

Family Planning Routine Data Quality Assessment (RDQA) Report

Malawi

November 2024







Acknowledgements

The authors Moussa Ly, Activity Lead of Data for Impact (D4I) and Priya Emmart, Deputy Director of Track20 FP/RH Program would like to express their appreciation to all those who contributed to complete this RDQA activity and report. A special gratitude goes to our colleagues from the Malawi Ministry of Health, and USAID/Malawi. Their contributions and suggestions helped us coordinate training, conduct the assessment, and write this report.

The team would also like to acknowledge with appreciation the crucial roles of Fanor Joseph, Madagascar JSI resident advisor; Brighton Muzavazi, Track20 M&E Officer; and Dr. Francis Kalonga, M&E Officer at the Ministry of Health, who led the desk review and field data quality assessment and provided the necessary coaching and mentorship to complete the task "Family Planning Data Quality Assessment with the use of the Integrated Approach." A special thanks goes to the headquarters team of D4I and Track20 who helped assemble the results of the assessment and provided suggestions about the plan and the contents of this report.

Many thanks go to the D4I PRH portfolio lead, Janine Barden-O'Fallon, and the Track20 FP/RH Program Director, Emily Sonneveldt, who invested her full effort in guiding the team to achieve their goal. The team also appreciates the guidance provided by the JSI Team, Track20 Country Support Administrator Jerry Parks, and their teams for management efforts to facilitate the implementation of this activity.

Cover photo credit: Moussa Ly, JSI

Contents

Tables	5
Figures	5
Abbreviations	6
Executive Summary	7
Introduction	10
Background	10
Training	11
The Integrated Approach to FP Data Quality Assessment Methodology	13
The SS to EMU Results	17
Major Highlights from the SS to EMU Review at the National and Subnational Levels	17
Method Mix	17
RDQA Results	22
Part 1: Data Verifications	22
Documentation Review	22
Health Facility Data Quality Verification	22
Data accuracy: District level	25
Availability, Completeness, and Timeliness	26
Part 2: Systems Assessment	27
Systems Assessment - Summary Findings	27
Major Strengths and Weaknesses of the Data Management Systems Assessment	29
Systems Assessment Findings for the Facility Level	30
Systems Assessment Findings for the District Level	33
Systems Assessment Findings for the National Level	35
Limitations and Challenges	38
Recommendations	39
Conclusion	40
References	41
Appendix A. Training Agenda	42
Appendix B. Participants List	44
Appendix C. Sampled Districts and Health Facilities	45
Appendix D. Data Collection Team	46

Tables

Table 1. Mchingi mCRP rate of growth and line of best fit	20
Table 2. Source of recounted and reported values at each level of the RDQA	22
Table 3. Facility VFs for all selected Indicators	22
Table 4. Average VFs across sites for Indicators New Depo IM, New Depo SC, New Implanon Insertion, and New Jadelle Insertion	d 25
Table 5. District VF for Indicators New Depo IM, New Depo SC, New Implanon Insertion and New Jadelle Insertion	26
Table 6. Systems assessment summary table (exported from the RDQA Tool)	28

Figures

12
13
14
16
18
18
19
20
21
21
24
26
27
29
31
31
34

Abbreviations

D4I	Data For Impact
DHIS 2	District Health Information Software version 2
DHS	Demographic Health Survey
FP	family planning
FPET	Family Planning Estimation Tool
HMIS	Health Management Information System
HSA	health surveillance agent
IP	implementing partner
IUD	intrauterine contraceptive devices
MICS	Multiple Indicator Cluster Survey
МОН	Ministry of Health
M&E	Monitoring and Evaluation
MSI Reproductive Choices	Marie Stopes International Reproductive Choices
RDQA	Routine Data Quality Assessment
RH	reproductive health
RHD	Reproductive Health Directorate
RHIS	routine health information system
SS to EMU	Service Statistics to Estimated Modern Use
USAID	United States Agency for International Development
VF	verification factor
WHO	World Health Organization

Executive Summary

Promoting use of family planning (FP) contraceptives is critical to support service providers to prevent unplanned pregnancies and unsafe abortions and to improve maternal and child health. To accurately measure and track the use of FP contraceptives, the management and the use information systems are essential for National Family Planning Programs. FP data are collected and managed through the routine health information system (RHIS) and surveys such as the Demographic Health Survey (DHS), Multiple Indicator Cluster Surveys (MICS), household survey, and others. Quality and reliable family planning data are important to decide on the FP intervention performance, service quality, and coverage. In Malawi, the data for health service prevention and delivery are collected through paper-based data collection tools and reported into the DHIS2 of the RHIS. Other health care and FP contraceptive use information are collected through the MICS. The use of FP routine information is limited by the lack of quality data produced by the system. The Malawi FP Program requested the support of D4I/USAID and Track20/Gates Foundation to train and mentor the HMIS and FP staff to conduct FP data quality assessment.

Objectives

- To build the capacity of the FP Monitoring & Evaluation (M&E) officers and the HMIS to use the integrated approach for data quality assessment
- To determine the available and existing data sources that document FP services
- To mentor the M&E officers to conduct data quality assessment using the integrated approach
- To analyze the data quality assessment results to determine the level of data quality
- To make recommendations for data quality improvement

Methodology

The integrated approach for FP data quality assessment consisted of the implementation of three phases:

(1) Refresh-training of assessors on data quality review, assessment and analysis

Following the pilot test conducted in 2022 with the same assessors (M&E officers and HMIS staff), D4I and Track20 facilitated two days of training. Prior to training sessions, participants presented the strengths, weaknesses, and challenges using the integrated approach. These results were discussed and gaps were addressed in the training sessions which insisted on the analysis and interpretation of the results of the Service Statistics to Estimated Modern Use (SS to EMU) and the Routine Data Quality Assessment (RDQA).

(2) Desk data review with the use of SS to EMU

During the training, the assessors were mentored and coached by D4I and Track20 facilitators to enter the latest MICS 2019 and routine FP service data (DHIS2) into the SS to EMU electronic tool. Once the data and statistics were entered, the system auto generated graphs and tables to compare the trends of MICS 2019 and FP service data. Comparing the results of MICS 2019 with current DHIS2 will normally show a regular increase/decrease on the trends of data. Any large gaps between could be potential data quality issues due to trend inconsistency. The analysis of these results showed data trend inconsistency for the following indicators/data elements: 1) New Depo IM, 2) New Depo SC, 3) New Implanon insertion and 4) New Jadelle insertion. The results of the desk review also determined the 24 health facilities in 6 districts with high data inconsistencies in these data elements.

(3) Routine data quality at the central and subnational level

With the identification of the data elements and data trends inconsistency, the assessors were mentored by the facilitators to conduct routine data quality assessment at the district and health facility levels with the data inconsistencies to determine the levels of data accuracy, completeness, and the reporting timeliness as well to determine how much each data quality dimension is associated to data inconsistency. The routine data quality assessment was conducted in 24 health facilities in 6 districts.

