi were no longer active as CHWs. This represents a retention rate of 94%. In Kwimba, the retention was 98% a year after initial training; only 20 of 895 CHWs were no longer active in their roles.

A total of 69 CHWs in both districts ‘exited’ their roles (Table 30). Most CHWs (77%) left for reasons that were not related to their CHW role; the most common amongst these were moving or relocating (62%). Twenty-three percent of exiting CHWs left for reasons that were related to their role; reasons included community rejection (9%), no longer being interested (7%), or being too busy (7%).

| Table 30: Reasons for Exit, Initial CHWs, Misungwi & Kwimba Districts Combined | | |
|--|-------------------------------|------------------|
| Category | Reason | Frequency |
| Not Role-Related | Moved or Relocated | 43 |
| | Own Death | 3 |
| | New Job | 3 |
| | Family Duties or Health | 2 |
| | Divorce or Separation | 1 |
| | Poor Personal Health | 1 |
| | TOTAL NOT ROLE-RELATED | 53 (77%) |
| Role-Related | Community Rejection | 6 |
| | No Longer Interested | 5 |
| | Too Busy – Personal Reason | 5 |
| | TOTAL ROLE-RELATED | 16 (23%) |
| Combined Total | | 69 (100%) |

4 Dissemination

4.1 Dissemination Process

District stakeholders were involved at all stages of the endline study including planning, tool development, and data collection. The overall evaluation within which the endline study is embedded is designed to engage stakeholders and data users at all stages of evaluation through processes outlined in the Knowledge to Action Cycle (Graham et al., 2006), which is endorsed by the Canadian Institutes for Health Research (CIHR).

4.2 Data Review Workshops

After the conclusion of endline data collection, three days of detailed data review and dissemination planning meetings were held in October 2019. In attendance were core team members including technical team representatives from CUHAS, Mbarara University of Science and Technology, University of Calgary, and Agriteam. These meetings involved an in-depth examination of raw results from all sources, with a specific focus on the key indicators of each tool. The discussions generated from these meetings allowed team leads a better understanding of strategies needed for successful dissemination with districts and identified gaps requiring review or extension of analysis.

In December, further dissemination workshops were held with research and field team members in Tanzania to finalize data sets and review re-analyzed data, in preparation for district dissemination meetings.

4.3 District Dissemination

A series of meetings with key district stakeholders occurred in December 2019, where all key endline results were reviewed together with high-level stakeholders in Misungwi and Kwimba Districts. These meetings enabled in-depth discussion including identification of key results for wider presentation, gaps requiring further analysis, priority groups and means for dissemination, and identification of data champions. Subsequent adjustments to documentation and presentations of final results were made in preparation for future dissemination.

4.3.1 District Data Champions

In January 2020, finalized results packages were reviewed with district data champion teams. These involved senior individuals from Misungwi and Kwimba District CHMT government who were identified to have played major roles within Mama na Mtoto and had good understanding of the results and participatory presentation skills. Data champions took ownership of the results and led further dissemination meetings in their respective districts. PowerPoint presentations and highlighted packages were created based on their feedback; one-page infographics were tailored to specific target groups. Table 31 lists the team members and champions involved in the meetings.

| Table 31: District Champions | | |
|------------------------------|--------|--|
| Name | Gender | Role |
| MISUNGWI DISTRICT | | |
| Dr. Zabron Masatu | Male | District Medical Officer |
| Mr. Johnson Dominick | Male | District Nurse Officer |
| Mr. Mussa Shipemba | Male | HMIS Coordinator |
| Dr. John Nyorobi | Male | District Dental Officer |
| Ms. Halima Bumbo | Female | District Reproductive and Child Health Coordinator |
| Mr. Renatus Makanika | Male | District CHW Coordinator |
| KWIMBA DISTRICT | | |
| Dr. Elias Misana | Male | District Medical Officer |
| Mr. Marko Mkama | Male | District Reproductive and Child Health Coordinator |
| Ms. Lidya Bitaliho | Female | District Nurse Officer |
| Mr. Donatus Ndomba | Male | HMIS Coordinator |
| Ms. Julieth Ngwegwe | Female | District Health Secretary |

