MHURI / IMULI PROJECT

Assessment of Maternal, Newborn, Child Health and Family Planning in Manicaland Province using Lot Quality Assurance Sampling (LQAS)

Study Report

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ABBREVIATIONS AND ACRONYMS

ANC	Antenatal Care
FP	Family Planning
GOZ	Government of Zimbabwe
HCW	Health Care Worker
IPTp	Intermittent Presumptive Treatment of malaria in pregnancy
LARC	Long Acting Reversible Contraception
LQAS	Lot Quality Assurance Sampling
MEL	Monitoring, Evaluation and Learning
MNCH	Maternal, Newborn and Child Health
MOHCC	Ministry of Health and Child Care
MRCZ	Medical Research Council of Zimbabwe
ORS	Oral Rehydration Salts
PHSC	Protection of Human Subjects Committee
PMELP	Project Monitoring, Evaluation and Learning Plan
RH	Reproductive Health
SA	Supervision Area
SBCC	Social Behaviour Change Communication
USAID	United States Agency for International Development
VHW	Village Health Worker
WCBA	Women of Childbearing Age
ZDHS	Zimbabwe Demographic and Health Survey
ZIMSTAT	Zimbabwe Statistical Agency
ZNFPC	Zimbabwe National Family Planning Council

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EXECUTIVE SUMMARY

Introduction

Mhuri/Imuli is a USAID-funded project aimed at improving maternal, newborn, child health and family planning (MNCH-FP) in Zimbabwe's Manicaland Province. It is implemented by FHI 360 and partner VIAMO in close collaboration with the Ministry of Health and Child Care (MOHCC) and the Zimbabwe National Family Planning Council (ZNFPC). In Manicaland province, the project supports 71 health facilities. As part of the project's Monitoring, Evaluation and Learning (MEL) activities, Mhuri/Imuli will conduct periodic surveys using lot quality assurance sampling (LQAS) to assess the performance of indicators not available from other sources. This report presents findings from the first survey. The aim was to determine the baseline status of key project indicators, to generate information to guide Mhuri / Imuli project implementation and program learning, and to add to information on MNCH-FP in selected areas within Manicaland Province.

Methods

The cross-sectional household survey was conducted from September – October 2019 among women of child bearing age living in the catchment areas of 48 health facilities which receive technical support from the Mhuri / Imuli project. Using LQAS sampling framework, 924 women of childbearing age were sampled, based on community registers used by Village Health Workers (VHWs). Women aged between 16 and 49 years who had given birth in the past 12 months, and as well lived in the facility catchment area for the 12 months prior to data collection were interviewed in their homes by trained researchers. Data were collected via electronic tablet and uploaded to VIAMO's Data Winners platform prior to analysis using SAS. In keeping with LQAS methodology, thresholds of desired performance were set based on national service delivery standards, program targets or ZDHS findings. Results are presented in relation to the LQAS performance thresholds, as well as descriptively.

Results

A total of 924 participants were surveyed, with a mean age of 28.4 years. Almost half of the participants had completed 11 years of education (Form 4 of secondary school) and nine out of ten were able to read and write. Literacy was highest in Mutare (99.2%) and lowest in Chipinge (81.3%) districts. Over two thirds of participants (68.9%) belonged to the Apostolic faith and less than half of participants had access to radio at least once a week.

Across all districts, three MNCH-FP knowledge indicators reached or exceeded the desired performance thresholds: knowledge of 1st antenatal care (ANC) visit timing (92.9%); the importance of breastfeeding within an hour of birth (75%); and the importance of exclusive breastfeeding up to 6 months (88.2%). On the other hand, 85.5% of participants received 4 or more ANC visits at their last pregnancy and 95.4% of children had received pentavalent 3 vaccine within the prescribed timeframe. Other indicators which performed above acceptable thresholds were the recall of a RH/FP message (61.3%) and breastfeeding within an hour of birth (69.9%).

The knowledge of danger signs in pregnancy, postpartum and newborn periods, however, consistently fell short of acceptable thresholds. Additionally, receipt of 3 or more doses of intermittent presumptive treatment of malaria in pregnancy (IPTp) (30.2%), ultrasound scans during pregnancy (15.5%) and attendance of 8 or more ANC visits (9.1%) were all well below acceptable thresholds.

Couples' discussion of FP and decision making on health care or place of delivery are gender-related indicators which recorded levels meeting or exceeding above the national average. However, attitudes to wife-beating and forced sex performed were poor in comparison to national average from the Zimbabwe Demographic and Health Survey (DHS).

Conclusion and Implications

The first Mhuri/Imuli community-based LQAS survey aimed to determine the baseline status of key project indicators, to inform project implementation and program learning as well as inform knowledge on key RMNH-FP indicators in Manicaland Province. The survey uncovered the need to improve knowledge levels about danger signs in pregnancy, postpartum and newborn periods, provision of 3 or more doses of IPTp, ultrasound scanning in pregnancy, provision of 8 or more ANC visits, and harmful gender norms which contribute to poor maternal and child health outcomes.

High levels of literacy provide the project with an opportunity for health promotion and communication across the province. The limited access to radio suggests that interpersonal approaches will be effective MNCH behaviour change interventions. Two thirds of women of child bearing age identify with the apostolic sect, calling for the design and implementation of culturally appropriate and acceptable approaches to effectively engage this important constituency.

INTRODUCTION

The Mhuri/Imuli project is a five-year USAID-funded grant implemented by FHI 360- and partner VIAMO, aimed at improving maternal, newborn, child health and family planning (MNCH-FP) in Zimbabwe's Manicaland Province, working in close collaboration with the Ministry of Health and Child Care (MOHCC), and the Zimbabwe National Family Planning Council (ZNFPC). The project covers 71 priority high-volume facilities across Manicaland province. Its objectives are:

- To improve the availability of quality MNCH-FP services in the seven districts of Manicaland Province and to a broad range of FP services nationwide through outreach services;
- To increase use of MNCH-FP services, targeting hard-to-reach populations;
- To strengthen community systems and linkages to integrated MNCH-FP services, and
- To improve policy implementation within the Ministry of Health and Child Care (MOHCC) and Zimbabwe National Family Planning Council (ZNFPC).

RATIONALE

Mhuri / Imuli's Performance Monitoring, Evaluation and Learning Plan (PMELP) describes the project's comprehensive approach to monitoring, evaluation and learning (MEL), aligned with MOHCC and USAID requirements and guidelines. Mhuri/Imuli has committed to conducting an annual community-based survey using Lot Quality Assurance Sampling (LQAS) [1] , in addition to routine service delivery monitoring and extracting data from existing national surveys (e.g. DHS). The LQAS surveys allow the program to assess community-based indicators not available from other data sources.

LQAS is a simplified sampling and analytic method derived from industrial production which sets a minimum level of quality for lot based on a performance on key indicators. The methodology used in this study is informed by a simplified design for LQAs in health programs [2]. LQAS provides several programmatic benefits: identifying areas of weak coverage quality with statistical reliability, differentiating areas of varying coverage with greater precision, and allowing for trend analysis. The first LQAS survey will be used to inform the program and key stakeholders of levels of performance, set targets and review minimum acceptable thresholds (decision-rules) for subsequent LQAS surveys.

The findings will be critical in shaping the MNCH technical assistance and examining levels of self-reported behaviours and services. Additionally, this survey establishes baseline values for the Mhuri/Imuli to measure progress towards key program indicators and goals.

GOALS AND OBJECTIVES

The aim of the assessment was to establish baseline measures of key project indicators; and guide the planning and implementation of improvements in MNCH-FP services in Manicaland Province.

The specific objectives of the assessment were:

1. To measure MNCH-FP knowledge, attitudes and behaviors among women of child bearing age in Mhuri / Imuli project catchments areas in Manicaland province.

2. To estimate the level of MNCH-FP service utilization among communities living in Mhuri / Imuli project sites.

3. To identify districts and sites with poor performance, for programmatic targeting.

METHODS

DESIGN AND STUDY SETTING

The LQAS survey applied a cross-sectional design to measure MNCH-FP knowledge, health-seeking, service use, and behaviours at the community level in Manicaland Province. Manicaland Province has a population of roughly 1,752,700, accounting for 13.4% of Zimbabwe's total population [3]. The province has seven districts, all of which host Mhuri / Imuli project activities: Buhera, Chimanimani, Chipinge, Makoni, Mutasa, Nyanga and Mutare districts. The crude birth rate in Manicaland is 33.4 per 1000, the crude death rate is 10.3 per 1000 and there is a 2.3% natural population increase, the highest in all of Zimbabwe.

The Mhuri/Imuli project provides MNCH-FP technical assistance activities in 71 high-volume health facilities (48 primary health care facilities and 23 hospitals) across Manicaland province. In the catchment area for 48 primary health care facilities, the project implements community mobilization and health systems strengthening activities aimed at driving demand for MNCH-FP services (referral hospitals do not have community components). The supervisory areas (the LQAS terminology for included catchment areas) for LQAS sampling are thus defined by the catchment areas of 48 primary healthcare facilities. The health facility catchment areas receive the full package of project interventions, including clinical, community systems strengthening and social and behaviour change communication (SBCC) activities.

Each facility's catchment area is composed of several villages, serviced by a Village Health Worker (VHW). As part of their duties, the VHWs retain a register of pregnant women, from which the sample of women interviewed was drawn (Table 1). Women from the facility catchment areas who had delivered at Mhuri/Imuli supported facilities in the last 12 months, drawn from VHW registers, were sampled and interviewed in the survey. This is summarized in Table 1, below.

Table 1: Summary of facility catchment areas and women interviewed

District	No. of health facilities supported in district (excluding hospitals)	No. of supervisory areas	Targeted participants per facility catchment	Targeted participants per district	Total number interviewed
Buhera	7	7	19	133	159
Chimanimani	8	8	19	152	153
Chipinge	6	6	19	114	123
Makoni	7	7	19	133	138
Mutare	7	6[1]	19	133	121
Mutasa	7	7	19	133	134
Nyanga	5	5	19	95	96
Total	**48**	**47**	**19**	**893**	**924**

[1] One of the facilities in an urban location had no clearly defined catchment area

STUDY POPULATION

The study included women of child bearing age (WCBA) who were on a list of a VHW and had given birth in one of the 48 health facilities in the 12 months preceding the survey (including women whose last pregnancy ended in a miscarriage, abortion, stillbirth, or whose baby died after delivery). Participants in the study had to 1) be between the ages 16 and 49; 2) have lived in the facility catchment area for the 12 months prior to data collection; and 3) be willing to participate in the survey. All women who met the eligibility criteria were included on the sampling frame if they were willing to participate in the survey.

SAMPLING AND RECRUITMENT

The source of the sampled study population was the VHW registers of women who had sought ANC and/ or given birth in one of the 48 health facilities in the last 12 months. This list was the primary source document. From the list, further eligibility criteria (referenced above) were applied to create a list of eligible participants. Women, not households, were the sampling unit - if a household had two or more eligible women they were listed separately and had an equal chance of being selected for the survey.

VHWs who had been trained on the study approached all eligible women and described the study and its objectives using a standardized recruitment script. Women who were eligible and indicated interest were placed on a list. LQAS sampling uses 19 respondents per supervisory area to provide some control of misclassification errors [4]. In this study, a list of 22 women in each facility's catchment area (19 plus 3 replacements) was generated using the list compiled by the VHW.