Results

SS to EMU

The comparison of injectable data revealed under-reporting on 2022 FP routine data (36%) and on the 2019 MICS (52%). The under-reporting could be associated with lack of reporting of community data into the DHIS2 because most of their services are not captured and integrated into the National DHIS2. Overreporting was also noted for implants with 48% of the FP routine data against the MICS 2019, 27% of which may be associated with duplicated records or data aggregation errors.

The FP users revealed overreporting of implants data (882,700) from the routine visits data as compared to the MICS 2019 (698,100) which may be associated with duplicated records or data aggregation errors. The missing community reports may explain the low number of injectable users on the routine FP routine visits data (672,200) while the survey shows a high number of users (1,317,800).

Despite the improvement in the reporting rate in 2021 and 2022, the districts of Balaka, Mchingi, and Dedza recorded an overreporting of implants in comparing the routine visit data and the MICS 2019 which could be related to duplicated records or data aggregation errors. Mchingi routine visit data trends revealed 23,600 while the MICS showed 39,600. The District of Mzimba showed an under reporting of injectables on the routine data compared to the MICS 2019. The lack of integration of community base services data into the DHIS2 may be associated with the under reporting.

RDQA

Among the 24 health facilities visited, there was 100% data accuracy in only one health facility on New Depo IM with missing reports in one health facility, four health facilities on New Depo SC with missing reports in three health facilities, 10 health facilities on Implanon insertion with missing reports in two health facilities, and seven health facilities on Jadelle insertion with missing reports in three health facilities. With 10% accuracy tolerance (90%-110%), there were four health facilities for Depo IM data and five health facilities for Depo SC data, while for Implanon Insertion and Jadelle the number of health facilities with that level of accuracy did not change.

Data accuracy was assessed only at Bakala and Mzimba North districts. The data was not accessible in other districts due to either DHIS2 not being accessible or missing monthly reports. Only the district of Bakala has accurate data. The Mzimba North district overreported in all four indicators.

Monthly summary report completeness, timeliness, and availability were good at the Mzimba North and Balaka districts while only timeliness was assessed at districts of Dedza (100%) and MChingi (84%). The reception date of some reports in the MChingi districts were not documented and recorded into the log file.

For the six dimensions of data quality, the score performance was very low for the indicator definition and reporting guideline in Dedza district hospital, Kasina and Golomoti health centers, as well as for the use of data for decision making in the health centers of Komfort, Calembo, Mphimbi, and Njuyu.

Conclusion

The refresher training and mentorship of D4I and Track20 led to the reinforcement of the skills of M&E and HMIS staff to understand and practice the assessment and analysis of data accuracy, timeliness, and completeness as well to interpret how the dimension of data quality can influence the data collection and management. The SS to EMU helped assessors to analyze and compare data trends from different data sources (DHIS2 and MICS, etc.) and to ultimately identify data inconsistencies on new Depo IM, new Depo SC, new Implanon insertion and new Jadelle insertion within the 24 health facilities of the districts of Lilongwe, Dedze, Mzimba, Mchingi, and Bakala. The RDQA results revealed inaccuracies in data for many of the 24 health facilities with the exception of a few health facilities on Implanon insertion, and seven health facilities on new Jadelle insertion. One hundred percent (100%) of those reporting timeliness, data completeness, and data source availability were only observed at Bakala and Mzimba districts. In the other districts, either the DHIS2 was not accessible or data sources were missing. Among the data quality dimensions, only a few facilities scored poor performance on the availability of indicator definitions, reporting guidelines, and use of data for decision making.

Recommendations

- Develop and disseminate indicator definition, data use, and data management guidelines
- Strengthen capacity of the district and health facility levels on data analysis, interpretation, and use
- Provide refresher trainings to health facility staff on the proper use of data collection and reporting tools, such as the register and monthly summary reports
- Reinforce a deadline for locking monthly DHIS 2 data
- Improve storage and archiving practices at district health offices
- Institutionalize and implement regular assessments and supervisions at the health facilities
- Provide feedback virtually or during the district quarterly meeting on data quality

Introduction

Background

Worldwide there is a critical unmet need for contraception, with 164 million women of reproductive age in low-income countries wishing to avoid pregnancy and not using a modern contraceptive method.¹ This unmet need is due to a limited choice of contraceptive methods, challenges in accessing contraception, poor quality of available family planning (FP) services, cultural, religious, personal fears, or opposition to contraception. Socio-economic (including level of education), gender-based, and cultural barriers are factors as well.

Contraception can be short-term (e.g., male and female condoms, pills, injectables), long-term (e.g., implants, intrauterine contraceptive devices [IUDs]), or permanent (male or female sterilization). In Malawi, two methods, injectables and implants, are the most popular methods of FP (MICS, 2019–2020).²

Given the importance of FP services in helping to meet the health, education, and livelihood goals of women, men, and their families, the need to collect, analyze, use, and promote quality data is critical to improving programmatic decision making and strategic planning.

In Malawi, health facilities submit monthly reports and display figures showing trends in key indicators related to monitoring the progress of interventions designed to achieve FP program goals. These data are entered into the national District Health Information Software version 2 (DHIS 2) for use in oversight and continued strategic decisions. The National Family Planning Program previously conducted data quality assessments (with the support of the Global Fund and other partners) on data reported by health facilities so as to verify the accuracy and reliability of the data, as well as to ensure that the data management system was designed to produce quality data. However, these assessments were not scalable given an acute lack of resources for monitoring FP in Malawi. Hence, there was interest in exploring opportunities to increase efficiencies in targeting data quality assessments.

One approach that was recently developed was the Integrated Approach for Data Quality by the USAIDfunded Data for Impact (D4I) project and the Bill & Melinda Gates Foundation-funded project Track20. Track20 provides direct support to Ministry of Health Family Planning programs to improve methodologies and systems for FP data. The project has developed tools to assess the quality of routine data, through the Service Statistics to Estimated Modern Use (SS to EMU) tool that can be applied at the national and subnational levels. The tool has demonstrated its value for easily visualizing data quality issues at the aggregate level. The D4I project builds on decades of experience in facility-based data quality improvements and the Routine Data Quality Assessment (RDQA) is an important product for measuring data quality at the facility level. The combined approach pulls together the two tools to identify methods and geographies with the most significant data quality issues, which can then be used to select facilities for investment in data quality improvement. In this way, the combination of approaches reduces the need for large scale facility audits, and focuses on audits for those with the greatest quality issues, or most

¹ World Health Organization (WHO). (2018). Family Planning/Contraception. Updated February 8, 2018. Geneva, Switzerland: WHO. <u>https://www.who.int/news-room/fact-sheets/detail/family-planning-contraception</u>

² United Nations, Department of Economic and Social Affairs (UNDESA). (2015). Trends in Contraceptive Use Worldwide 2015. UNDESA Population Division. Geneva, Switzerland: UNDESA

https://www.un.org/en/development/desa/population/publications/pdf/family/trendsContraceptiveUse2015Report.pdf

consistent data quality issues. The RDQA tool was developed by MEASURE Evaluation in collaboration with the WHO, Global Fund, and other partners, and was adapted to the Malawi context and to meet the WHO data quality assurance requirements.

The combined approach was piloted and validated in Togo in 2021. Based on the value that the combined approach provides, in May 2023 D4I and Track20 were authorized by the Malawi Ministry of Health (MOH) to conduct a data quality assessment on reported FP activities.