4.3.2 Stakeholders

District champions, supported by the Mama na Mtoto team, presented endline results at all subsequent stakeholder meetings (CHMTs, Council Management Teams (CMTs), local councillors, Ward Executive Officers (WEOs), and CHW Supervisors) (Table 32). Presentations and infographic packages were adjusted for each audience. Following an initial presentation of results, participants groups were guided through breakout sessions to discuss key findings and brainstorm gaps and concrete action plans; discussions are summarized in Sections 5.1 and 5.2.

| Table 32: Stakeholder Dissemination Meetings, Misungwi and Kwimba Districts, January 2020 | | |
|---|--|--|
| Target Audience | Objectives | Participants |
| Misungwi Champions | To plan the details of the district dissemination process and meetings with District Champions. | Total: 7 (6 males, 1 female) |
| Kwimba Champions | | Total: 9 (7 males, 2 females) |
| Misungwi District Leaders | To share project data on district outcomes and results with district officials and decision-makers (CMT and CHMT). | Total: 36 (23 males, 13 females) RMO: 1 DC: 3 DMO: 1 RHMT: 1 DED: 6 CHMT: 19 |
| Kwimba District Leaders | | Total: 31 (22 males, 9 females) RMO: 1 DC: 5 DMO: 1 RHMT: 1 DED: 5 CHMT: 18 |
| Misungwi Councillors and WEOs | To raise awareness, interest and support of district political officials for maternal and newborn health issues. | Total: 35 (27 males, 8 females) Councillors: 15 WEOs: 20 |
| Kwimba Councillors and WEOs | | Total: 44 (Males: 37; Females: 7) Councillors: 19 WEOs: 25 |
| Misungwi CHW Supervisors | Showcase key demographic results of CHWs and discuss retention and sustainability. | Total: 49 (23 males, 26 females) |
| Kwimba CHW Supervisors | | Total: 53 (27 males, 26 females) |

4.3.3 Beneficiaries

Following district stakeholder meetings, key groups undertook results-sharing with beneficiary groups. CHW Supervisors shared results with CHWs, and In-Charges disseminated results to their facility staff and HFGCs with VEO/WEOs. Data packages were developed specifically for each dissemination level, with core relevant data shared in a participatory format. Action planning was a part of all dissemination meetings and written action plans were expected as an output from each meeting.

Community dissemination by CHWs and VEO/WEOs began in early March and was scheduled to continue to reach all hamlets in 2020. However, COVID-19 travel restrictions and bans on public gatherings have halted dissemination progress since April 2020. Table 33 provides a summary of meetings documented to date, including selected notes from discussions.

| Table 33: Community Dissemination Meetings, Misungwi & Kwimba Districts, March/April 2020 | | |
|---|-------------------------------------|--|
| Location | Participants | Recommendations |
| MISUNGWI DISTRICT | | |
| Misungwi | Total: 82 (49 males, 39 females) | <ul style="list-style-type: none"> Provide communities with information regarding CHW roles and responsibilities |
| Misasi | Total: 82 (38 males, 44 females) | <ul style="list-style-type: none"> CHWs to continue to provide health education to individuals households, communities, and patients in facilities |
| Buhingo | Total: 80 (38 males, 42 females) | <ul style="list-style-type: none"> Health facilities to share information with the communities they work in |
| Mwagala | Total: 84 (39 males, 45 females) | <ul style="list-style-type: none"> Health facilities to collaborate with VEOs and CHWs to strengthen the referral system |
| Buhunda | Total: 81 (38 males, 43 females) | <ul style="list-style-type: none"> Health facilities to collaborate with CHWs to further engage CHW in facility activities |
| Mabuki | Total: 81 (39 males, 42 females) | <ul style="list-style-type: none"> Meeting was held at ward level CHWs and Supervisors collaborated on starting new IGAs Health facility staff will be invited to monthly CHWs meetings |
| KWIMBA DISTRICT | | |
| Sumve | Total: 86 (49 males, 37 females) | <ul style="list-style-type: none"> Meetings held at hamlet or village level High importance given to CHW impact on health facility deliveries, ANC, and PNC |
| Buyogo | Total: 87 (48 males, 39 females) | <ul style="list-style-type: none"> High importance given to CHW impact on health facility deliveries, ANC, and PNC |
| Talaga | Total: 79 (49 males, 30 females) | <ul style="list-style-type: none"> Provision of health education to the community members. |
| Malya | Total: 88 (46 males, 42 females) | <ul style="list-style-type: none"> Showcased the importance of community engagement by CHWs |
| Maiga | Total: 95 (48 males, 47 females) | <ul style="list-style-type: none"> With the help from supervisors, CHW to form new income generating activities to support their families |
| Goroma | Total: 91 (45 males, 46 females) | <ul style="list-style-type: none"> CHWs will continue to provide health promotional education and household visit. |
| Mwankulwe | Total: 83 (47 males, 36 females) | <ul style="list-style-type: none"> Promote hygiene at the facility and household level |
| Shushi | Total: 27 (15 males, 12 females) | <ul style="list-style-type: none"> CHWs to mobilize household members for income generating activities with the help of community leaders and community development officers |