Prior to administering the survey, interviewers confirmed participants' eligibility to participate in the survey. Ineligible participants were replaced from the reserve list. Interviewers made a minimum of three attempts to assess eligibility and interview selected participants before considering the participant unavailable and moving on to the next person on the list. The number of attempts, refusals, and replacements was recorded in a field log.

DATA MANAGEMENT

Data collection

The LQAS survey instrument was translated into Shona and Ndau, the predominant local language dialects in Manicaland. The survey instrument was translated to the local language dialect and back-translated to English by independent teams of translators. The back-translated version was compared with the original English tool by the Mhuri/Imuli team and inconsistencies corrected before the tool was pre-tested. Information on vaccination was extracted from childrens' health cards, which the respondents were asked to provide during the data collection exercise. The data collection tool did not record participant identifiers.

Research assistants with experience in field data collection were recruited and trained by a team of FHI 360 staff from 17 – 18 September 2019. The training covered data collection tools, research ethics and survey administration, with emphasis on maintaining privacy and confidentiality.

Interviews were conducted in Shona and Ndau. Participant responses were recorded by research assistants directly into tablets using Data Winners software developed by VIAMO. Data were uploaded daily onto a secure server and checked daily for completeness and quality by the Mhuri/Imuli project's study coordinator. When irregularities were detected, queries were sent back to research assistants for clarification and correction. Once fieldwork was complete, the data was exported to SAS for analysis. The data was stored on a password-protected electronic database accessible to the PI, the survey project leader and data analysts.

Data analysis

Two types of analysis were conducted and are presented in this report: descriptive analysis and LQAS analysis. In the descriptive analysis, participant characteristics were analysed using proportions and measures of central tendency. Sampling weights were applied to the data to account for the different population sizes of each catchment area and province-level estimates were generated at 95% confidence intervals.

The LQAS analysis was conducted to identify Mhuri / Imuli project areas in need of programmatic targeting. As per LQAS methodology, performance in the supervisory areas was compared to pre-determined performance thresholds (decision-rules). The decision-rules for classifying a catchment area as needing attention were determined based on the programmatic targets where they existed. Where programmatic targets were not defined, national service delivery standards and Zimbabwe Demographic and Health Survey (ZDHS) provincial averages were used (Table 2). For indicators for which a decision-rule couldn't be obtained from any of these sources, a conservative 50% threshold was set as the decision-rule. Final decision-rule values were adjusted for the sample size available for each indicator and facility catchment area.

Performance in a catchment area was determined by comparing the proportion of correct responses in the catchment area to the decision-rule value. Table 2 shows the list of indicators, the program targets and the decision-rules. The full results of the LQAS analysis for every facility catchment area in the study is presented in Appendix 1.

Table 2: MNCH-FP indicators, performance targets, and LQAS decision-rules

Indicator	Target (%)	Source of decision-rule	Decision-rule (minimum number of 'yes' responses when sample size is 19)
MNCH-FP KNOWLEDGE INDICATORS			
Knowledge that first ANC visit happens before 12 weeks	50	Project's estimate	11
Can name at least 3 danger signs in pregnancy.	50	Project's estimate	11
Can name 3 danger signs in the newborn period	50	Project's estimate	11
Can name at least 3 danger signs or illnesses in the post-delivery period	50	Project's estimate	11
Knows breastfeeding is initiated immediately/ within the hour of delivery	50	Project's estimate	11
Knows exclusive breastfeeding is done for 6 months	50	Project's estimate	11
MNCH-FP SERVICE USE INDICATORS			
Heard or saw an RH message within the previous 12 months	50	Project's estimate	11
Received first dose of IPTp during pregnancy between 13 -16 weeks	60	Project's estimate	13
Received three or more doses of IPTp during pregnancy	60	Project's estimate	13
Received an ultrasound exam during pregnancy	50	Project's estimate	11
Was screened for syphilis during pregnancy	100	WHO 2018 FANC Guidelines	19
After delivery (in health facility), someone discussed FP with the woman	100	Zimbabwe 2012 PNC Guidelines	19
Child had diarrhea and received treatment	100	WHO 2014 IMNCI pocket guidelines	19
Child received Penta 3 vaccine	85	Zimbabwe 2016 EPI guidelines	18
Unmet need for family planning	6.5	ZNFPC CIP	0 (max)[1]
MNCH-FP BEHAVIOR / ATTITUDE INDICATORS			
Discussed FP use with marital partner	50	Project's estimate	11
Participated in FP counselling with partner at a health facility	50	Project's estimate	11
Attended 8 ANC contacts	50	Project's estimate	11
Attended ANC at least 4 times	85	PMELP	18
Was accompanied by husband/partner to ANC	50	Project's estimate	11
Fully or partly makes decisions about health care for herself	50	Project's estimate	11
Fully or partly decided on where to deliver	50	Project's estimate	11
Had a birth plan	50	Project's estimate	11
Delivered in a health facility	80	ZDHS	17
Baby's first bath was after 24 hours	100	Zimbabwe 2012 PNC Guidelines	19
Breastfed within 1 hour of delivery	58	ZDHS	13
Justifies gender-based violence	17*	ZDHS	2 (max)[1]
Proportion of individuals who justify gender-based violence and/or forced sex	10*	ZDHS	1 (max)[1]

[1]These indicators are defined in the negative direction, so decision-rules indicate the maximum of positive responses instead of the minimum.

**Values reflect the national average in ZDHS as a reference point*

ETHICAL CONSIDERATIONS

Ethical review and clearance were obtained from FHI 360's Protection of Human Subjects Committee (PHSC) and the Medical Research Council of Zimbabwe (MRCZ). Approval to conduct fieldwork was obtained from the MOHCC. All participants provided written informed consent prior to participation. Parental consent was waived for participants aged below 18 years who are legally considered to be emancipated minors.

RESULTS

1. BACKGROUND CHARACTERISTICS

A total of 924 participants were surveyed, with a mean age of 28.4 years, and 91.8% of them were married. Almost half of the participants had completed Form 4 of secondary school, equivalent to 11 years of formal education (Table 3).

Table 3: Participant background characteristics by district

Characteristics	Buhera (N= 159) n (%)	Chimanimani (N= 153) n (%)	Chipinge (N= 123) n (%)	Makoni (N= 138) n (%)	Mutare (N= 121) n (%)	Mutasa (N= 134) n (%)	Nyanga (N= 96) n (%)	Province (N= 924) n (%)
Age								
Mean (Std Err)	29.3 (0.70)	29.0 (0.55)	27.4 (0.73)	27.4 (0.59)	28.6 (0.74)	28.8 (0.64)	26.8 (0.95)	28.4 (0.3)
10-14	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (0.9)	0 (0.0)	1 (0.11)
15-19	19 (11.4)	8 (5.1)	13 (13.3)	19 (13.9)	6 (5.4)	16 (8.1)	14 (13.4)	95 (9.43)
20-24	34 (20.3)	37 (22.3)	30 (26.0)	30 (24.7)	34 (28.7)	32 (24.0)	32 (38.4)	229 (24.82)
25-29	27 (17.8)	39 (25.4)	28 (23.9)	34 (25.3)	32 (27.6)	30 (22.5)	20 (17.1)	210 (23.32)
30-34	33 (18.5)	29 (21.2)	22 (15.0)	24 (18.8)	19 (14.6)	26 (21.1)	13 (10.1)	166 (17.98)
35-39	29 (21.3)	25 (15.7)	19 (13.3)	19 (10.7)	20 (15.0)	16 (14.3)	11 (12.6)	139 (15.22)
40-44	11 (7.2)	10 (6.3)	8 (7.4)	12 (6.6)	10 (8.8)	10 (7.1)	6 (8.4)	67 (7.22)
45-49	2 (1.3)	0 (0.0)	1 (0.2)	0 (0.0)	0 (0.0)	1 (0.7)	0 (0.0)	4 (0.34)
Don't know/missing	4 (2.1)	5 (3.9)	2 (0.8)	0 (0.0)	0 (0.0)	2 (1.3)	0 (0.0)	13 (1.56)
Marital status								
Married	149 (91.7)	147 (95.3)	113 (89.4)	125 (91.2)	108 (89.3)	122 (90.4)	90 (93.8)	854 (91.82)
Divorced	4 (4.2)	3 (1.6)	3 (3.2)	8 (5.8)	6 (3.7)	5 (3.3)	1 (1.3)	30 (3.34)
Never Married	4 (2.7)	1 (1.0)	2 (1.3)	4 (2.6)	3 (3.6)	1 (0.4)	1 (0.9)	16 (1.86)
Separated	1 (0.1)	0 (0.0)	5 (6.1)	0 (0.0)	3 (2.5)	4 (3.9)	4 (4.0)	17 (1.88)
Widowed	1 (1.2)	2 (2.0)	0 (0.0)	1 (0.4)	1 (0.9)	2 (2.0)	0 (0.0)	7 (1.10)
Education (completed years)								
Never Attended School (0)	2 (1.4)	1 (0.7)	7 (8.9)	0 (0.0)	0 (0.0)	3 (2.4)	6 (9.6)	19 (2.46)
Some Primary (<7)	8 (4.7)	23 (16.6)	25 (17.9)	12 (10.2)	3 (2.2)	6 (5.3)	3 (2.2)	80 (9.63)
Primary (7)	60 (43.1)	63 (40.7)	61 (48.8)	43 (28.6)	36 (27.5)	63 (43.5)	39 (34.9)	365 (38.71)
Ordinary (11)	86 (49.0)	63 (40.4)	27 (20.5)	82 (60.4)	80 (67.8)	59 (46.1)	46 (51.9)	443 (47.13)
Advanced (13)	2 (0.8)	0 (0.0)	3 (3.9)	1 (0.8)	2 (2.5)	2 (1.6)	0 (0.0)	10 (1.29)
Tertiary (14+)	1 (1.1)	3 (1.6)	0 (0.0)	0 (0.0)	0 (0.0)	1 (1.1)	2 (1.4)	7 (0.77)

2. LQAS Analysis Results

LQAS helps to identify which health facility catchment areas perform below the pre-determined decision-rules for project indicators, and therefore require targeted support. A summary table of how many facility catchment areas per district were determined to need further attention (i.e., did not meet the decision-rule cut off value) is presented below (Table 4). With the exception of one health facility catchment area in Nyanga district, all project sites exhibited lower than acceptable levels of knowledge of danger signs in pregnancy, delivery and the newborn period. Similarly, the coverage of 8 ANC visits, 3 or more IPTp doses, obstetric ultrasound scans and post-partum FP counselling was universally low. Respondents from nearly all district supervisory areas indicated a high level of women's participation in decisions on health care, however, in most areas responses on couple counselling on FP, birth planning and decisions on family size did not meet acceptable performance thresholds.

The full results of the LQAS analysis by catchment area are found in Appendix 1.