Activity Aims and Objectives

The overall purpose of the assignment was for participants to be familiar with the national and subnational SS to EMU tools and be able to use them to identify districts with data quality issues, with the aim of conducting the RDQA in selected districts. The results from this exercise were used to inform recommendations for improvement of FP service statistics and data use at all levels of the health care system in Malawi.

The goal of this activity was to strengthen FP data quality and improve the systems that enable the country to monitor progress towards national FP targets as articulated in the 2018–2022 National Sexual and Reproductive Health and Rights (SRHR) policy.

The specific objectives were to:

- Build the capacity of the FP M&E officers and the HMIS to use the integrated approach for data quality assessment
- Determine the available and existing data sources that document FP services
- Mentor the M&E officers to conduct data quality assessment using the integrated approach
- Analyze the data quality assessment results to determine the level of data quality
- Make recommendations for data quality improvement

Collection and Reporting of Family Planning Data in Malawi

The National Family Planning Reference Manual for Malawi provides instructions on how to correctly record and report every data point in the first page of the FP register. For the purposes of this assessment, the FP register, stock card, and the FP monthly summary report were the most used documents, since they focus exclusively on FP services.

DHIS 2 Data

DHIS 2 is the national Health Management Information System (HMIS) software and database used by the MOH to manage health data collected at service delivery points through the monthly summary reports entered at the district level. However, some well-equipped health facilities, such as district hospitals and health centers, enter their data directly into DHIS 2. According to the Malawi National Health Information System Policy, health facilities are required to submit their paper-based reports to the district by the second day of each month. Health facilities capable of entering data into DHIS 2 are expected to do so by the 10th day of each month, and districts are responsible for entering the data into DHIS 2 by the 15th day of the month.

Training

In collaboration with the Malawi MOH/National Family Planning Program, D4I and Track20 conducted the

Family Planning Data Quality Assessment training workshop on May 30–31, 2023, at the Lilongwe Hotel in Lilongwe. The participants included regional supervisors and staff from the Family Planning Program, Health Management Information System Department, United Nations Population Fund (UNFPA), and Palladium's USAID-funded FP bilateral project. The first day focused on using the SS to EMU tool to review the quality of routine FP data both at national and subnational levels and to identify districts which can be targeted for the RDQA. The second day concentrated on understanding the data quality concepts and tools used for the RDQA process. The training contents included the principles of data quality assurance and data use, hands-on training on the RDQA Tool including simulation exercises, planning, and organizing a RDQA implementation, and using RDQA findings to improve data quality. The training agenda is available in Appendix A.

The eighteen training participants (eleven men and seven women) included staff from the MOH/Reproductive Health (RH) department, staff from the district HMIS focal points, district reproductive and child health coordinators, and M&E staff from implementing partners (IPs). These IPs included the WHO and Marie Stopes International Reproductive Choice.

The session on the use of RDQA Tools included a review of the register (see Figure 1), and the monthly summary report (see Figure 2). Instructions on the first pages of the FP register describe how to correctly record and report every data point or field across the register.

Figure 1. Facility register (cover and instructions)



Photo credit: Moussa Ly, JSI



Figure 2. Monthly summary report (FP Reporting Booklet)

The Integrated Approach to FP Data Quality Assessment Methodology

The approach consisted of first conducting a data desk review using the SS to EMU tool to identify FP data inconsistencies in the trends of data elements or indicators by comparing it with different data sources, such as Multiple Indicator Cluster Survey (MICS), Statistics Services, routine data/DHIS2, and the Demographic Health Survey (DHS). The SS to EMU identifies FP methods and geographic locations (concentrations of facilities) that likely have the most data quality issues.

Phase 1: The SS to EMU

The first phase of the assessment consisted of applying the SS to EMU tool at both national and district levels.



SS to EMU Tool: Process Guide

Tool Background

Track20 has developed the SS to EMU tool¹ to convert family planning service statistics into one single metric of Estimated Modern Use (EMU), which can be used to estimate the total volume of family planning services in years between surveys or on a guarterly basis. The Service Statistic to EMU (SS to EMU) tool assists countries in reviewing their service statistic data, an important step in itself, and then converts the data into EMU, which can be compared against mCPR from surveys or other models. The tool can also be used to estimate EMU at lower geographic levels (states, districts or any level that has service statistics) where survey data may not be available. While the EMU is meant to approximate mCPR, it is not a measure of prevalence. What it can do is help countries track changes in trends between surveys, and be used as a cross-country, international FP indicator.

The EMU can be used as an input into the Family Planning Estimation Tool (FPET), which does calculate estimates for current and future mCPR, based on a variety of data sources. Inputting the EMU allows FPET to consider service statistics in its calculation of estimated mCPR, unmet need and demand satisfied by modern, and can play an important role in recognizing changes in trends between surveys.

While its role in calculating mCPR through FPET is important, the EMU metric itself, and the data review process associated with use of the conversion tool, have value on their own in terms of improving data quality and use, opening dialogue between data and program staff, and providing regular tracking of trend changes between surveys. The SS to EMU tool transforms several types of generally available service statistics data (family planning commodities distributed to clients, family



SS to EMU Tool available on Track20 website: http://www.track20.org/pages/track20_tools/SS_to_EMU_tool.php

The Malawi training reviewed the FP visits data reported at the national level with a main focus on reporting rates, rate of growth, SS method mix compared to survey, SS users compared to survey, slope of best fit, and using the EMU output, i.e., SS trend against Survey and Global FPET projections. At the district level, the SS to EMU tool was used to identify priority districts with potential data quality issues. As a result, the following districts were identified and selected for additional assessment with the RDQA tool: Balaka, Mchingi, Mzimba, and Dedza. In each selected district a total of five health facilities were identified and selected including the district hospital.

1

Indicator/Data Element Selection Criteria

The SS to EMU results will guide the indicator/data element selection:

- Indicators/data elements identified with data trend inconsistencies comparing different data sources (DHIS2, MICS, DHS) will be required for further data quality assessment with RDQA

Sites Selection Criteria

Within the limited budget, only:

- Districts with high data trend inconsistencies on the identified indicators will be selected
- Health facilities of the selected districts will be selected randomly

Phase 2: Routine Data Quality Assessment (RDQA)

The second phase of the assessment consisted of using the RDQA to further assess the data accuracy, timeliness, and completeness of identified data elements or indicators with apparent data inconsistency. The RDQA reviews the overall records and reports of FP data management in the HMIS and the implications for data quality dimensions including data accuracy, report availability, timeliness, and completeness.

Health Facility and District Assessment Tool

The RDQA Tool was used to conduct the facility data quality assessment in the four districts and Lilongwe, with 24 health facilities identified by the SS to EMU desk review to have inconsistent data. The RDQA Tool has two components: (1) an M&E systems assessment that reviews the data collection, reporting tools, and system used to collect FP data, and (2) data verification of the selected indicators that provides a measurement of accuracy of indicator data as well as availability, timeliness, and completeness of monthly reports.