4.3.4 Mama na Mtoto Experience Showcase Symposium

Endline results were shared during the Mama na Mtoto Experience Showcase on March 10, 2020 in Mwanza city; accomplishments and key results of the Mama na Mtoto intervention were celebrated with regional/district stakeholders, partners, and communities. The event consisted of a full day of presentations and discussion of evaluation results, including findings from sub-studies from IDRC-funded sister-projects. Printed materials were developed based on the experiences and feedback from dissemination meetings (see <https://www.mnmtanzania.com/> for copies). An interactive 'Ideas Marketplace' engaged attendees through posters highlighting research and implementation outcomes, booths demonstrating newborn resuscitation and community innovations, and CHWs sharing products developed from income-generating activities. Remarks were conducted by key representatives from project partners and stakeholders, including the Mwanza Regional Commissioner, Mwanza Regional Medical Officer, Misungwi and Kwimba District Commissioners, CUHAS Vice-Chancellor, Bugando Medical Center Director General, University of Calgary Associate Dean, and Agriteam Senior Project Manager.

5 Discussion

5.1 Key Achievements

During dissemination meetings, the following main messages emerged regarding changes in both districts at endline, compared with the status before the Mama na Mtoto intervention.

5.1.1 Improved Facility-Based MNCH Service Provision

Qualitative participants described improved quality of maternal and newborn health care provision. This is not surprising, given the significant improvements in performance of Health Facility Survey indicators in both districts. At endline, health facilities were more prepared to offer MNCH services; all service readiness scores improved with notable increases in newborn resuscitation (+34%), essential newborn care (+27%), and ANC (+22%) in both districts. The majority of health facilities (93%-100%) in both districts had at least one staff member who were trained in BEmONC (+75% in Misungwi, +52% in Kwimba) or Helping Babies Breathe (+24% in Misungwi, +48% in Kwimba). Total BEmONC achievement was demonstrated in 27% (+17%) of health facilities in Misungwi and 44% (+36%) in Kwimba. Qualitative participants in leadership roles also described enhanced leadership skills amongst their colleagues due to Mama na Mtoto training and implementation. One health facility In-Charge commented that due to *“the leadership training, every[one] realized oneself how a leader should be ... and honestly we succeeded in solving problems.”* These findings suggest that health facilities and their staff are better prepared in working together to provide quality health services to their communities.

Qualitative participants also described a prioritization of services for pregnant women, who previously experienced longer wait times. A father stated that *“if any problem occurs ... a pregnant woman [is] given priority to be attended or to be shifted to another big facility so as to get more treatment, more help.”* Participants relayed increased community confidence in the capability of facilities to provide necessary services based on positive health outcomes of complicated cases, such as c-sections or retained placentas. A mother shared that when she was delivering, *“my baby was not breathing and the doctors served her [and] she breathed, and she is safe up to now and I am very grateful for the help.”* These testimonials highlight the increased willingness of communities in Misungwi and Kwimba to access services in health facilities due to the improvements in the care they receive.

5.1.2 Increased MNCH Care-Seeking at Facilities

Results from the MNCH Coverage Survey showed a significant increase in MNCH care-seeking; compared to baseline, there was a 12% increase in pregnant women reporting four or more ANC visits, a 17% increase in women having a facility delivery, an 8% increase in women receiving PNC within 48 hours, and a 17% increase in care-seeking for children with fever. At facilities, an increase in reported deliveries (+81% in Misungwi, +50% in Kwimba) was particularly notable, since many women traditionally delivered at home before the project.