Table 4: Number of catchment areas failing to reach decision-rule, by district and indicator

Indicator	Buhera (n=8 catchment areas)	C'mani (n=8 catchment areas)	Chipinge (n=6 catchment areas)	Makoni (n=7 catchment areas)	Mutare (n=6 catchment areas)	Mutasa (n=7 catchment areas)	Nyanga (n=5 catchment areas)
MNCH-FP KNOWLEDGE							
Knowledge of 1st ANC timing	0	0	0	0	0	0	0
Knows 3+ danger signs during pregnancy	8	8	6	7	5	7	5
Knows 3+ danger signs in newborn period	8	8	6	7	6	7	5
Knows 3+ post-partum danger signs	8	8	6	7	6	7	5
Breastfeeding initiation knowledge	1	0	1	0	0	1	0
Exclusive breastfeeding knowledge	1	0	0	0	0	0	0
MNCH-FP SERVICE USE							
Recall a RH message	7	2	1	3	0	0	0
Timing of first IPTp dose	7	6	6	5	6	6	5
Received 3+ Doses of IPTp	8	8	6	7	6	7	5
Had pregnancy ultrasound exam	8	8	6	6	6	6	5
Tested for Syphilis	3[2]	8	5[4]	6[5]	6	7	4[3]
Post-partum FP counselling	8	8	6	7	6	7	5
Child had diarrhea and received treatment	NA[1]	NA[1]	NA[1]	NA[1]	NA[1]	NA[1]	NA[1]
Child received Penta 3	4	2	1[4]	1	1	2	0
Unmet need for FP	4[3]	8	6	7	6	7	5
MNCH-FP BEHAVIOR / ATTITUDE							
Attended ANC 8+ times	8	8	6	7	6	7	5
Attended ANC 4+ times	7	7	2	6	5	4	3

Indicator	Buhera (n=8 catchment areas)	C'mani (n=8 catchment areas)	Chipinge (n=6 catchment areas)	Makoni (n=7 catchment areas)	Mutare (n=6 catchment areas)	Mutasa (n=7 catchment areas)	Nyanga (n=5 catchment areas)
Discussed FP with partner	4	1	0	1	0	1	1
Partner accompanied resp. to ANC	4	5	5	3	4	3	1
Participated in couple counselling for FP	8	8	5	7	6	7	5
Fully or partly makes decision on health care	1	1	1	2	1	4	2
Fully or partly makes decision on where to deliver	6	2	0	3	2	3	0
Fully or partly decides how many children to have	8	8	6	7	6	7	5
Had a birth plan	8	8	6	5	6	5	5
Institutional delivery	7	4	1	3	5	2	2
Baby first bathed after 24 hours	8	5[5]	5[4]	6	6	7	5
Breastfed within 1 hour of delivery	6	2	2	2	2	0	0
Condones GBV	6	8	6	4	6	6	5
Women condone forced sex	5	6	5	4	4	6	5

[1]Based on 0 facilities; [2]Based on 3 facilities; [3]Based on 4 facilities; [4]Based on 5 facilities; [5]Based on 6 facilities

3. DESCRIPTIVE ANALYSIS RESULTS

Overall Performance on Indicators

Table 5 presents the performance on indicators for the Mhuri/Imuli program by district, along with the estimate for the province with 95% confidence intervals. The percentages are weighted to account for size of catchment population. While Table 5 presents the overview, the sections following present descriptive results separately.

Table 5: Overall performance on indicators, compared to targets

Indicator (target)	Buhera	Chimanimani	Chipinge	Makoni	Mutare	Mutasa	Nyanga	Province /Total weighted (95% CI)
MNCH-FP KNOWLEDGE								
Knowledge of 1st ANC timing (50%)	95.9	86.8	94.8	94.7	91.5	95.7	99.6	**92.9 (90.8 -95.0)**
Knows 3+ danger signs during pregnancy (50%)	27.7	20.0	19.2	24.0	34.1	25.8	10.5	23.5 (20.3 -26.8)
Knows 3+ danger signs in newborn period (50%)	27.7	17.7	14.0	28.5	30.9	27.2	10.0	23.0 (19.8 -26.1)
Knows 3+ post-partum danger signs (50%)	19.3	10.7	13.3	20.8	19.5	16.9	8.3	15.8 (13.1 -18.5)
Breastfeeding initiation knowledge (50%)	77.2	73.3	71.7	77.0	73.9	78.6	75.2	**75.0 (71.5 -78.5)**

Indicator (target)	Buhera	Chimanimani	Chipinge	Makoni	Mutare	Mutasa	Nyanga	Province /Total weighted (95% CI)
Exclusive breastfeeding knowledge (50%)	68.7	97.2	98.9	70.4	86.2	95.8	99.0	**88.2 (85.9 -90.6)**
MNCH-FP SERVICE USE								
Recall a RH message (50%)	37.1	61.6	65.5	53.0	70.0	83.3	73.4	**61.3 (57.7 -64.8)**
Timing of first IPTp dose (60%)	53.7	59.2	55.3	59.9	50.0	53.6	45.2	55.2 (50.9 -59.5)
Received 3+ Doses of IPTp (60%)	18.2	27.8	45.5	28.2	34.8	31.7	32.9	30.2 (26.8 -33.6)
Had ultrasound exam (50%)	14.5	8.9	2.1	35.5	17.3	24.7	6.2	15.5 (13.0 -18.0)
Tested for Syphilis (100%)	47.2	55.2	52.4	41.6	45.2	62.6	40.5	50.3 (46.2 -54.4)
Post-partum FP counselling (100%)	32.3	62.3	53.5	48.7	54.4	77.3	57.6	54.5 (50.9 -58.1)
Child received Penta 3 (85%)	92.6	92.9	98.2	98.5	95.0	97.0	96.7	**95.4 (93.6 -97.3)**
Child had diarrhoea and received treatment (100%)	41.7	74.7	54.5	52.5	60.5	72.4	69.2	59.4 (53.2 -65.5)
Unmet need for FP (6.5%)	20.2	21.5	33.1	21.9	27.3	26.1	27.7	24.9 (21.5 -28.2)
MNCH-FP BEHAVIOR / ATTITUDE								
Attended ANC 4+ times (85%)	85.2	86.7	89.5	80.5	80.7	90.4	85.0	**85.5 (82.7 -88.3)**
Attended ANC 8+ times (50%)	11.8	5.2	11.1	10.0	8.5	8.2	15.5	9.1 (6.9 -11.3)
Discussed FP with partner (50%)	53.6	71.3	74.6	69.2	69.2	65.6	57.6	**66.5 (63.0 -70.1)**
Partner accompanied resp. to ANC (50%)	52.6	48.9	45.6	64.9	49.8	66.2	66.6	**54.7 (50.8 -58.5)**
Resp and partner participated in FP counselling (50%)	18.2	22.9	22.9	24.9	26.0	26.9	20.1	23.1 (20.0 -26.1)
Fully or partly makes decision on health care (50%)	66.0	66.2	68.6	55.9	63.0	58.1	57.7	**63.1 (59.6 -66.7)**
Fully or partly makes decision on where to deliver (50%)	45.7	57.8	66.4	55.1	56.8	56.6	68.9	**56.8 (53.2 -60.5)**
Fully or partly decides how many children to have (50%)	18.5	19.3	22.5	11.6	14.5	14.8	24.2	17.6 (14.7 -20.5)
Had a birth plan (50%)	35.2	33.1	25.4	51.8	38.3	58.5	42.3	39.5 (35.7 -43.2)
Institutional delivery (80%)	46.2	88.2	92.4	82.1	73.2	87.2	82.3	78.0 (75.2 -80.9)
Baby first bathed after 24 hours (100%)	89.7	76.0	75.0	91.8	76.2	79.7	80.7	81.3 (78.4 -84.3)
Breastfed within 1 hour of delivery (58%)	49.8	79.7	70.4	70.1	66.5	80.4	75.8	**69.9 (66.5 -73.3)**
Condones GBV (comparison 17% in ZDHS)	22.9	40.4	50.0	20.9	27.2	23.9	29.6	31.5 (28.1 -34.9)
Women condone forced sex (comparison 10% in ZDHS)	10.6	13.7	11.1	10.4	14.0	17.6	18.1	13.2 (10.6 -15.7)

Note: bold font indicates that indicator is above the target, based on the 95% CI

3.1 MNCH-FP Knowledge

Breastfeeding, danger signs and early ANC

The correct knowledge of breastfeeding practices, danger signs in pregnancy, post-partum and among newborns and correct timing of first ANC visit is critical both for improved maternal and newborn health and Mhuri/Imuli project outcomes.

Breastfeeding knowledge was higher on exclusive breastfeeding for 6 months (82.2%) than on early initiation of breastfeeding (75%). Knowledge of exclusive breastfeeding was lowest in Buhera district (68.7%). Knowledge of the importance of early ANC was high across the province, with Chimanimani district (86.8%) having the lowest proportion of women with correct knowledge of first ANC timing.

Knowledge of danger signs was low across the province. Less than a quarter (23.5%) of women could mention three danger signs in pregnancy (23.5%), post-partum period (15.8%) or in the newborn (23%) (Table 6).

Table 6: Proportion of women with correct knowledge of breastfeeding, danger signs, and timing of first ANC visit by district

Knowledge indicator	Buhera (N= 159) n (%)	C'mani (N= 153) n (%)	Chipinge (N= 123) n (%)	Makoni (N= 138) n (%)	Mutare (N= 121) n (%)	Mutasa (N= 134) n (%)	Nyanga (N= 96) n (%)	Province (N= 924) n (%)
Initiation of breastfeeding within 1 hour of birth[1]	85 (77.2)	107 (73.3)	85 (71.7)	96 (77.0)	80 (73.9)	97 (78.6)	68(75.2)	618 (75.0)
Exclusive breastfeeding for 6 months[1]	71 (68.7)	138 (97.2)	116 (98.9)	88 (70.4)	94 (86.2)	118 (95.8)	89(99.0)	714 (88.2)
3+ danger signs during pregnancy[1]	29 (27.7)	32 (20.0)	20 (19.2)	31 (24.0)	31 (34.1)	29 (25.8)	10(10.5)	182 (23.5)
3+ danger signs post partum[2]	31 (19.3)	15 (10.7)	13 (13.3)	29 (20.8)	23 (19.5)	19 (16.9)	9(8.3)	139 (15.8)
3+ newborn danger signs[2]	46 (27.7)	26 (17.7)	17 (14.0)	39 (28.5)	32 (30.9)	33 (27.2)	12 (10.0)	205 (23.0)
Timing of first ANC visit before 12 weeks[1]	103 (95.9)	124 (86.8)	113 (94.8)	120 (94.7)	97 (91.5)	117 (95.7)	89 (99.6)	763 (92.9)

[1]Question skipped if person never attended ANC
[2]Question skipped if person had spontaneous abortion

3.2 MNCH-FP INFORMATION

MNCH-FP information

Post-partum FP counselling was low across the province, with only 55.7% of women having received this service.The lowest proportion of women who had received post-partum FP counselling was in Buhera (32.3%) and the highest in Mutasa (77.3%) districts.

On the other hand, 62% of women across the province reported hearing a FP/RH message in the previous year. In Buhera district, only 37.1% of women (37.1%) could recall hearing a Family Planning /Reproductive Health (FP/RH) message in the past 12 months (Table 7).