Conceptual Framework

The conceptual framework (see Figure 4) on which this methodology is based defines data quality as a multi-faceted concept composed of multiple dimensions of quality, including accuracy, confidentiality, reliability, timeliness, completeness, precision, and integrity. Data quality begins at the primary level of the health system where front-line service providers first register patients and manually record data on the services provided in the facility registers. Data are then compiled into consolidated periodic reports that are sent from one level of the information system to the next, eventually becoming digitized as they are entered into a HMIS software such as the DHIS 2. The framework also shows six M&E functional components that influence data quality. Each of these dimensions and components are evaluated during the RDQA.

Figure 4: Data quality conceptual framework



The two reviews were carried out at all sampled sites at all levels of the HMIS where data are collected, entered, or otherwise manipulated.

In Malawi, the RDQA was conducted at 24 sampled health facilities, where data are first recorded on primary data collection tools and reported using standardized reporting tools; at the district level, where paper-based reports from facilities are entered into the DHIS 2; and at the national level, where monthly datasets are finalized and aggregated. This process is designed to give a holistic picture of how the system is performing and to identify the commonalities and anomalies in the system between the assessed facilities and districts.

Data accuracy is calculated separately for each indicator that is to be assessed. To calculate the accuracy of each indicator at the facility level, the RDQA team recounted all the selected data element values from the registers for the selected period and compared the recounted data values with the values reported in the monthly summary reports from the same period. At the district level, the RDQA team recounted the data for each indicator from the paper-based reports submitted to the district by facilities for the selected months and compared it to the indicator data value in DHIS 2 for the same period.

The recounted data value and reported data value at each assessed site were entered in the RDQA Tool and generated a verification factor (VF) for each indicator. The VF is the ratio of the recounted value to the reported value. The VF, expressed as a percentage in this report, is a measure of data accuracy. A VF of 100% indicates that the reported value equals the recounted value. A VF greater than 100% indicates that the reported value, which is an indication of underreporting. A VF less than 100% indicates that the recounted value is less than the reported value, which is an indication of overreporting.

Implementation of the Data Quality Assessment

On June 2, 2023, D4I and Track20 M&E officers led the interviews with the central RH program representatives to assess the standards for FP data management and monitoring. The health facility RDQA data collection was conducted by the trained district RDQA team led by Track20 and D4I M&E officers from June 1–8, 2023. The RDQA team formed four assessor groups with one group per district.

Assessment Data Review Period

Indicator data were reviewed for the period of January through March 2023—the most recent reporting period (quarter) for which complete data were available.

Selected Districts and Facilities and Pilot Testing

In Lilongwe, four health facilities were assessed during the FP DQA training tool pilot, in each of the other four selected districts, the assessments were conducted in five health facilities including the district hospital. The initial data quality assessment following the training was in the Lilongwe district to help participants to practice the methodology and data quality concepts.

With the available budget, four districts with a high level of data inconsistency, each with five health facilities, and four health facilities in Lilongwe, were selected for the FP DQA (n=24). This approach was chosen to efficiently use the limited resources to focus only on health facilities with data inconsistency. The selection of the 24 health facilities was based on results of the SS to EMU desk review showing high amounts of inconsistent data.

The SS to EMU Results

Major Highlights from the SS to EMU Review at the National and Subnational Levels

Method Mix

The FP visits data for 2022 showed underreporting of injectables (36%) as compared to the MICS from 2019 (52%) as shown in Figure 5. Underreporting of injectables, especially subcutaneous, was noted in the facilities visited as most of the services offered at the community level are not being integrated into the national DHIS 2 at the end of each month. Review of the National SS to EMU also showed that there is overreporting of implants according to the service statistics (48%) as compared to MICS survey data (27%).



Figure 5. Method Mix from the SS to EMU (DHIS 2) and MICS 2019-2020

Comparing Family Planning Users by Method

Comparing users and clients at national levels showed that there was overreporting of implants (882,700) from the client visits in DHIS 2 data as compared to users in the MICS 2019 (698,100) as shown in Figure 6. Hence national level data show similar trends in over- and underreporting as the subnational levels discussed above. Incomplete reports at the facility level were noticed because of the missing outreach data. The community-based health worker reports were not fully incorporated into the facility reports. At the end of each month, the missing community data could be the main reason contributing to low users of injectables from the visits data (672,200) when compared against the survey (1,317,800) as shown in Figure 6. The review of the national SS to EMU also showed that the FP visits data were underreporting the permanent method (163,900) as compared to the MICS 2019 (321,600). The data on commodities to clients and to health facilities and FP users were not collected through surveys.



Figure 6. Comparing estimates of modern method users from different data sources

Balaka District

Balaka district had reporting rates below 80% for the three year period starting from 2018; however, an improvement in reporting was noted for the last two years with 99% and 97% in 2021 and 2022 respectively. The district also showed a high annual rate of growth (6.7%) in mCPR while a Family Planning Estimation Tool (FPET) global run in 2022 showed 1.6% and MICS 2019 indicated a declining trend of -0.4%. When comparing the EMU trend against mCPR for all women, it showed a sharp increase over the past four years with a sudden decrease in 2022 as shown in Figure 7. The district also showed overreporting of implants as compared to survey data as shown in Figure 8.



Figure 7. EMU output Balaka district

Figure 8. Benchmarking modern users, Balaka district



Mchingi District

Mchingi district was selected for the RDQA assessment because it showed an annual rate of mCPR growth of 7.2%, five percentage points more than an estimated projected growth based on the most recent DHS in 2015-16. It also showed the slope of best fit line of 6.4% against 2% from FPET global run as shown in Table 1. The district also showed overreporting of implants users when visits data were compared to the DHS survey data, as shown in Table 1. The results from the RDQA will help to understand why there was such overreporting of implants. It is also important to note that the DHS data from 2015-16 may have been outdated by the time of the RDQA assessment in 2023.

	mCPR (AW): DHS (2015-16)	mCPR (AW): FPET Global Run (2022)	EMU : FP Visits				
Average annual % pt growth in mCPR/EMU	3.3%	1.8%	7.2%				
Slope of the best fit line	3.3%	2.0%	6.4%				

Table 1	Mchingi	mCPD	rato	of ar	owth	bne	lino	٨f	hast	fif
Table 1.	wcningi	MCRP	rate	oi gro	Jwth	anu	ime	OI.	pest	ш

Figure 9. Comparing modern users by method Mchingi, 2022



Mzimba District

The Mzimba district EMU output shows a sharp declining trend contrary to what the survey and FPET global runs were projecting. The district also showed low reporting rates below 80% in 2021. When comparing users of injectables in 2022, the visits data were underreported (23,900 compared to 40,600 from the survey).

Dedza District

The Dedza district showed reporting rates below 80% for two consecutive years from 2018–2020. The district also reported more users of implants from the visits data as compared to survey data. In 2022, the visits data were projecting 71,900 users of implants against 24,700 users expected from the survey as shown in Figure 10.





In addition, the review showed that certain methods had consistent and significantly more data quality issues than others. These were Depo Provera intramuscular and subcutaneous (IM, SC) and Jadelle Implants. Four indicators were selected for these methods including New DEPO IM, New DEPO SC, New Jadelle Insertion, and New Implant Insertion. All indicators were selected together with the RH Services

and in-country FP partners and stakeholders based on the SS to EMU results. Part II of the training was focused on how to conduct a RDQA using D4I tools in the four districts.