Qualitative participants perceived an increase in health facility visits by women (especially pregnant women), children, and families. A broad spectrum of participants including parents, CHWs, and health workers described more children presenting to health facilities for vaccinations, routine check-ups, and addressing illnesses. One CHW stated that *“before the coming of Mama na Mtoto there were no clients in this facility, you could have one pregnant mother per month ... but after Mama na Mtoto came and with CHWs at the hamlet, they have been able to identify them and educated them to come at the health facility ... that is why we have increased the number”*. Changes were largely attributed to home visits carried out

by CHWs as well as community perceptions of improved health service provision. Overall, health facilities in both districts have become busier since the start of the intervention, due to community members feeling increasingly comfortable in accessing services.

5.1.3 Active District-Wide CHW Network Increases MNCH Service Demand

In Misungwi and Kwimba Districts, a newly established cohort of 1,664 CHWs distributed across 1,329 hamlets was attributed to improving MNCH outcomes by qualitative inquiry participants. Ninety-six percent of these CHWs remained active at the end of the project. Since the start of the intervention, the MNCH Coverage Survey reported approximately 30% more women being able to identify a CHW, receiving a visit from a CHW after their last birth, or receiving help from a CHW for their sick child. This suggests that CHWs have been actively engaging with households in their communities.

Qualitative participants strongly attributed improvements in community health and non-health outcomes to the knowledge sharing and awareness generated by CHW home visits and their community activities. In particular, study participants credited CHWs with reduced maternal and child deaths, and increased facility-based care-seeking by women, children, and families at all levels of care, from dispensary to hospital. One CHMT member also described the positive impact of some CHWs establishing income-generating activities: *“they have been able to get income through these goats and other animals they are keeping ... it has helped even at their community and they continued to motivate other community members to establish groups and make sure that they are improved economically.”* Not only do these groups economically empower households in their communities, but they also help motivate CHWs to sustain and continue their volunteer work.

5.1.4 Enhanced Male Engagement in MNCH and Changing Gender Roles in Communities

Qualitative participants described an increase in male engagement since the start of the project, largely attributed to the initiation of CHW home visits and education regarding the important role of fathers in improving MNCH outcomes. Male participants, including fathers, village leaders, and HFGC representatives, noted enhanced awareness about partner support during pregnancy including the importance of providing transportation and security when seeking ANC and delivery, as well as contributing to household and child-minding duties to alleviate the workload of their partners. Such changes in male engagement were credited with enhanced closeness, communication, and cooperation within families, particularly between husbands and wives. Furthermore, male participants highlighted the importance of being a good role model to encourage other men in their communities to better engage with the health of their families.

Increased male engagement was noted to also have a positive impact on women’s community social standing. Male participants acknowledged shifting traditional gender role attitudes towards a new openness to support work typically reserved for women. As one father described, *“we used to segregate work that these work are for women only and those are for men, but for now we are cooperating very well ... like fetching water we used to leave it for women, but as for now we have been educated ... and we are helping each other heavy work”*. Furthermore, many women attributed feelings of increased empowerment to seeing other local women becoming respected CHWs who are sought out for advice. As one mother described, *“in the past we mothers were very coward to become a leader, we support[ed] men only and remain[ed] behind, but nowadays even us have become in the frontline; when you are given a certain position in leadership you hold it [to] motivate other women.”* These findings suggest a shift towards a more progressive outlook on gender roles, positively impacting both men and women.

5.2 Gaps and Actions

Dissemination participants identified potential areas for improvement and prepared written action plans that specified each area of concern, cause, action needed, timeline, and person responsible. Four key gaps were discussed across all dissemination meetings.

5.2.1 Persisting Referral Chain Gaps Risk Maternal and Newborn Lives

Emergency referral indicators improved overall in both districts. At endline, all health facilities reported knowing the phone number of at least one referral site and called referral sites before organizing a transfer; increases were particularly notable in Misungwi (~50% change). Both districts reported a significant decrease in patients paying for fuel or other costs to use a transport vehicle (-24% in Misungwi, -32% in Kwimba). These findings suggest a movement towards a more coordinated and efficient referral system to better transport patients between facilities.

Despite these improvements, stakeholders raised recurring challenges that cause delays in urgent referral care, including improper use of emergency vehicles, a lack of maintenance and fuel, and persisting communication gaps between health providers at different facilities (attributed to network connection problems and lacking airtime).