Table 7: Proportion of women who have received MNCH-FP information by district

Characteristics	Buhera (N= 159)	C'mani (N= 153)	Chipinge (N= 123)	Makoni (N= 138)	Mutare (N= 121)	Mutasa (N= 134)	Nyanga (N= 96)	Province (N= 924)
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
Heard a FP/RH message in last 12 months[2]	59 (37.1)	90 (61.6)	78 (65.5)	72 (53.0)	89 (70.0)	111 (83.3)	75 (73.4)	574 (61.3)
Received post-partum FP counseling after birth[2]	52 (32.3)	94 (62.3)	71 (53.5)	65 (48.7)	72 (54.4)	100 (77.3)	61 (57.6)	515 (54.5)
Total[1]	155	143	118	134	120	133	96	899

[1]Totals do not include missing and Don't Know values
[2]Questions skipped if person had spontaneous abortion

3.3 MNCH-FP services

ANC services

Under new ANC guidelines adopted by the MOHCC in 2018, all pregnant women should receive an ultrasound exam at least once[5]. Since this guideline is new, the provincial target was set at 50%. At 15.5%, coverage of this service is unacceptably low across the province, with the highest coverage (35.5% of women) recorded in Makoni district.

The ANC guidelines further stipulate that all pregnant women should be screened for syphilis and receive 3 doses of intermittent preventive treatment for malaria in pregnancy (IPTp) using sulfadoxine-pyrimethamine (SP), with the first dose to be given between 13- 16 weeks of gestational age. Just over half (50.3%) of women across the province were screened for syphilis during their most recent pregnancy. The lowest proportion of women screened for syphilis was seen in Nyanga district (40.5%) and the highest in Mutasa district (62.6%). Approximately half (55.4%) of women reported receiving their first IPTp dose at the recommended time, and 30.2% received three or more IPTp doses. The coverage of 3 or more doses of IPTp in all districts was below acceptable threshold (Table 8).

Table 8: ANC services received by district

Characteristics	Buhera (N= 159) n (%)	C'mani (N= 153) n (%)	Chipinge (N= 123) n (%)	Makoni (N= 138) n (%)	Mutare (N= 121) n (%)	Mutasa (N= 134) n (%)	Nyanga (N= 96) n (%)	Province (N= 924) n (%)
Attended ANC at least once	108(64.6)	141(91.6)	119(97.9)	126(93.5)	107(86.8)	124(91.0)	90(90.5)	815(87.2)
Ultrasound exam[1]	13(14.5)	13(8.9)	5(2.1)	48(35.5)	18(17.3)	30(24.7)	7(6.2)	134(15.5)
Screened for syphilis [1]	52(47.2)	71(55.2)	57(52.4)	51(41.6)	49(45.2)	64(62.6)	30(40.5)	374(50.3)
Correct timing of first IPTp dose[2]	47(53.7)	72(59.2)	56(55.3)	61(59.9)	47(50.0)	56(53.6)	40(45.2)	379(55.2)
Three or more doses of IPTp	28(18.2)	41(27.8)	50(45.5)	39(28.2)	39(34.8)	35(31.7)	33(32.9)	265(30.2)

[1]Question skipped if person never attended ANC
[2]Question skipped if person was never given IPTp

3.4 Child health services

Diarrhoea treatment

Just over one third of respondents across the province (37.1%) had children who had suffered from diarrhea in the two weeks preceding the survey. Of these, 59.4% received any treatment and 45.1% received treatment with oral rehydration salts (ORS) and Zinc. Respondents in Buhera district reported the lowest proportion of children with diarrhoea who received treatment (41.7%) while among respondents in Chimanimani, three quarters (74.7%) of children with diarrhea received treatment (Table 9).

Table 9: Diarrhea treatment by district

Characteristics	Buhera (N= 159) n (%)	C'mani (N= 153) n (%)	Chipinge (N= 123) n (%)	Makoni (N= 138) n (%)	Mutare (N= 121) n (%)	Mutasa (N= 134) n (%)	Nyanga (N= 96) n (%)	Province (N= 924) n (%)
Baby had diarrhea in last 2 weeks	62 (42.7)	36 (27.3)	39 (40.5)	43 (33.6)	52 (44.4)	54 (40.7)	32 (33.2)	318 (37.1)
Baby received treatment for diarrhea	29 (41.7)	25 (74.7)	24 (54.5)	22 (52.5)	31 (60.5)	40 (72.4)	24 (69.2)	195 (59.4)
Baby received both Zinc and ORS for diarrhea	11 (23.5)	14 (54.2)	18 (66.4)	7 (29.6)	12 (32.3)	23 (58.6)	16 (68.1)	101 (45.1)

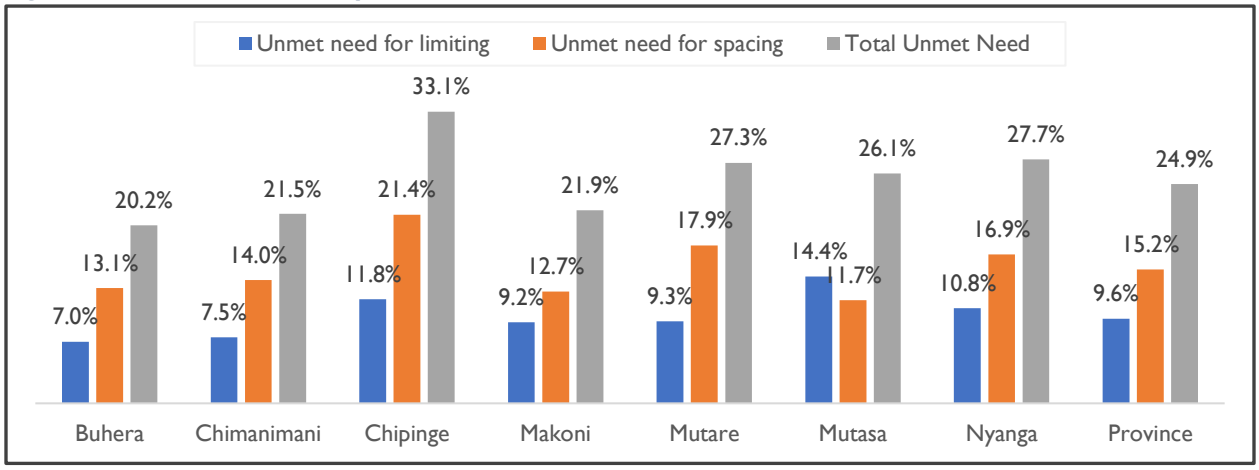
Pentavalent 3 Vaccination

The MOHCC recommends 90% coverage of recommended vaccines, with the goal of conferring herd immunity to communities [6]. At 79.6%, the coverage of pentavalent 3 vaccine among eligible children in the project's sites was below the threshold. Only respondents in two districts, Chipinge (87.6%) and Makoni (86.8%) were close to the target.

Unmet need for FP

Zimbabwe's national FP Costed Implementation Plan (ZNFP CIP) 2016 -2020 [7] recommends reducing unmet need for FP from 10% to 6.5% nationally. This recommendation was used to set 6.5% as the service threshold for this indicator. With an overall unmet need of 24.9%, none of the unmet need reported by respondents in any district met the threshold. Reported unmet need ranged from 20.2% in Buhera to 33.1% in Chipinge. The unmet need for spacing births (15.2%) was higher than that for limiting births (9.6%) except among respondents in Mutasa district.

Figure 1: Unmet need for FP by district

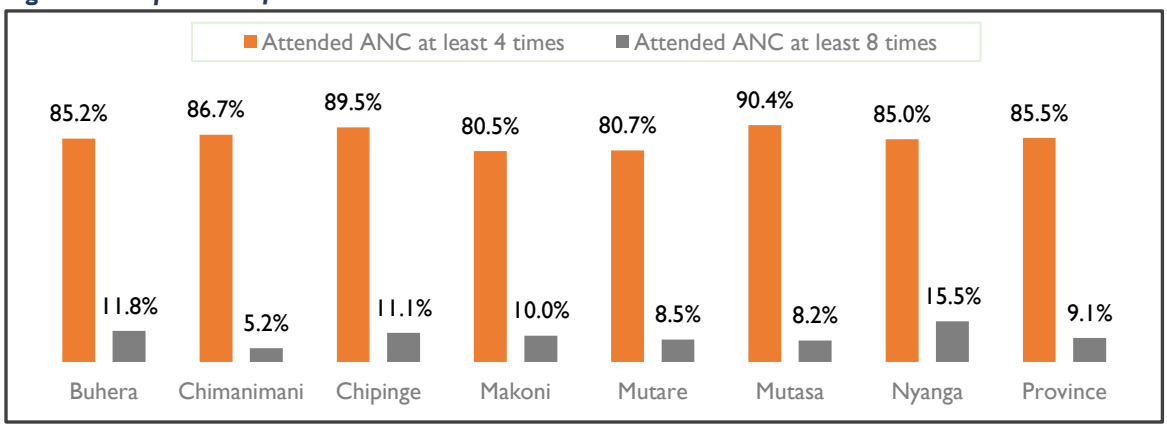


3.4 MNCH-FP behaviour, health-seeking and attitudes

ANC attendance

The 2018 MOHCC guidelines on ANC recommend 8 ANC contacts before delivery, up from 4 ANC visits in previous service delivery guidelines [8]. The acceptable thresholds for the 4 and 8 ANC contacts were 85% and 50% respectively. While respondents in Chimanimani (86.7%) and in Chipinge (89.5%) districts reported reaching the target for the 4 visits, none of the districts had respondents who reached the threshold for 8 ANC contacts.

Figure 2: Proportion of women who attended 4 and 8 ANC visits



Birth plan

Participants were asked about five elements of the birth plan: 1) whether they had saved money for birth; 2) arranged transport; 3) decided on a birth companion; 4) decided on a place to deliver; and 5) had identified someone to take care of the household while they were in hospital. Existence of a birth plan was determined as a positive response to all elements. Only respondents in Mutasa district met the threshold set for this indicator. Province-wide, 35% of women reported having a birth plan.

Institutional delivery

In Zimbabwe overall, 80% of births take place in a health facility and this was the threshold set for this indicator. Overall, 79.2%, of women in the province reported health facility births, with the furthest discrepancy seen among Buhera (51.0%) district respondents.

Early initiation of breastfeeding

Breastfeeding within the first hour of delivery imparts important health benefits to both the mother and the newborn. We used the ZDHS national average of 58% as the threshold for early breastfeeding. In all of the six districts, women reported breastfeeding within an hour of birth above this target, with the exception of respondents in Buhera district (51.6%). Across the province, 68.1% of women reported breastfeeding within an hour of birth, with the highest proportion in Mutasa district (81.3%).

Timing of a baby's first bath

National guidelines suggest that a newborn baby's first bath be postponed to at least 24 hours after birth [9]. In line with this, we set a performance threshold of 100% of babies bathed after 24 hours. Reported values ranged from 66.9% among respondents in Chimanimani to 89.4% among respondents in Makoni district.

Gender and women's empowerment

Male engagement in MNCH-FP

Information on male engagement was obtained by asking respondents whether their partners had accompanied them at any visit to ANC; participated in any FP counselling at a health facility; and whether in the 12 months preceding the survey they had discussed FP with their spouses. Performance thresholds for each of these three elements was set at 50%. Partner participation in FP counselling was particularly low among respondents in all districts – across the province, an average of 23.1% respondents indicated that their partner participated in FP counselling. Just over half of respondents (54.7%) reported that husbands accompanied them to at least one ANC visit and two thirds (66.5%) had discussed FP use with their partner (Table 10).