RDQA Results

Part 1: Data Verifications

Documentation Review

The source documents used for recording and reporting data for all four indicators were the FP register, stock cards, and the monthly summary report. These tools are kept by the nurse-in-charge of FP counseling and services at health centers and district hospitals.

Table 2	Source	of recounted	and ron	ortod valu	os at oa	ch lovol (of the l	
Table 2.	Source	orrecounteu	anu rep	Unteu valu	es al ea		JI LITE	NDQA

Level Recount done from:		Reported value extracted from:
Facility	Specific fields in FP register and the stock cards	FP monthly summary report related to the selected indicators
District	Monthly summary reports from all facilities reporting to the district during the TDQA selected period	DHIS 2

Health Facility Data Quality Verification

The VF, expressed as a percentage in this report, is a measure of data accuracy. A VF of 100% indicates that the reported value equals the recounted value. All data from January through March 2023 were recounted to generate facility VFs for each indicator at all sampled facilities. This information is summarized in Table 3.

		Facility Verifi	acility Verification Factor (VF)				
District	Facility	1.New Depo IM	2.New Depo SC	3.New Implanon Insertion	4.New Jadelle Insertion		
	Mthethera HC	94%	100%	100%	100%		
Lilongwe	Chitedze*	-	-	-	-		
	AREA 25 Health Facility*	-	-	-	-		
	Lumbadzi Health Facility	59%	48%	133%	115%		
	Kaphuka	115%	54%	100%	75%		
	Dedza District Hospital	98%	167%	67%	82%		
Dedza	Lobi	323%	100%	100%	100%		
	Kasina	25%	300%	700%	86%		
	Golomoti	142%	200%	100%	100%		
	Balaka District Hospital	29%	12%	24%	36%		
	Namndumbo	21%	15%	50%	21%		
Balaka	Komfort HC	4%	0%	100%	100%		
	Calembo	70%	93%	100%	75%		
	Mphimbi	2%	0%	100%	100%		
	Mzuzu Urban HC	73%	119%	76%	74%		

		Facility Verification Factor (VF)					
District	Facility	1.New Depo IM	2.New Depo SC	3.New Implanon Insertion	4.New Jadelle Insertion		
	Kaweche HC	135%	133%	83%	67%		
Mzimba North	Njuyu HC	133%	50%	113%	200%		
	Kafukule HC	131%	-	30%	80%		
	Kamwe HC	143%	140%	0%	80%		
	Kazyozyo	100%	100%	100%	100%		
	Mkanda	96%	50%	100%	84%		
Mchingi	Nkhwazi	46%	167%	233%	100%		
	Kaigwazanga	79%	100%	100%	114%		
	Mchingi District Hospital	168%	225%	145%	-		

* No FP Reporting Booklet (FP monthly summary report) is available during RDQA selected period at this health facility.

The data quality assessment results revealed:

- New Depo IM: only one (1) out of 24 health facilities had accurate data. The FP Reporting Booklet (FP monthly summary report) was not available in two facilities during the RDQA visit
- New Depo SC: Four out 24 health facilities had accurate data. The FP Reporting Booklet (FP monthly summary report) was not available in three facilities during the RDQA visit
- New Implanon Insertion: 10 out 24 health facilities (42%) had accurate data. The FP monthly summary report was not available in two facilities during the RDQA visit
- New Jadelle Insertion: Seven out 24 health facilities (29%) had accurate data. The FP monthly summary report was not available in three facilities during the RDQA visit

With <u>+</u>10% accuracy tolerance of the VF, health facilities with scores between 91% to 100% and 100% to 109% are considered to have sufficiently accurate data. Figure 11 shows:

- Four out of 24 health facilities have accurate data for the Indicator New Depo IM
- Five out of 24 health facilities have accurate data for the Indicator New Depo SC
- Ten out of 24 health facilities have accurate data for the Indicator New Implanon Insertion
- Seven out of 24 Health facilities have accurate data for the Indicator New Jadelle Insertion





Indicator: New Depo IM

According to Table 4, the straight average VF across sites for New Depo IM is 95%, whereas the weighted average is 98%. The weighted average is pulled up by the influence of four relatively large overreporting sites—Mphimbi Health Center, Komfort Health Center, Namndumbo HC, and Kasina HC. The overreporting is due to missing primary data sources such as Health Surveillance Agents (HSAs) register and health facility registers during the RDQA visits at the health facilities. The average of 1-Absolute Value (Abs) (VF) (50%) and the weighted average of 1-ABs (VF) (58%) are different which indicates several different scoring sites amongst the lot, as evidenced by Table 3 above.

Indicator: New Depo SC

According to Table 4, the straight average VF across sites for New Depo SC is 103%, whereas the weighted average is 84%, showing a greater degree of underreporting probably due to some influential underreporting site. The average VF points to underreporting; both the average of 1-ABs (VF) across sites (41%) and the weighted average of 1-ABs (VF) across sites (51%) point to overreporting. The 1-ABs (VF) calculation helps quantify the magnitude of error in the accuracy without regard to direction (i.e., over- or underreporting). This metric is helpful when there is both over- and underreporting in the sample, which can result in the aggregates canceling each other out and giving a false impression of accuracy. As evidenced in Figure 11, this is the case for this indicator. The value of the weighted average of 1-AB (VF) is 51% which means that 49% of results could not be verified for New Depo SC (compared to only 42% for New Depo IM).

Indicator: New Implanon Insertion

According to Table 4, the straight average VF across sites for New Implanon Insertion is 121%, whereas the weighted average is 113%, showing a greater degree of underreporting probably due to some influential underreporting site. The average VF points to underreporting, both the average of 1-ABs (VF) across sites

(46%) and the weighted average of 1-ABs (VF) across sites (33%) point to overreporting. The value of the weighted average of 1-AB (VF) is 33% which means that 67% of results could not be verified for New Implanon Insertion (compared to 42% for the Indicator New Depo IM and 49% for New Depo SC).

Indicator: New Jadelle Insertion

According to Table 4, the straight average VF across sites for New Depo IM is 90%, and the weighted average is 65%. This indicates overreporting due to missing primary data sources such as HSAs register and health facility registers. The average of 1-ABs (VF) (78%) and the weighted average of 1-ABs (VF) (56%) are different which indicates several different scoring sites amongst the lot, as evidenced by Table 3 above. The value 56% of the weighted average of 1-AB (VF) means that 44% of results could not be verified for New Jadelle Insertion (compared to 42% for New Depo IM, 49% for New Depo SC, and 69% for New Implanon Insertion indicators).