Priorities for stakeholder action plans included creating processes to better manage and adequately budget for emergency vehicles, such as appointing an individual to purchase and monitor fuel. In Misungwi District, development of a form was proposed for health facilities to document and communicate each referral event between sites. Suggestions were also made to promote a collective understanding about appropriate use of emergency vehicles amongst communities and their leaders.

5.2.2 Community and District Supports Needed to Sustain CHW Network

Many qualitative participants discussed the importance of continued activity by CHWs to sustain improvements in MNCH outcomes; however, there were also discussions about challenges faced by CHWs that threaten their motivation and ability to continue volunteering within their communities. A recurring theme was a need for equipment and transport to help CHWs better serve their area, such as disposable protective gloves to enable CHWs to safely support women and newborns. Some CHWs also expressed being over-worked with conducting their CHW activities while also partaking in mandatory community activities. This translated to CHWs feeling unappreciated or unsupported by their communities, which in turn negatively impacted their morale and motivation to continue in their volunteer roles.

Dissemination participants developed action plans focusing on retaining CHWs, primarily with regards to improving integration of CHWs at the district, facility, and community levels to improve motivation and morale, and improving CHW communication and collaboration with health workers to reduce CHWs feeling undervalued from persisting work hierarchies. It was agreed that such actions can help sustain CHW motivation and in turn retain the large number of volunteer CHWs currently active in both districts.

Suggested actions at the district level were development of district guidelines, provision of mentoring opportunities, scheduling meetings with CHWs to discuss challenges, and future budget planning to ensure funds are available for resources needed by CHWs (e.g. gloves). Actions proposed at the community level included village governments exempting CHWs from mandatory community works to reduce their workload, facilitating regular meetings between CHWs and their village/hamlet leaders to establish channels for communication, inviting CHWs and Supervisors to Ward Development Committee

meetings, continued encouragement of income-generating activities, and inclusion of CHWs within other public health initiatives (e.g. Vitamin A campaigns or indoor residue spray activities).

5.2.3 High Unmet Need for Contraception Persists: Facility Services Not Meeting Demand

Though family planning was not a key objective of the Mama na Mtoto intervention, the lack of improvement in this data point prompted much discussion during dissemination meetings with health facility In-Charges, CHMTs, and CMTs as an opportunity to address this gap. In the MNCH Coverage Survey, family planning prevalence, as measured through contraception prevalence and met need for contraception, were the only main indicators in care-seeking practices that did not significantly change from baseline to endline. In the Health Facility Survey, only small improvements were observed in both districts for facility readiness in family planning (no change in Misungwi, +13% in Kwimba).

Dissemination attendees confirmed that family planning is not prioritized or regularly provided at health facilities due to a lack of resources, knowledge, and training especially regarding long-term methods, such as insertion of IUDs. Therefore, even where patients were open to family planning services, the most desired or feasible methods were not always readily available. Furthermore, while qualitative findings suggested that some communities were receptive to education in safe reproductive health, participants of dissemination meetings felt that further education and awareness was necessary to counteract local beliefs.

Meeting participants discussed the importance of improving health facility readiness for family planning services by not only increasing awareness and education in communities but also amongst health facility staff. Health workers need mentorship and training regarding routine methods and creating long-term plans with patients. Overall, a general awareness and prioritization of these services by facilities is necessary to improve this indicator and meet family planning needs in the community. CHWs may also be used to facilitate community education. However, in practice, family planning action items are challenging to implement due to government regulations.

5.2.4 Opportunities for Facility Waste Disposal Improvements Remain

Compared to improvements in other key Health Facility Survey indicators, those related to waste disposal did not show significant progress. Meeting participants, including health facility In-Charges, described a general lack of waste disposal and hygiene knowledge amongst facility staff. They cited a need for resource reallocation and training in appropriate waste disposal. Overall, it was agreed that district governments must plan for these provisions and collaborate with health facilities to create guidelines on improving waste disposal; however, this may be challenging due to limited district budgets. In the meantime, plans were made to conduct follow-ups with specific health facilities that presented poor waste management indicators to better understand ways for improvement.

5.3 Study Limitations and Strengths

While this endline study identified significant improvements in health and non-health indicators and outcomes between 2016 and 2019 in target districts, these results cannot be directly attributed to the Mama na Mtoto intervention. Rather, Mama na Mtoto likely contributed alongside ongoing district efforts and other programs, projects, and activities. Optimistically, qualitative findings suggested a strong linkage between Mama na Mtoto activities and outcomes in the districts.