Table 10: Proportion of respondents who reported partners were engaged in MNCH-FP

	Buhera (N= 159)	C'mani (N= 153)	Chipinge (N= 123)	Makoni (N= 138)	Mutare (N= 121)	Mutasa (N= 134)	Nyanga (N= 96)	Province (N= 924)
Characteristics	**n (%)**	**n (%)**	**n (%)**	**n (%)**	**n (%)**	**n (%)**	**n (%)**	**n (%)**
Husband accompanied wife to at least one ANC visit[2]	56 (52.6)	71 (48.9)	54 (45.6)	78 (64.9)	51 (49.8)	76 (66.2)	61 (66.6)	447 (54.7)
Partner participated in FP counselling	29 (18.2)	36 (22.9)	33 (22.9)	31 (24.9)	29 (26.0)	35 (26.9)	19 (20.1)	212 (23.1)
Discussed FP use with partner	87 (53.6)	110 (71.3)	93 (74.6)	95 (69.2)	81 (69.2)	90 (65.6)	58 (57.6)	614 (66.5)

Women's decision-making on health care

Women were considered to participate in decision making if they reported undertaking decisions on their health care, place of delivery or number of children to have either solely or jointly with their spouses. Across the province, women's reported participation in decisions regarding their health care (62.4%), place of delivery (58.1%) and number of children to have (53.9%) reached target thresholds (Table 10).

Table 5: Women's decision-making on health care by district

Characteristics	Buhera (N= 159) n (%)	C'mani (N= 153) n (%)	Chipinge (N= 123) n (%)	Makoni (N= 138) n (%)	Mutare (N= 121) n (%)	Mutasa (N= 134) n (%)	Nyanga (N= 96) n (%)	Province (N= 924) n (%)
Who makes decisions about health care?								
Woman alone	61 (37.3)	59 (40.6)	44 (39.6)	37 (25.2)	40 (30.5)	43 (36.2)	34 (35.3)	318 (35.5)
Woman and husband jointly	47 (28.7)	43 (25.6)	37 (25.9)	42 (30.7)	38 (31.6)	28 (20.8)	23 (21.7)	258 (26.9)
Husband alone	47 (32.4)	41 (26.1)	29 (22.7)	53 (39.9)	31 (26.8)	58 (39.3)	34 (36.6)	293 (30.9)
Other	4 (1.6)	10 (7.7)	13 (11.9)	6 (4.2)	12 (11.2)	5 (3.7)	5 (6.4)	55 (6.6)
Total[1]	**159**	**153**	**123**	**138**	**121**	**134**	**96**	**924**
Who made the decision about where to deliver?[2]								
Woman alone	50 (32.0)	76 (50.8)	59 (51.6)	61 (44.5)	48 (39.5)	45 (34.3)	38 (41.3)	377 (42.6)
Woman and husband jointly	21 (15.4)	14 (11.0)	21 (15.1)	15 (11.5)	24 (15.8)	29 (22.8)	25 (26.3)	149 (15.5)
Husband alone	56 (34.7)	31 (22.5)	26 (17.4)	30 (22.9)	32 (28.6)	30 (22.5)	24 (24.7)	229 (25.0)
Other	28 (17.9)	22 (15.7)	12 (15.8)	28 (21.1)	16 (16.1)	29 (20.5)	9 (7.7)	144 (17.0)
Total[1]	**155**	**143**	**118**	**134**	**120**	**133**	**96**	**899**
Who makes the decision about how many children to have?								
Woman alone	23 (18.5)	28 (19.3)	22 (22.5)	19 (11.6)	22 (14.5)	18 (14.8)	21 (24.2)	153 (17.6)
Woman and husband jointly	53 (31.1)	60 (37.8)	48 (36.5)	42 (27.5)	57 (50.2)	50 (38.7)	26 (28.5)	336 (36.3)
Husband alone	80 (47.9)	64 (42.1)	52 (40.4)	76 (60.4)	42 (35.3)	65 (45.4)	49 (47.2)	428 (45.2)
Other	3 (2.6)	1 (0.8)	1 (0.7)	1 (0.5)	0 (0.0)	1 (1.1)	0 (0.0)	7 (0.9)
Total[1]	**159**	**153**	**123**	**138**	**121**	**134**	**96**	**924**

[1]Totals do not include missing and 'Don't Know' values
[2]Questions skipped if person had spontaneous abortion

Gender Based Violence

Participants were asked whether they thought it justifiable for a husband to beat his wife or partner for any reason, using 17% as a performance threshold based on the ZDHS national average. Across Manicaland, 30.5% of women justify wife-beating, with the highest proportion in Chipinge (50.4%) and the lowest in Makoni (18.1%).

Forced Sex

Participants were asked their opinion on forced sex in a relationship, using 10% as a performance threshold for individuals who find forced sex in a relationship appropriate based on ZDHS national average. Respondents in Buhera (9.4%) and Makoni (8.7%) districts had the lowest response rate. Across Manicaland, 13.5% of women found forced sex in a relationship to be appropriate.

DISCUSSION OF IMPLICATIONS FOR THE MHURI / IMULI PROJECT

This community-based LQAS survey was implemented in September 2019 to support Mhuri / Imuli project implementation, monitoring and evaluation, as well as to contribute to knowledge of key MNCH knowledge, behaviors and practices in selected areas within the province. Specifically, the survey aimed to improve the project's understanding of MNCH knowledge, service use and attitudes in project-supported sites and provides baseline measurements for project indicators that are not routinely reported in the HMIS.

Knowledge of danger signs during pregnancy, immediately after delivery and in the newborn period, was extremely low across all districts. Improved MNCH knowledge is a known influence on women's decision making and health seeking for themselves and their families [10]. A study in Tanzania correlates knowledge of danger signs and women's care seeking behaviour [11]. In this survey, districts with satisfactorily high levels of knowledge on breastfeeding also had acceptable levels of early initiation of breastfeeding, possibly indicating a trend towards higher knowledge translating into better practice. The low levels of knowledge on danger signs pose a threat to health-seeking for critical MNCH-FP services with negative implications for maternal and newborn health. In response, the Mhuri / Imuli project engages communities through self-care groups and administers life-stage specific curricula that seek to improve knowledge of danger signs.

Two-thirds of WCBA in the current survey identified with the Apostolic sect. The doctrine and practices of conservative apostolic church groups emphasize faith healing and strict adherence to church beliefs and practices, which can undermine MNCH-FP healthcare-seeking behaviour [12]. A qualitative study underscored the relationship between barriers to obstetric care-seeking behaviour and apostolic faiths in Zimbabwe [13]. Mhuri/Imuli program will utilize interventions including "Rock Leadership 90" and "Changing the River's Flow" to interact with religious and traditional leaders to bring change to beliefs and practices which may negatively impact maternal and child health outcomes.

Women's decision-making autonomy is essential for optimal health care seeking and utilization for better maternal and newborn health outcomes [14]. Even in the current assessment, institutional deliveries in this survey were the lowest in project catchment areas where women did not participate in decisions on where to have their babies, implying a connection between women's decision-making and care seeking behaviour.

Male partner support was reported to be strong for couple discussions on FP and weakest on partner participation in ANC visits. Since male engagement is an intervention that improves antenatal and postpartum care utilization as well as delivery at health facilities, birth preparation and complication readiness [15], it will be necessary for the Mhuri / Imuli project to implement community education aimed at improving men's' participation in all aspects of MNCH and FP. The project will address constructive male engagement by enrolling men into self-care groups where they will go through specifically designed curricula that seek to increase their knowledge of and participation in MNCH activities.

Male spousal engagement and community education should also address gender attitudes in light of widespread attitudes justifying gender-based violence in Manicaland province. The link between exposure to sexual and gender-based violence and maternal health care seeking [16] justifies a project focus on addressing gender-based violence among both women and men in Manicaland. Discussion on gender-based violence and forced sex in relationships should enhance women's ability to seek and receive health services. The Mhuri/Imuli project will use targeted SBCC approaches to improve outcomes and levels of reported perceptions on these topics.

The utilization of priority MNCH-FP services assessed fell below expected thresholds. None of the project's catchment areas in any districts achieved acceptable thresholds for 8 ANC visits. In several districts, participants did not report having 4 ANC visits in their last pregnancy.

Ultrasound scanning was extremely low in all catchment areas, with only 15.5% of women reporting having an ultrasound at last pregnancy – as low as 2.1% in Chipinge. Ultrasound scanners are not available at primary healthcare facilities - at the time of the study, ultrasound machines were only functioning at district and mission hospitals. Another barrier may be on the community side, as women may lack the resources to travel to referral sites for an ultrasound scan. Accordingly, the project has plans to introduce obstetric ultrasound scanning at priority sites.

Province-wide, the use of IPTp was below the expected threshold; none of the project's catchment areas reported reaching expected coverage for 3 or more doses of IPTp. Malaria in pregnancy is a major contributor to maternal mortality in Manicaland. Five of the seven districts in Manicaland Province (with the exception of Buhera and Makoni) are characterized as high to moderate malaria endemicity. Through the project's *My Village My Home* approach, pregnancy surveillance at community level will encourage ANC attendance and IPTp uptake.

In this survey, project catchment areas in all districts had an unmet need for FP which was higher than the acceptable threshold of 6.5%. Province-wide, 24.9% of women had an unmet need for FP. This is considerably higher than the unmet need reported by the ZDHS [17]. This can be explained by widespread stock outs of contraceptives during 2019, affecting the availability of FP services. Further, many primary healthcare facilities in Manicaland Province only offer short acting methods as their staff is not trained to provide long-acting reversible contraception (LARC). Mhuri/ Imuli will work to increase the availability of LARC through mobile FP outreach services.

Given the limited LQAS sample size, the combined estimates presented in this survey only represent the project's catchment areas and shouldn't be interpreted to represent the entire district or province. Nonetheless, the precision of the estimates is valid for facility catchment areas.

CONCLUSION

The first round of the community-based LQAS survey conducted by the Mhuri/Imuli program provided valuable information for program and for local health authority planning. The study was also useful to help refine programmatic thresholds for the next round of the annual survey. Key issues emerging included lack of knowledge of danger signs in pregnancy, post partum and in the newborn period, low achievement of ANC visits, high unmet need for FP and poor coverage of IPTp 3. Indicators based on gender norms related to male involvement in ANC and community norms such as condoning forced sex within marriage or wife-beating also emerged as key issues to address. Mhuri/Imuli will continue to work with provincial health authorities, health facility staff, and the MOHCC to support facility and community initiatives to address these areas of concern.

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APPENDIX 1. LQAS ANALYSIS RESULTS

The full results of the LQAS analysis for every facility catchment area in the study is presented in this appendix.

As a reminder to interpreting these tables, if the number of positive responses did not reach or exceed the decision-rule value, the performance of the supervisory area (SA) on that indicator was classified as inadequate.

We determined the decision-rule cut off value based on the available sample size to minimize misclassification errors (less than 10%). While a sample size of 19 per SA was used as recommended for LQAS samples, final sample size varied due to non-response or because some indicators are only applicable to a subgroup. Using the identified targets, we decided to set the LQAS lower threshold 10% lower than the program target. For example, if the target was 50%, we wanted to make sure that only very few catchment areas (less than 10% chance) would be classified as performing adequately (because it met the decision-rule criterion) when in fact it is performing at the 40% level or lower and therefore needs further attention. An exception to this approach is that when the target was 100%, we used a threshold 15% lower, i.e., 85%. Please keep in mind that the chance for the other type misclassification, i.e., classifying a catchment area as needing attention when in fact it is performing adequately, is large for performance levels around the target. This is the reason we chose a threshold below the target, so the chance for this type of misclassification error is not too large. However, this is still larger than the desirable 10% misclassification error unless the true performance is much larger (e.g., >70%). In other words, with this LQAS analysis strategy, we prioritised not missing low performing catchment areas (i.e., low chance of misclassifying a catchment area performing lower than the target as performing adequately).