	New Depo IM	New Depo SC	New Implanon Insertion	New Jadelle Insertion
Average VF across sites	95%	103%	121%	90%
Average VF if excluding zero-reporting sites	95%	114%	126%	90%
Weighted average*	98%	84%	113%	65%
Average of 1-ABs (VF) across sites **	50%	41%	46%	78%
Average of 1-ABs (VF) if excluding zero- reporting sites **	50%	48%	48%	82%
Weighted average of 1-ABs (VF) across sites	58%	51%	33%	56%
Percentage underreporting	36%	38%	23%	14%
Percentage overreporting	59%	43%	32%	52%
Percentage missing	80%	13%	8%	13%
Percentage zero	0%	10%	5%	0%
Percentage of sites with accurate data (±10%)	18%	24%	45%	33%

Table 4. Average VFs across sites for Indicators New Depo IM, New Depo SC, New Implanon Insertion, and New Jadelle Insertion

* The weighted average should be used in cases where the study includes only a few very large sites (in terms of service volume i.e., the value of the indicator-District hospital for example), or very small sites, relative to all the rest. This helps distribute the influence each facility has on the average proportionally by level of service delivery.

** 1-ABs (VF) are a way to quantify the magnitude of error without regard to direction (i.e., over- or under-reporting). This measure is helpful when there is a lot of over-reporting and under-reporting, which in the aggregate cancel each other out and give the impression of accuracy (a VF close to 1.0).

Data Accuracy: District Level

At the district level, the recount was performed in each of the selected indicators from the health facility monthly summary reports available at the district offices for the January–March 2023 period. The recounted value is compared with the values from DHIS 2. District-level data verification results are summarized in Table 5 and Figure 12. The VF, expressed as a percentage in this report, is a measure of data accuracy. A VF of 100% indicates that the reported value equals the recounted value.

The district VF used to be a measure of the quality of compilation of the monthly district reports, which,

prior to DHIS 2, were compiled manually by the district HMIS officer. However, data are now entered into DHIS 2 at the district and health facility level (health facilities equipped with computer and internet connection are trained to enter data on DHIS 2) and the district monthly report is system generated since there is no manual compilation of the district report. Hence, the indicator is now more reflective of the accuracy of data entry into DHIS 2.

Dedza district (with VF of 100% for the 4 indicators) had accurate data within the <u>+</u>10% **interval accuracy tolerance**. Mzimba North district overreported the four indicators, however, New Depo IM (VF=95%) and New Depo SC (VF=93%) were within the <u>+</u>10% interval tolerance accuracy in this district.

Table 5. District VF for Indicators New Depo IM, New Depo SC, New Implanon Insertion, and New Jadelle Insertion

District	New Depo IM	New Depo SC	New Implanon Insertion	New Jadelle Insertio
Lilongwe*	-	-	-	-
Dedza**	-	-	-	-
Balaka	100%	100%	100%	100%
Mzimba North	95%	93%	82%	80%
Mchingi***	-	-	-	-

* Data from Lilongwe district are not available

** DHSI2 data wasn't accessible during the RDQA visit; the RDQA couldn't perform the data accuracy verification at Dedza district. *** Mchingi district is implementing DHIS 2 mobile hence hard copies of reports are not available at the district HMIS Office; the RDQA couldn't perform the data accuracy verification at this district.



Figure 1. Data accuracy verification results by district assessed (exported from the RDQA Tool)

Availability, Completeness, and Timeliness

Facility level: At the facility level, the RDQA team determined that all sources of documents for data verification on the three indicators were available for the assessment period in all sampled facilities. The HSA registers were not always available during the RDQA visit.

The available sources of documents were complete with records in all data fields of the four indicators. For the monthly summary report, completeness was observed for New Depo IM, New Depo SC, New Implant

Insertions, and New Jadelle Insertion complete.

District level: The health facility, summary monthly paper-based reports were missing at Lilongwe, Dedza, and Mchingi districts because the district HMIS officers are implementing DHIS 2 mobile apps to allow health facilities to enter their data into DHIS 2.

Monthly summary report completeness was relatively good at the Mzimba North and Balaka districts. The timeliness looked good for all districts except Lolohgwe and Mchingi, where there were missing dates of receipt acknowledgment.



Figure 13. Reporting performance results by district assessed (exported from the RDQA Tool)

Part 2: Systems Assessment

Systems Assessment - Summary Findings

The systems assessment was conducted at the five sampled district health offices, 24 sampled health facilities, and the national level. The overall systems assessment score across all three levels (i.e., facility, district, and national) was 2.48 (out of a maximum score of 3.0). Table 6, automatically generated by the RDQA Tool from individual site assessments, presents the individual domain scores, the average site scores, and the average domain scores for the 24 facilities, five districts, and the national level. The scores are color coded: red for scores under 1.5 (weak), yellow for scores between 1.5 and 2.49 (medium), and green for scores of 2.5 or above (strong), with 3.0 being the highest score attainable. Table 6 also presents the overall HMIS score of 2.48.

		I	II	III	IV	v	VI		
	SUMMARY TABLE Data Management System Assessment	I - M&E Structure, Functions and Capabilities	II- Indicator Definitions and Reporting Guidelines	III - Data-collecti and Reporting Fors and Tools	IV- Data Management Processes	V - Links with National Reportin System	VI - Use of data for decision making	Average (by site)	
Nati	National M&E Unit								
-	FP National Sub M&E Unit	2.29	3.00	2.60	2.44	3.00	2.86	2.70	
Dist	rict Level Aggregation Sites					•			
1	Lilongwe	2.22	2.00	2.29	1.89	3.00	2.00	2.23	
2	Dedza	2.11	1.50	3.00	2.75	3.00	1.86	2.37	
3	Mzimba North	2.22	3.00	3.00	2.89	3.00	2.43	2.76	
4	Mchinji	2.78	3.00	3.00	3.00	3.00	2.00	2.80	
5	Balaka	2.67	N⁄A	2.57	1.67	3.00	1.57	2.30	
Serv	vice Delivery Sites					•			
1	Mthethera Health Center	3.00	3.00	2.67	2.33	3.00	2.86	2.81	
2	Chitedze	2.86	3.00	3.00	2.78	3.00	2.86	2.92	
3	AREA 25 HF	2.00	2.00	2.67	2.33	3.00	1.00	2.17	
4	Lumbadzi HF	2.43	2.00	2.67	2.33	3.00	1.29	2.29	
5	Kaphuka	2.57	2.75	2.33	2.50	3.00	2.29	2.57	
6	Dedza District Hospital	2.00	1.00	3.00	2.50	3.00	1.83	2.22	
7	Lobi	2.14	2.50	3.00	3.00	3.00	3.00	2.77	
8	Kasina	2.71	1.00	2.33	2.50	3.00	2.00	2.26	
9	Golomoti	2.14	1.00	2.17	2.44	3.00	2.00	2.13	
10	Balaka District Hospital	2.71	2.50	2.83	2.78	3.00	1.83	2.61	
11	Namndumbo	2.00	2.00	2.83	2.00	3.00	1.57	2.23	
12	Komfort HC	2.00	1.50	2.83	2.00	3.00	1.00	2.06	
13	Calembo	1.71	2.00	2.83	2.00	3.00	1.00	2.09	
14	Mphimbi	1.57	2.00	2.83	2.13	3.00	1.17	2.12	
15	Mzuzu Urban Health Center	2.00	3.00	3.00	2.00	3.00	3.00	2.67	
16	Kaweche Health Center	2.71	1.50	3.00	2.56	3.00	1.80	2.43	
17	Njuyu Health Center	1.86	2.00	3.00	1.67	2.75	1.40	2.11	
18	Kafukule Health Center	2.43	1.50	3.00	2.56	2.67	2.71	2.48	
19	Kamwe Health Center	1.86	3.00	2.83	3.00	3.00	1.50	2.53	
20	Каzуоzуо	2.57	3.00	3.00	3.00	3.00	2.71	2.88	
21	Mkanda	2.86	3.00	3.00	2.78	3.00	2.57	2.87	
22	Nkhwazi	3.00	3.00	3.00	1.67	3.00	2.57	2.71	
23	Kaigwazanga	2.86	3.00	3.00	2.11	3.00	1.86	2.64	
24	Mchinji District Hospital	2.71	3.00	3.00	3.00	3.00	2.33	2.84	
	Average (by functional area)	2.37	2.30	2.81	2.42	2.98	2.03	2.48	

Major Strengths and Weaknesses of the Data Management Systems Assessment

The global dashboard in Figure 14 highlights the results from the system assessment across all selected sites by level (facility, district, and national), by data management, reporting performance, and verifications.