The three-year intervention timeframe is short to effectively measure change, particularly in the context of public health programming where behaviour change is an important factor; realization of full project impact can take years. Therefore, medium-term level outcome indicators which were trending towards improvement may have potential for further betterment due to the intervention, especially in Kwimba, where endline data collection occurred prior to the end of the intervention and less than two years after baseline.

Additionally, some indicators (such as antenatal care) measure maternal reporting of events occurring two years prior (or two years and nine months where pregnancy is involved); therefore results from the endline study may not reflect the Mama na Mtoto intervention for all responses, depending on the timing of when a respondent was exposed to the intervention. For instance, a woman reporting on a birth two years before the survey would not yet have had the opportunity for antenatal counsel with a CHW, since her pregnancy occurred prior to the start of CHW deployment. Other indicators affected include anthropometry (especially stunting), which are measured on children under five and two years but reflect years of nutrition prior to the survey.

The following specific limits apply to data collection processes:

- **Qualitative Inquiry:** While efforts were made to reflect broad stakeholder and beneficiary input, sampling and logistical limitations excluded certain demographic groups who may have had valuable stories to share (e.g. Swahili requirement excluded vulnerable populations with less formal education). Additionally, focus groups and interviews were facilitated by technical team members with high project involvement to increase the quality of story documentation and depth of contextual understanding; imbalanced facilitator-participant power dynamics may have biased some responses.
- **Health Facility Survey:** The analysis approach of some indicators required pairing facilities that existed at both baseline and endline. As a result, the findings presented excluded ten health facilities (4 in Misungwi, 6 in Kwimba) where baseline data was not available primarily due to being non-functioning at the time. While this provides a good reflection of documented change, the method misses an opportunity to showcase the overall district capacity change. Results from an overall assessment are available for those interested.
- **MNCH Coverage Survey:** This survey collected data in Misungwi District only due to timing, budget, and logistical considerations. A single district focus enabled higher proportional sampling, increasing data reliability and generalizability for the full district and intervention. Also, the survey was purposefully designed without a control group; use of a control group in this setting was deemed not feasible due to inability to identify a similar non-intervention area that could be maintained as a control for three years, especially since the 'Lake Zone' is a priority region for development programming. Readers might also note a lower survey response rate at endline compared to baseline; this reflects a change in the callback procedure which was taken after considering the low likelihood of impact on results to facilitate more streamlined and cost-effective data collection.

Despite some limitations, a major strength of this endline study was its usage of three comprehensive data collection methods. The two district-wide quantitative surveys were adapted from well-known standardized tools, coupled with a thorough qualitative evaluation, which produced a large volume of research data to support project outcomes. A mixed methods interpretation with extensive stakeholder engagement enabled broad reflection and comparison with district HMIS data. Although not all presented here, survey data also provided disaggregated results which can help target future district actions and interventions. Importantly, this endline study had high levels of participation from stakeholders, implementers, and beneficiaries throughout data collection and dissemination periods; these have been critical for meaningful interpretation and development of effective actions going forward.

6 District Sign-Off



Mama na Mtoto

I agree to have read the results and findings of this Endline Study Report on the
Regional Maternal Newborn and Child Health Strengthening in Tanzania project.