In the following tables, those catchment areas potentially needing attention are designated red, and those clearly performing well are designated green. The color white denotes catchment areas when the sample size was too low to be able to determine a decision-rule with the misclassification errors as described above.

Appendix 1, Table 1: Buhera District LQAS Analysis Table

Indicator (target)	Buhera	Chapanduka	Chirozva	Mudanda	Munyanyi	Muzokomba	Nyashanu	Zangama	Total weighted pct. (95% CI)
Knowledge that first ANC visit happens before 12 weeks (50%)	95.0	90.0	92.9	100.0	93.3	100.0	90.9	100.0	95.9 (91.8 -99.9)
Can name 3 danger signs in pregnancy (50%)	20.0	30.0	28.6	36.4	33.3	20.0	18.2	33.3	27.7 (17.5 -37.9)
Can name 3 danger signs in newborn period (50%)	50.0	21.1	26.3	25.0	22.2	37.5	31.6	25.0	27.7 (19.3 -36.0)
Can name 3 post-partum danger signs (50%)	15.0	15.8	26.3	10.0	16.7	31.3	15.8	29.2	19.3 (12.1 -26.5)
Knows breastfeeding is initiated immediately after delivery (50%)	80.0	70.0	85.7	100.0	73.3	53.3	90.9	83.3	77.2 (68.2 -86.3)
Knows exclusive breastfeeding is done for 6 months (50%)	60.0	70.0	64.3	63.6	60.0	80.0	72.7	58.3	68.7 (58.3 -79.1)
Heard or saw a FP/RH message in the last 12 months (50%)	65.0	36.8	42.1	35.0	38.9	37.5	42.1	12.5	37.1 (28.0 -46.1)
Received first IPTp dose between 13-16 weeks (60%)	50.0	63.6	71.4	40.0	70.0	37.5	54.5	37.5	53.7 (41.4 -66.1)
Received 3+ Doses of IPTp during pregnancy (60%)	10.5	10.5	41.2	10.0	15.8	21.1	27.8	13.0	18.2 (11.3 -25.0)
Received an ultrasound exam during pregnancy (50%)	10.0	0.0	0.0	18.2	20.0	33.3	0.0	8.3	14.5 (6.4 -22.6)
Was screened for Syphilis during pregnancy (100%)	88.9	70.0	20.0	36.4	28.6	50.0	50.0	70.0	47.2 (35.5 -58.9)
Post-partum FP counselling (100%)	60.0	42.1	31.6	40.0	27.8	18.8	21.1	25.0	32.3 (23.6 -41.0)
Percent with diarrhea who received modern treatment (100%)	60.0	25.0	83.3	37.5	71.4	33.3	40.0	33.3	41.7 (27.3 -56.1)
Child received Penta 3 vaccine (85%)	100.0	87.5	100.0	88.9	100.0	93.3	87.5	77.8	92.6 (85.9 -99.2)
Unmet need for family planning (6.5%)	30.0	20.0	14.3	18.2	33.3	13.3	27.3	33.3	20.2 (11.4 -28.9)
Attended ANC 8+ times (50%)	0.0	20.0	15.4	9.1	7.7	6.7	20.0	16.7	11.8 (4.4 -19.1)
Attended ANC 4+ times (85%)	75.0	90.0	84.6	100.0	92.3	73.3	80.0	75.0	85.2 (77.4 -93.0)
Discussed family planning with partner (50%)	73.7	47.4	47.4	42.1	63.2	68.4	61.1	45.8	53.6 (44.5 -62.7)
Was accompanied by partner to ANC (50%)	45.0	50.0	64.3	81.8	60.0	20.0	63.6	41.7	52.6 (42.1 -63.0)
Participated in partner FP counselling (50%)	26.3	26.3	26.3	15.8	10.5	10.5	22.2	12.5	18.2 (11.1 -25.3)
Fully or partly decides about her health care (50%)	85.0	52.6	68.4	75.0	73.7	63.2	63.2	62.5	66.0 (57.3 -74.7)
Fully or partly decides where to deliver (50%)	60.0	36.8	47.4	55.0	50.0	62.5	26.3	33.3	47.4 (38.2 -56.6)
Fully or partly decides how many children to have (50%)	10.0	15.8	26.3	30.0	5.3	15.8	15.8	0.0	18.5 (11.1 -25.8)

Indicator (target)	Buhera	Chapanduka	Chirozva	Mudanda	Munyanyi	Muzokomba	Nyashanu	Zangama	Total weighted pct. (95% CI)
Had a birth plan (50%)	30.0	50.0	28.6	36.4	46.7	26.7	27.3	41.7	35.2 (24.4 -46.0)
Delivered in a health facility (80%)	100.0	42.1	52.6	45.0	72.2	43.8	31.6	25.0	46.2 (36.9 -55.4)
Baby's first bath was after 24 hours (100%)	80.0	89.5	94.4	90.0	81.3	93.8	94.4	75.0	89.7 (84.2 -95.2)
Breastfed within 1 hour of delivery (58%)	85.0	47.4	68.4	45.0	58.8	43.8	44.4	37.5	49.8 (40.4 -59.1)
Justifies wife-beating (17%)	15.0	42.1	5.3	30.0	15.8	10.5	21.1	29.2	22.9 (15.3 -30.5)
Women in community justify forced sex in a relationship (10%)	5.0	15.8	5.6	15.8	10.5	5.3	10.5	8.3	10.8 (4.9 -16.7)

Appendix 1, Table 2: Chimanimani District LQAS Analysis Results

Indicator (target)	Biriiri	Bumba	Chimanimani	Muchadziya	Mutsvangwa	Ngorima	Nyahode	Nyanyadzi	Total weighted pct. (95% CI)
Knowledge that first ANC visit happens before 12 weeks (50%)	94.7	88.2	88.2	89.5	83.3	81.3	83.3	94.1	86.8 (80.5 -93.1)
Can name 3 danger signs in pregnancy (50%)	31.6	35.3	29.4	10.5	5.6	6.3	22.2	41.2	20.0 (13.5 -26.5)
Can name 3 danger signs in newborn period (50%)	23.5	16.7	22.2	15.8	27.8	5.9	23.5	10.5	17.7 (11.0 -24.5)
Can name 3 post-partum danger signs (50%)	0.0	22.2	11.1	10.5	16.7	5.9	0.0	15.8	10.7 (5.2 -16.3)
Knows breastfeeding is initiated immediately after delivery (50%)	78.9	82.4	76.5	84.2	61.1	62.5	83.3	76.5	73.3 (65.2 -81.5)
Knows exclusive breastfeeding is done for 6 months (50%)	100.0	94.1	100.0	100.0	88.9	100.0	100.0	100.0	97.2 (94.0 -100.0)
Heard or saw a FP/RH message in the last 12 months (50%)	76.5	66.7	77.8	42.1	66.7	47.1	58.8	68.4	61.6 (53.0 -70.3)
Received first IPTp dose between 13-16 weeks (60%)	84.6	71.4	43.8	66.7	58.8	52.9	66.7	45.5	59.2 (49.5 -69.0)
Received 3+ Doses of IPTp during pregnancy (60%)	15.0	35.3	38.9	21.1	21.1	26.3	47.1	23.5	27.8 (19.9 -35.6)
Received an ultrasound exam during pregnancy (50%)	26.3	0.0	5.9	0.0	11.1	0.0	11.1	17.6	8.9 (3.9 -13.9)
Was screened for Syphilis during pregnancy (100%)	71.4	71.4	82.4	37.5	31.3	64.3	66.7	46.7	55.2 (45.8 -64.6)
Post-partum FP counselling (100%)	88.2	66.7	77.8	73.7	61.1	52.9	47.1	57.9	62.3 (53.5 -71.0)
Percent with diarrhea who received modern treatment (100%)	50.0	40.0	20.0	100.0	100.0	60.0	100.0	80.0	74.7 (60.5 -88.9)
Child received Penta 3 vaccine (85%)	93.8	100.0	100.0	88.9	94.1	100.0	75.0	92.9	92.9 (88.0 -97.9)
Unmet need for family planning (6.5%)	21.1	23.5	47.1	36.8	16.7	12.5	11.1	23.5	21.5 (14.5 -28.5)
Attended ANC 8+ times (50%)	5.6	6.3	5.9	0.0	5.6	6.3	5.6	5.9	5.2 (1.1 -9.4)
Attended ANC 4+ times (85%)	88.9	100.0	88.2	84.2	83.3	81.3	88.9	88.2	86.7 (80.3 -93.1)
Discussed family planning with partner (50%)	85.0	84.2	52.6	78.9	57.9	72.2	73.7	77.8	71.3 (63.4 -79.3)
Was accompanied by partner to ANC (50%)	66.7	64.7	47.1	42.1	38.9	50.0	33.3	64.7	48.9 (40.0 -57.9)
Participated in partner FP counselling (50%)	50.0	26.3	12.5	22.2	11.1	16.7	22.2	37.5	22.9 (15.7 -30.0)
Fully or partly decides about her health care (50%)	55.0	73.7	78.9	57.9	57.9	63.2	68.4	78.9	66.2 (58.0 -74.4)
Fully or partly decides where to deliver (50%)	70.6	50.0	77.8	63.2	61.1	52.9	58.8	68.4	61.8 (53.0 -70.5)
Fully or partly decides how many children to have (50%)	25.0	5.3	21.1	10.5	26.3	21.1	21.1	15.8	19.3 (12.3 -26.3)

Indicator (target)	Biriiri	Bumba	Chimanimani	Muchadziya	Mutsvangwa	Ngorima	Nyahode	Nyanyadzi	Total weighted pct. (95% CI)
Had a birth plan (50%)	36.8	35.3	29.4	47.4	38.9	37.5	11.1	29.4	33.1 (24.6 -41.5)
Delivered in a health facility (80%)	82.4	88.9	94.4	84.2	100.0	88.2	82.4	78.9	88.2 (82.7 -93.6)
Baby's first bath was after 24 hours (100%)	33.3	76.5	100.0	77.8	86.7	81.3	53.8	72.2	76.0 (68.3 -83.8)
Breastfed within 1 hour of delivery (58%)	56.3	72.2	83.3	94.7	83.3	94.1	64.7	73.7	79.7 (72.9 -86.6)
Justifies wife-beating (17%)	21.1	31.6	42.1	52.6	55.6	27.8	42.1	47.4	41.4 (32.9 -49.9)
Women in community justify forced sex in a relationship (10%)	25.0	15.8	0.0	10.5	21.1	5.6	21.1	10.5	13.9 (7.9 -19.9)