Figure 14. Global dashboard from the RDQA tool presenting different RDQA data visualizations

Systems Assessment Findings for the Facility Level

Domain I: M&E Structure, Functions, and Capabilities

Overall, the need to strengthen HMIS at the facility level was demonstrated in half (50%) of the sampled facilities with a score less than 2.5. These scores may be affected by several factors, including: a lack of recent supervision visits since the last visit occurred in 2022 in a subset of facilities; missing indicator definitions and guideline documents at health facilities due to no dissemination of the national health indicators handbook by the central level; and insufficient data use for decision making at the health facility level.

Data collection: All staff working on FP data were trained on the use of data collection forms. The staff of the health facilities entering data directly in the DHIS 2 were trained. Since other staff were not using DHIS 2, they were only trained on recording data in the register and tally sheets.

Data reporting: Many health service providers have the capacity to compile monthly reports. Data review of monthly reports is conducted by service providers (typically nurses), the health facility manager, the reproductive and child health (RCH) responsible, or the HMIS focal person. Certain health facilities conducted monthly review meetings before submitting monthly summary reports to the district.

Feedback: All facilities reported receiving regular feedback on the quality of their reported data. Feedback was usually provided by the district HMIS officer and FP coordinator (most often via phone calls) or during district data review meetings (where in-person feedback is provided to the health facility representative at the meeting).

Supervision: Compared to the norms and procedures of required quarterly supervision visits, the assessment results show that out of the 24 health facilities assessed, 15 had received supervision visits from the district only in the three months preceding the 2022 assessment date and 21 facilities had received supervision visits only in the six months preceding that assessment.

Domain II: Indicator Definitions and Reporting Guidelines

Overall, the existence of indicator definition and reporting guidelines was assessed as a strength at the facility level, scoring from 2.75 to 3.0.

Indicator definitions: There are guidelines at the central level that include comprehensive indicator and data element definitions (*National Health Indicator Handbook* for monitoring health sector performance), but this guidance was not disseminated nor available at the subnational level. Health facilities that had the instructions on the first page of the FP register received full scores.

Provision of services: Most health facilities have the *National Family Planning Reference for Malawi*, which describes the procedures and patient eligibility criteria for the different types of short-term and long-term FP methods available in Malawi (see Figure 10). For the RDQA selected indicators (New Depo IM, New Depo SC, Implant Insertion, and Jadelle Insertion), the manual describes in detail, and with illustrations, how to provide the related services. For each FP method, the manual lists the characteristics and misconceptions associated with the method as well as recommendations about its appropriateness for women in different circumstances (postpartum women, women living with HIV, etc.).

Figure 15: National Health Indicators Handbook for monitoring health sector performance



Figure 16: National Family Planning Reference for Malawi



Reporting guidelines: All 24 health facilities have written guidelines on reporting requirements. Although a few health service providers interviewed stated that the data reporting deadline is the second or tenth day of the month, but during the assessment visit, the available documents at the health facility did not mention the required reporting deadlines.

Overall, all health facilities reported that the instructions received from the higher levels during training and supervision visits were adequate to ensure standardized recording and reporting of data.

Domain III: Data-Collection and Reporting Forms/Tools

Overall, this domain was an area of strength at the facility level, with systems assessment scores ranging from 2.17 to 3.0. The results show in 21 out of the 24 health facilities had a perfect score of 3.0.

Standardized tools: All health facilities are using the standardized national data collection tools (FP register, Stock Card, and FP monthly summary report).

Implementing partners: In some health facilities, MSI is supporting outreach services with partnerdeveloped forms and reports. These are not filled out by facility staff, and MSI transcribed data from the facility registers onto their own forms, with copies left with the facility service providers.

Form availability and use: Health facilities reported receiving clear instructions on how to complete the forms and tools (i.e., FP register). However, some FP summary reports, HSAs FP registers, and monthly summary reports were not available for review during the assessment.

Stock and supplies: All health facilities stated having enough stock of FP registers and FP monthly summary report forms for at least three months. Health facilities inform the district HMIS officer of the FP coordinator on their need of FP tools.

Domain IV: Data Management Processes

Overall, this domain was an area of weakness at the facility level, with systems assessment scores ranging from 1.67 to 2.5. It is the only domain where all 24 facilities scored under 2.5.

Data quality check: Some health facilities stated that data quality checks are usually done by the FP focal person or during the coordination meetings (on a monthly basis depending on the health facility). Some health facilities conduct data reviews and make corrections in the register and the monthly summary report (and DHIS 2, if applicable). Most health facilities with DHIS 2 are performing the system's validation checks, but fewer health facilities are doing checks without the DHIS 2 system.

Data backup: All DHIS 2 management, including data backup, is done by the HMIS central level, which manages the system. The HMIS department/service is responsible for data backup in DHIS 2 on a weekly basis and managing the national server that hosts the system.

Data confidentiality: Most of the health facilities stated that they store patient cards following confidentiality guidelines, but do not do this for the registers, and had a storage cabinet or closet without a lock.

Archiving: No written policy was identified on how long source documents and reporting forms should be retained, although some interviewed staff mentioned five years according to national guidelines.

Domain V: Links with National Reporting System

This domain was the strongest functional area, with all health facilities obtaining a perfect score of 3.0.

National reporting system: Health facilities indicated that all relevant forms and tools were consistently being used for data collection and reporting, and that all FP data are being reported through a single channel (the HMIS).

Naming conventions: The HMIS reports data in a standardized manner based on where services are delivered, providing information about the zone, district, and facility. In the HMIS, only district, and health facility names are included (as opposed to codes).

Domain VI: Use of Data for Decision Making

This domain showed wide score ranges by health facility (scores ranging from 1.0 to 2.86). Seventeen health facilities scored below 2.5 and six facilities scored below 1.5.

Data visualization: Sixteen of the 24 health facilities assessed did not develop data visualization (charts, graphs, maps, etc.). It is important to note that in sites with some data visualization, only very few were specific to FP. Health facilities said the FP coordinator and the HMIS focal point were responsible for data visualization.