District Medical Officer, Misungwi District

Name: DR ZABRON MASATU

Signature: [Signature] DISTRICT MEDICAL OFFICER
MISUNGWI

Date: 26th June 2020

District Medical Officer, Kwimba District

Name: Dr. ELIAS MISANA

Signature: [Signature] DISTRICT MEDICAL OFFICER
KWIMBA

Date: 26th / JUNE / 2020

7 References

- Alkema, L., Chou, D., Hogan, D., Zhang, S., Moller, A. B., Gemmill, A., Fat, D. M., Boerma, T., Temmerman, M., Mathers, C., & Say, L. (2016). Global, regional, and national levels and trends in maternal mortality between 1990 and 2015, with scenario-based projections to 2030: A systematic analysis by the UN Maternal Mortality Estimation Inter-Agency Group. *The Lancet*, 387(10017), 462–474. [https://doi.org/10.1016/S0140-6736\(15\)00838-7](https://doi.org/10.1016/S0140-6736(15)00838-7)
- Braun, V., & Clarke, V. (2013). *Successful qualitative research: A practical guide for beginners*. Sage Publications.
- Brenner, J. L., Kabakyenga, J., Kyomuhangi, T., Wotton, K. A., Pim, C., Ntaro, M., Bagenda, F. N., Gad, N. R., Godel, J., Kayizzi, J., McMillan, D., Mulogo, E., Nettel-Aguirre, A., & Singhal, N. (2011). Can volunteer community health workers decrease child morbidity and mortality in southwestern Uganda? An impact evaluation. *PLoS ONE*, 6(12). <https://doi.org/10.1371/journal.pone.0027997>
- Buetow, S. (2010). Thematic analysis and its reconceptualization as “saliency analysis.” *Journal of Health Services Research and Policy*, 15(2), 123–125. <https://doi.org/10.1258/jhsrp.2009.009081>
- Columbia University Mailman School of Public Health. (n.d.). *Averting Maternal Death and Disability (AMDD) Toolkit*. <https://www.publichealth.columbia.edu/research/averting-maternal-death-and-disability-amdd/toolkit>
- Creswell, J. W. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches* (3rd ed.). Sage Publications.
- Curran, G. M., Bauer, M., Mittman, B., Pyne, J. M., & Stetler, C. (2012). Effectiveness-implementation hybrid designs: Combining elements of clinical effectiveness and implementation research to enhance public health impact. *Medical Care*, 50(3), 217–226. <https://doi.org/10.1097/MLR.0b013e3182408812>
- Glasgow, R. E., Vogt, T. M., & Boles, S. M. (1999). Evaluating the public health impact of health promotion interventions: The RE-AIM framework. *American Journal of Public Health*, 89(9), 1322–1327. <https://doi.org/10.2105/AJPH.89.9.1322>
- Government of Tanzania. (2008). *The National Road Map Strategic Plan To Accelerate Reduction of Maternal, Newborn and Child Deaths in Tanzania 2008-2015*.
- Government of Tanzania. (2013). *Tanzania 2012 Population and Housing Census: Population distribution by administrative areas*.
- Government of Tanzania. (2014). *The National Road Map Strategic Plan to Accelerate Reduction of Maternal, Newborn and Child Deaths in Tanzania 2008-2015: Sharpened One Plan*.
- Government of Tanzania. (2015a). *Big Results Now for Health*.
- Government of Tanzania. (2015b). *GN authorities wards and villages*.
- Government of Tanzania. (2016a). *Mwanza Region basic demographic and socio-economic profile: 2012 Population and Housing Census*.
- Government of Tanzania. (2016b). *The National Road Map Strategic Plan to Improve Reproductive, Maternal, Newborn, Child & Adolescent Health in Tanzania (2016-2020): One Plan II*.
- Government of Tanzania, & ICF International. (2016). *Tanzania Demographic and Health Survey and Malaria Indicator Survey 2015-2016: Final report*.
- Graham, I. D., Logan, J., Harrison, M. B., Straus, S. E., Tetroe, J., Caswell, W., & Robinson, N. (2006). Lost in knowledge translation: Time for a map? *Journal of Continuing Education in the Health Professions*, 26(1), 13–24. <https://doi.org/10.1002/chp.47>
- Healthy Child Uganda. (n.d.). *Materials*. <https://www.healthychilduganda.org/materials/>
- Kilonzo, A., Kouletio, M., Whitehead, S. J., Curtis, K. M., & McCarthy, B. J. (2001). Improving surveillance for maternal and perinatal health in 2 districts of rural Tanzania. *American Journal of Public Health*, 91(10), 1636–1640. <https://doi.org/10.2105/AJPH.91.10.1636>
- RADAR Project. (n.d.). *Coverage Survey*. <https://www.radar-project.org/coverage-survey>
- Richards, L. (2015). *Handling qualitative data: A practical guide* (3rd ed.). Sage Publications.
- The DHS Program. (n.d.-a). *Demographic and Health Survey (DHS)*. <https://dhsprogram.com/What-We-Do/Survey-Types/DHS.cfm>
- The DHS Program. (n.d.-b). *Service Provision Assessments (SPA)*. <https://dhsprogram.com/What-We-Do/Survey-Types/SPA.cfm>
- UNICEF. (n.d.). *Multiple Indicator Cluster Surveys (MICS)*. <http://mics.unicef.org/>