Appendix 1, Table 3: Chipinge District LQAS Results

Indicator (target)	Chibuwe	Junction Gate	Kondo	Paidamoyo	Rimbi	Tanganda	Total weighted pct. (95% CI)
Knowledge that first ANC visit happens before 12 weeks (50%)	95.2	94.7	94.4	92.3	93.8	100.0	94.8 (89.8 -99.8)
Can name 3 danger signs in pregnancy (50%)	14.3	10.5	33.3	19.2	6.3	15.8	19.2 (10.6 -27.9)
Can name 3 danger signs in newborn period (50%)	4.8	15.8	10.5	15.4	21.4	21.1	14.0 (6.3 -21.6)
Can name 3 post-partum danger signs (50%)	9.5	5.3	26.3	11.5	0.0	10.5	13.3 (5.8 -20.8)
Knows breastfeeding is initiated immediately after delivery (50%)	81.0	57.9	77.8	80.8	37.5	84.2	71.7 (61.7 -81.7)
Knows exclusive breastfeeding is done for 6 months (50%)	95.2	100.0	100.0	100.0	93.8	94.7	98.9 (97.4 -100.0)
Heard or saw a FP/RH message in the last 12 months (50%)	66.7	57.9	63.2	80.8	42.9	73.7	65.5 (54.8 -76.1)
Received first IPTp dose between 13-16 weeks (60%)	50.0	60.0	46.7	61.9	53.8	57.9	55.3 (43.3 -67.3)
Received 3+ Doses of IPTp during pregnancy (60%)	40.0	50.0	47.4	29.2	33.3	61.1	45.5 (34.3 -56.7)
Received an ultrasound exam during pregnancy (50%)	9.5	0.0	0.0	0.0	6.3	10.5	2.1 (0.2 -4.0)
Was screened for Syphilis during pregnancy (100%)	25.0	50.0	47.1	70.8	46.2	66.7	52.4 (41.1 -63.8)
Post-partum FP counselling (100%)	66.7	31.6	47.4	84.6	35.7	78.9	53.5 (43.1 -63.9)
Percentage with diarrhea who received modern treatment (100%)	75.0	55.6	37.5	66.7	100.0	75.0	54.5 (36.0 -72.9)
Child received Penta 3 vaccine (85%)	82.4	100.0	100.0	100.0	100.0	100.0	98.2 (96.2 -100.0)
Unmet need for family planning (6.5%)	19.0	31.6	44.4	26.9	25.0	31.6	33.1 (22.6 -43.7)
Attended ANC 8+ times (50%)	10.0	15.8	0.0	15.4	18.8	15.8	11.1 (4.5 -17.7)
Attended ANC 4+ times (85%)	90.0	94.7	82.4	88.5	81.3	94.7	89.5 (82.7 -96.2)
Discussed family planning with partner (50%)	80.0	73.7	66.7	80.0	78.9	84.2	74.6 (64.7 -84.6)
Was accompanied by partner to ANC (50%)	42.9	42.1	33.3	76.9	12.5	47.4	45.6 (34.9 -56.3)
Participated in partner FP counselling (50%)	10.0	10.5	17.6	56.0	42.1	23.5	22.9 (14.6 -31.1)
Fully or partly decides about her health care (50%)	57.1	68.4	73.7	76.9	78.9	47.4	68.6 (58.6 -78.7)
Fully or partly decides where to deliver (50%)	71.4	57.9	73.7	65.4	71.4	73.7	67.0 (56.5 -77.4)
Fully or partly decides how many children to have (50%)	4.8	26.3	31.6	19.2	21.1	5.3	22.5 (12.9 -32.0)

Indicator (target)	Chibuwe	Junction Gate	Kondo	Paidamoyo	Rimbi	Tanganda	Total weighted pct. (95% CI)
Had a birth plan (50%)	19.0	15.8	33.3	30.8	18.8	31.6	25.4 (16.0 -34.9)
Delivered in a health facility (80%)	90.5	100.0	84.2	88.5	92.9	100.0	92.4 (86.8 -98.0)
Baby's first bath was after 24 hours (100%)	63.2	77.8	78.9	62.5	0.0	89.5	75.0 (65.3 -84.6)
Breastfed within 1 hour of delivery (58%)	71.4	63.2	73.7	73.1	60.0	78.9	70.4 (60.1 -80.8)
Justifies wife-beating (17%)	52.4	57.9	47.4	34.6	63.2	52.6	50.0 (39.0 -60.9)
Women in community justify forced sex in a relationship (10%)	25.0	10.5	10.5	3.8	31.6	11.1	11.2 (4.5 -18.0)

Appendix 1, Table 4: Makoni District LQAS Analysis Results

Indicator (target)	Chinhenga	Headlands	Makoni	Mayo I	Nedewedzo	Nyamidzi	Weya	Total weighted pct. (95% CI)
Knowledge that first ANC visit happens before 12 weeks (50%)	100.0	100.0	88.9	94.7	95.0	100.0	90.0	94.7 (90.4 -99.1)
Can name 3 danger signs in pregnancy (50%)	19.0	20.0	27.8	15.8	30.0	15.4	40.0	24.0 (16.0 -32.0)
Can name 3 danger signs in newborn period (50%)	14.3	26.3	23.5	35.0	40.0	27.8	36.8	28.5 (20.2 -36.9)
Can name 3 post-partum danger signs (50%)	9.5	31.6	17.6	20.0	15.0	22.2	36.8	20.8 (13.4 -28.2)
Knows breastfeeding is initiated immediately after delivery (50%)	66.7	73.3	88.9	73.7	65.0	76.9	90.0	77.0 (69.1 -85.0)
Knows exclusive breastfeeding is done for 6 months (50%)	71.4	73.3	72.2	73.7	65.0	69.2	65.0	70.4 (61.7 -79.2)
Heard or saw a FP/RH message in the last 12 months (50%)	57.1	42.1	47.1	45.0	60.0	61.1	63.2	53.0 (43.7 -62.4)
Received first IPTp dose between 13-16 weeks (60%)	63.2	75.0	50.0	57.1	26.7	60.0	77.8	59.9 (49.8 -70.1)
Received 3+ Doses of IPTp during pregnancy (60%)	23.8	15.8	42.1	20.0	20.0	47.4	30.0	28.2 (20.1 -36.3)
Received an ultrasound exam during pregnancy (50%)	23.8	46.7	50.0	10.5	25.0	53.8	65.0	35.5 (27.3 -43.6)
Was screened for Syphilis during pregnancy (100%)	33.3	35.7	35.3	44.4	65.0	23.1	50.0	41.6 (32.0 -51.3)
Post-partum FP counselling (100%)	57.1	63.2	52.9	40.0	45.0	22.2	57.9	48.7 (39.4 -57.9)
Percent with diarrhea who received modern treatment (100%)	50.0	60.0	60.0	66.7	50.0	42.9	33.3	52.5 (36.1 -68.9)
Child received Penta 3 vaccine (85%)	100.0	100.0	100.0	100.0	82.4	100.0	100.0	98.5 (97.0 -100.0)
Unmet need for family planning (6.5%)	28.6	46.7	27.8	5.3	25.0	38.5	15.0	21.9 (14.6 -29.2)
Attended ANC 8+ times (50%)	19.0	26.7	0.0	5.6	5.0	0.0	15.0	10.0 (4.4 -15.6)
Attended ANC 4+ times (85%)	81.0	73.3	58.8	83.3	85.0	84.6	95.0	80.5 (73.0 -88.0)
Discussed family planning with partner (50%)	52.4	63.2	63.2	75.0	84.2	68.4	84.2	69.2 (60.8 -77.7)
Was accompanied by partner to ANC (50%)	71.4	60.0	55.6	78.9	55.0	46.2	60.0	64.9 (56.0 -73.7)
Participated in partner FP counselling (50%)	20.0	21.1	33.3	30.0	21.1	10.5	26.3	24.9 (16.6 -33.1)
Fully or partly decides about her health care (50%)	57.1	63.2	68.4	40.0	60.0	47.4	65.0	55.9 (46.9 -64.9)
Fully or partly decides where to deliver (50%)	71.4	42.1	64.7	40.0	70.0	55.6	57.9	56.8 (47.7 -65.9)
Fully or partly decides how many children to have (50%)	9.5	36.8	15.8	5.0	10.0	10.5	10.0	11.6 (6.2 -17.1)
Had a birth plan (50%)	42.9	33.3	61.1	63.2	50.0	38.5	50.0	51.8 (42.3 -61.3)

Indicator (target)	Chinhenga	Headlands	Makoni	Mayo I	Nedewedzo	Nyamidzi	Weya	Total weighted pct. (95% CI)
Delivered in a health facility (80%)	95.2	63.2	88.2	80.0	90.0	44.4	89.5	82.1 (75.5 -88.7)
Baby's first bath was after 24 hours (100%)	100.0	83.3	88.2	94.7	90.0	94.4	82.4	91.8 (86.9 -96.7)
Breastfed within 1 hour of delivery (58%)	66.7	42.1	82.4	65.0	65.0	61.1	94.1	70.1 (61.7 -78.4)
Justifies wife-beating (17%)	28.6	11.1	10.5	35.0	15.0	11.1	15.0	21.1 (13.4 -28.8)
Women in community justify forced sex in a relationship (10%)	10.0	0.0	10.5	20.0	10.5	5.3	5.0	10.6 (4.6 -16.6)

Appendix 1, Table 5: Mutare District LQAS Analysis Results

Indicator (target)	Chitakatira	Gwindingwi	Marange	Mavhiza	Muromo	Odzi	Total weighted pct. (95% CI)
Knowledge that first ANC visit happens before 12 weeks (50%)	100.0	94.4	88.2	93.3	82.4	85.7	91.5 (85.6 -97.3)
Can name 3 danger signs in pregnancy (50%)	36.8	16.7	58.8	13.3	23.5	23.8	34.1 (24.0 -44.3)
Can name 3 danger signs in newborn period (50%)	36.8	4.8	33.3	31.6	36.8	19.0	30.9 (21.4 -40.5)
Can name 3 post-partum danger signs (50%)	31.6	19.0	14.3	15.8	15.8	19.0	19.5 (11.5 -27.6)
Knows breastfeeding is initiated immediately after delivery (50%)	78.9	72.2	70.6	73.3	70.6	81.0	73.9 (64.3 -83.5)
Knows exclusive breastfeeding is done for 6 months (50%)	78.9	88.9	82.4	93.3	94.1	90.5	86.2 (78.5 -94.0)
Heard or saw a FP/RH message in the last 12 months (50%)	73.7	95.2	57.1	57.9	78.9	81.0	70.0 (60.7 -79.4)
Received first IPTp dose between 13-16 weeks (60%)	57.9	50.0	50.0	54.5	35.3	52.6	50.0 (38.5 -61.5)
Received 3+ Doses of IPTp during pregnancy (60%)	26.3	45.0	38.1	15.8	55.6	22.2	34.8 (25.1 -44.4)
Received an ultrasound exam during pregnancy (50%)	36.8	5.6	5.9	6.7	17.6	23.8	17.3 (9.3 -25.2)
Was screened for Syphilis during pregnancy (100%)	44.4	83.3	41.2	33.3	40.0	44.4	45.2 (34.3 -56.1)
Post-partum FP counselling (100%)	73.7	76.2	33.3	31.6	63.2	81.0	54.4 (44.9 -63.9)
Percentage with diarrhea who received modern treatment (100%)	60.0	55.6	66.7	50.0	66.7	62.5	60.5 (45.4 -75.5)
Child received Penta 3 vaccine (85%)	100.0	94.4	93.3	84.6	100.0	94.7	95.0 (90.1 -99.9)
Unmet need for family planning (6.5%)	21.1	5.6	35.3	26.7	35.3	33.3	27.3 (17.5 -37.0)
Attended ANC 8+ times (50%)	0.0	11.1	0.0	14.3	29.4	0.0	8.5 (3.3 -13.8)
Attended ANC 4+ times (85%)	83.3	72.2	82.4	64.3	94.1	71.4	80.7 (72.4 -89.1)
Discussed family planning with partner (50%)	78.9	66.7	63.2	73.7	63.2	66.7	69.2 (59.7 -78.6)
Was accompanied by partner to ANC (50%)	42.1	55.6	41.2	66.7	64.7	23.8	49.8 (39.1 -60.5)
Participated in partner FP counselling (50%)	21.1	23.8	21.1	27.8	42.1	14.3	26.0 (17.0 -34.9)
Fully or partly decides about her health care (50%)	52.6	76.2	68.2	63.2	57.9	71.4	63.0 (53.1 -72.8)
Fully or partly decides where to deliver (50%)	36.8	66.7	71.4	36.8	68.4	85.7	57.6 (48.0 -67.2)
Fully or partly decides how many children to have (50%)	10.5	19.0	13.6	10.5	15.8	38.1	14.5 (7.6 -21.4)
Had a birth plan (50%)	52.6	44.4	29.4	33.3	29.4	42.9	38.3 (27.9 -48.7)

Indicator (target)	Chitakatira	Gwindingwi	Marange	Mavhiza	Muromo	Odzi	Total weighted pct. (95% CI)
Delivered in a health facility (80%)	84.2	71.4	61.9	57.9	84.2	100.0	73.2 (64.3 -82.1)
Baby's first bath was after 24 hours (100%)	68.4	90.5	65.0	94.4	78.9	80.0	76.2 (67.3 -85.2)
Breastfed within 1 hour of delivery (58%)	57.9	81.0	66.7	63.2	68.4	81.0	66.5 (56.8 -76.2)
Justifies wife-beating (17%)	21.1	33.3	23.8	26.3	36.8	38.1	27.5 (18.6 -36.5)
Women in community justify forced sex in a relationship (10%)	5.3	19.0	18.2	10.5	23.5	4.8	14.3 (7.2 -21.4)

Appendix 1, Table 6: Mutasa District LQAS Analysis Results

Indicator (target)	Chisuko	Hauna	Jombe	Sagambe	St. Augustine's	St. Peters Mandeya	Zindi	Total weighted pct. (95% CI)
Knowledge that first ANC visit happens before 12 weeks (50%)	100.0	84.2	100.0	94.4	94.4	93.8	94.7	95.7 (91.8 -99.7)
Can name 3 danger signs in pregnancy (50%)	35.3	21.1	29.4	0.0	38.9	25.0	15.8	25.8 (17.2 -34.4)
Can name 3 danger signs in newborn period (50%)	21.1	0.0	21.1	22.2	26.3	36.8	45.0	27.2 (18.7 -35.6)
Can name 3 post-partum danger signs (50%)	15.8	5.3	5.3	5.6	31.6	21.1	15.0	16.9 (9.6 -24.1)
Knows breastfeeding is initiated immediately after delivery (50%)	88.2	78.9	76.5	55.6	72.2	93.8	84.2	78.6 (70.9 -86.4)
Knows exclusive breastfeeding is done for 6 months (50%)	100.0	89.5	94.1	100.0	88.9	100.0	94.7	95.8 (92.0 -99.7)
Heard or saw a FP/RH message in the last 12 months (50%)	84.2	78.9	84.2	83.3	94.7	68.4	90.0	83.3 (76.4 -90.3)
Received first IPTp dose between 13-16 weeks (60%)	54.5	64.3	56.3	50.0	30.8	76.9	50.0	53.6 (43.1 -64.0)
Received 3+ Doses of IPTp during pregnancy (60%)	23.5	13.3	29.4	38.9	23.5	42.9	43.8	31.7 (22.3 -41.2)
Received an ultrasound exam during pregnancy (50%)	29.4	21.1	58.8	11.1	27.8	6.3	15.8	24.7 (16.8 -32.7)
Was screened for Syphilis during pregnancy (100%)	53.3	23.5	52.9	37.5	83.3	75.0	66.7	62.6 (53.3 -71.9)
Post-partum FP counselling (100%)	84.2	73.7	68.4	77.8	94.7	68.4	60.0	77.3 (69.8 -84.8)
Percentage with diarrhea who received modern treatment (100%)	77.8	83.3	50.0	80.0	66.7	77.8	66.7	72.4 (58.7 -86.2)
Child received Penta 3 vaccine (85%)	100.0	94.7	100.0	92.3	100.0	91.7	100.0	97.0 (93.0 -100.0)
Unmet need for family planning (6.5%)	29.4	21.1	23.5	16.7	27.8	31.3	26.3	26.1 (17.3 -34.9)
Attended ANC 8+ times (50%)	0.0	25.0	6.3	11.1	11.8	6.7	11.1	8.2 (2.8 -13.6)
Attended ANC 4+ times (85%)	94.1	87.5	100.0	77.8	100.0	80.0	88.9	90.4 (84.8 -96.0)
Discussed family planning with partner (50%)	63.2	73.7	78.9	78.9	52.6	63.2	60.0	65.6 (56.6 -74.5)
Was accompanied by partner to ANC (50%)	82.4	31.6	76.5	66.7	77.8	43.8	52.6	66.2 (57.3 -75.1)
Participated in partner FP counselling (50%)	31.6	21.1	31.6	31.6	36.8	10.5	20.0	26.9 (18.7 -35.1)
Fully or partly decides about her health care (50%)	42.1	26.3	63.2	57.9	78.9	52.6	55.0	58.1 (49.1 -67.2)
Fully or partly decides where to deliver (50%)	31.6	36.8	47.4	88.9	63.2	57.9	65.0	57.1 (48.0 -66.1)
Fully or partly decides how many children to have (50%)	10.5	10.5	10.5	21.1	26.3	10.5	5.0	14.8 (8.0 -21.6)

Indicator (target)	Chisuko	Hauna	Jombe	Sagambe	St. Augustine's	St. Peters Mandeya	Zindi	Total weighted pct. (95% CI)
Had a birth plan (50%)	70.6	42.1	52.9	55.6	66.7	56.3	42.1	58.5 (48.9 -68.2)
Delivered in a health facility (80%)	89.5	100.0	84.2	88.9	94.7	73.7	95.0	87.2 (80.8 -93.6)
Baby's first bath was after 24 hours (100%)	94.4	76.5	83.3	62.5	72.2	88.2	70.0	79.7 (72.1 -87.3)
Breastfed within 1 hour of delivery (58%)	84.2	94.7	78.9	82.4	78.9	72.2	90.0	80.4 (72.6 -88.2)
Justifies wife-beating (17%)	10.5	52.9	15.8	42.1	33.3	22.2	15.0	24.5 (16.5 -32.5)
Women in community justify forced sex in a relationship (10%)	0.0	31.3	26.3	18.8	29.4	16.7	25.0	19.5 (11.8 -27.2)

Appendix 1, Table 7: Nyanga District LQAS Analysis Results

Indicator (target)	Chiwarira	Kambudzi	Nyamombe	Nyarumvurwe	Tombo	Total weighted pct. (95% CI)
Knowledge that first ANC visit happens before 12 weeks (50%)	100.0	100.0	94.7	100.0	100.0	99.6 (98.8 -100.0)
Can name 3 danger signs in pregnancy (50%)	0.0	0.0	21.1	21.1	11.8	10.5 (2.7 -18.2)
Can name 3 danger signs in newborn period (50%)	10.0	21.1	10.5	15.8	5.3	10.0 (3.4 -16.6)
Can name 3 post-partum danger signs (50%)	10.0	15.8	5.3	10.5	5.3	8.3 (1.9 -14.6)
Knows breastfeeding is initiated immediately after delivery (50%)	81.3	78.9	68.4	78.9	70.6	75.2 (63.9 -86.5)
Knows exclusive breastfeeding is done for 6 months (50%)	100.0	100.0	100.0	94.7	100.0	99.0 (97.0 -100.0)
Heard or saw a FP/RH message in the last 12 months (50%)	65.0	73.7	94.7	89.5	68.4	73.4 (62.3 -84.5)
Received first IPTp dose between 13-16 weeks (60%)	46.2	47.1	57.9	64.7	30.8	45.2 (31.9 -58.4)
Received 3+ Doses of IPTp during pregnancy (60%)	36.8	37.5	58.8	37.5	23.5	32.9 (21.2 -44.6)
Received an ultrasound exam during pregnancy (50%)	12.5	10.5	5.3	10.5	0.0	6.2 (1.3 -11.1)
Was screened for Syphilis during pregnancy (100%)	11.1	47.1	33.3	46.7	47.1	40.5 (26.6 -54.4)
Post-partum FP counselling (100%)	50.0	57.9	89.5	68.4	52.6	57.6 (45.4 -69.8)
Percentage with diarrhea who received modern treatment (100%)	66.7	60.0	100.0	83.3	60.0	69.2 (49.2 -89.3)
Child received Penta 3 vaccine (85%)	100.0	93.3	100.0	100.0	93.8	96.7 (91.2 -100.0)
Unmet need for family planning (6.5%)	18.8	31.6	10.5	26.3	35.3	27.7 (15.9 -39.4)
Attended ANC 8+ times (50%)	26.7	5.6	22.2	13.3	11.8	15.5 (6.1 -25.0)
Attended ANC 4+ times (85%)	86.7	72.2	94.4	93.3	82.4	85.0 (75.2 -94.8)
Discussed family planning with partner (50%)	35.0	57.9	78.9	68.4	63.2	57.6 (45.7 -69.4)
Was accompanied by partner to ANC (50%)	68.8	52.6	84.2	68.4	64.7	66.6 (54.4 -78.8)
Participated in partner FP counselling (50%)	5.0	16.7	26.3	26.3	26.3	20.1 (10.1 -30.1)
Fully or partly decides about her health care (50%)	45.0	63.2	63.2	84.2	52.6	57.7 (45.7 -69.7)
Fully or partly decides where to deliver (50%)	60.0	63.2	73.7	57.9	78.9	68.9 (58.0 -79.7)
Fully or partly decides how many children to have (50%)	10.0	26.3	10.5	31.6	31.6	24.2 (13.6 -34.9)

Indicator (target)	Chiwarira	Kambudzi	Nyamombe	Nyarumvurwe	Tombo	Total weighted pct. (95% CI)
Had a birth plan (50%)	25.0	36.8	42.1	42.1	52.9	42.3 (29.7 -54.9)
Delivered in a health facility (80%)	75.0	89.5	89.5	94.7	78.9	82.3 (72.5 -92.0)
Baby's first bath was after 24 hours (100%)	68.4	50.0	88.2	83.3	93.8	80.7 (72.1 -89.4)
Breastfed within 1 hour of delivery (58%)	78.9	78.9	100.0	78.9	68.4	75.8 (64.8 -86.9)
Justifies wife-beating (17%)	44.4	22.2	36.8	36.8	21.1	30.5 (19.5 -41.5)
Women in community justify forced sex in a relationship (10%)	26.7	18.8	25.0	23.5	16.7	20.8 (10.2 -31.3)