Data interpretation and analysis: Eleven of the 24 health facilities did not have staff assigned for data interpretation or analysis. Six of the 24 health facilities have not received technical assistance or guidance on data use—most health facilities received guidance either during coordination meetings at the district, supervision visits from the district, or supervision visits from IPs working at their site. Data review and discussions at the health facility level are centered around data collection and reporting issues, and not on

data interpretation and use.

Data dissemination: Sixteen of the 24 health facilities presented and shared their data during the coordination meeting at the district level. Health facilities also shared data with the IPs working at their site or received help from IPs for data dissemination.

Data use: Thirteen of the 18 health facilities reported making programmatic decisions based on analyzed data from their health facility, but no additional evidence was collected on data use.

Systems Assessment Findings for the District Level

Domain I: M&E Structure, Functions, and Capabilities

Scores ranged from 2.23 (Lilongwe) to 2.76 (Mzimba North), reflecting high scores at the district level.

Training: All district HMIS officers received appropriate training on data management, data collection tools, and DHIS 2. Most districts had at least one staff member officially trained on the HMIS, such as data collection tools or the DHIS 2. There is no FP-specific HMIS training offered but, FP indicators are included in the national HMIS.

Data review, entry, and submission: The data quality review of reports submitted by the health facilities is assigned to the district HMIS officers in the five assessed districts. Responsibilities include monitoring reception of the reports and entering data into DHIS 2 in a timely manner. All five districts have an alternative mechanism for data submission in case of unavailability of the responsible staff (usually a joint or group effort).

Feedback and supervision: Four of the five districts provided feedback to health facilities on the data quality of their reports. This communication is done over the phone, via a WhatsApp group, and during the monthly meeting, as a follow-up to the health facility monthly report. Feedback can also occur during supervision visits. Data review meetings are held by all districts every quarter, where data are reviewed by program area. Health facilities also receive feedback from the IPs that support their site (e.g., MSI).

Domain II: Indicator Definitions and Reporting Guidelines

Scores in this domain ranged from 1.5 to 3.0, with Lilongwe and Dedza scoring 2.0 and 1.5, respectively.

Indicator definitions: The indicator definitions are included in the *National Health Indicator Handbook for Monitoring Health Sector Performance* along with the indicator guidelines in the DHIS 2. All districts had the *National Health Indicator Handbook for Monitoring Health Sector Performance*. Lilongwe and Dedza district HMIS officers are aware that indicator definitions could be found on DHIS 2, although they had never tried to access them. The score of "partly" was assigned to these districts.

Provision of services: The district couldn't find a copy of the *National Family Planning Reference Manual* which describes the content of services, as it is not used at the district level—it is more helpful to health providers at the health facility level.

Reporting guidelines: All districts are aware of the reporting deadline (the second day of the month for paper-based data and the tenth day of the month for electronic data). They are aware of the existence of the *Malawi National Health Information System Policy* which does not include the reporting guidelines. All districts had adequate and clear instructions or information on how to properly report data in DHIS 2.

Figure 27: Malawi National Health Information System Policy



Domain III: Data-Collection and Reporting Forms/Tools

This domain had high scores ranging from 2.29 (Lilongwe) to 3.0 (Dedza, Mzimba North, and Mchingi).

Standardized tools: All assessed districts use the national data collection and reporting forms. Districts receive the monthly summary report from their health facilities and enter the data into DHIS 2. In the event of data entered on DHIS 2 at the facility level, district staff will compare the figures in the database to those in the paper monthly summary report once they receive it.

Data analysis: Some districts conducted data analysis without any official instructions. However, Balaka and Lilongwe did not have specific instructions for data analysis and management due to lack of use of the *DHIS 2 User Manual*.

Stock and supplies: Health facility monthly summary reports and FP registers are available at all district offices for auditing purposes (the national requirement is to keep records for at least five years). All districts had a sufficient stock of data collection and reporting tools for distribution to health facilities in need.

Domain IV: Data Management Processes

This domain had scores ranging from the weakest 1.67 (Balaka) to the highest 3.0 (Mchingi).

Data quality checks: Three of the five districts used validation checks on DHIS 2 to investigate data quality (e.g., assessing minimum and maximum values, comparing values with a specific target, conducting outlier analysis, etc.). Lilongwe and Balaka do not systematically use DHIS 2 validation. In health facilities entering their own data, district staff compare their figures on DHIS 2 to their paper monthly summary reports (such

as in Mchingi).

Data backup: As mentioned in the systems assessment results section for the health facility level, all data backups are managed centrally by HMIS.

Managing reporting: There is no written procedure to address late, incomplete, inaccurate, or missing reports. Districts may follow-up with health facilities if needed.

Data discrepancies: The HMIS policy does not have standardized guidance or a template for tracking and monitoring data quality issues. Districts document discrepancies or inconsistencies for the next data review meeting to discuss these issues with health facility representatives.

Supervision: Three of the six districts conducted supervision visits to health facilities and developed reports to be shared with health facility staff. Sometimes, districts conduct joint visits with IPs. Mzimba North and Balaka do not conduct regular supervision visits to health facilities.

Archiving: There was no written policy on the length of source documents and reporting forms that needed to be stored or archived.

Domain V: Links with National Reporting System

This domain showed perfect scores of 3.0 across the five districts.

National reporting system: All program data are reported only through the national system and the DHIS 2 at all districts nationwide (there is no parallel reporting system). All districts have a copy of data collection tools. All sites and levels use monthly summary reports, stock cards, registers, and the DHIS 2 to identify health facilities and districts by location and name.

Domain VI: Use of Data for Decision Making

This domain produced scores ranging from 1.57–2.0.

Data visualization: All districts did not develop charts, graphs, and maps and have not a staff person assigned this responsibility. For the most part, graphs and tables are developed automatically through DHIS 2 and are not manually developed or designed in Excel. Districts do not have examples of data visualization or analysis/interpretation.

Data dissemination: Lilongwe and Mzimba districts disseminate analyzed data and results to stakeholders during coordination meetings and forums. The other districts sometimes disseminate their data but no evidence was provided.

Data use: All districts used data for programmatic decisions. The Mchingi District HMIS officer said, "There was a time of low uptake of family planning methods due to stock out of family planning commodities in the facilities so the decision was made to order some commodities and issue these to other facilities."

Systems Assessment Findings for the National Level

Domain I: M&E Structure, Functions, and Capabilities

Score: 2.70

Structure of the central level: The Central Level RH Service M&E unit is a sub-unit of the National HMIS unit. The HMIS unit, which is the unit responsible for managing the entire HMIS and the DHIS 2, does not have an organizational/hierarchical chart, although roles and responsibilities are clearly laid out in a terms of reference (TOR) document. There is one data manager who oversees all HMIS staff at the national level.

There are M&E officers who supervise M&E staff and District HMIS staff in all health zones for data validation within the DHIS2. They also provide feedback to the HMIS focal persons at the health facilities of their respective zones or districts.

Training: There is no integrated training plan, sub-national levels have their own training plans. New staff are trained on the guidelines and tools.

Data quality checks: The HMIS officers and the RH M&E Officers have access to DHIS 2 on a monthly basis to conduct routine data verification and quality checks for their respective zones and health programs.

Feedback: The RH Service M&E unit provides feedback to the district FP coordinators during zonal coordination semi-annual meetings. However, no evidence of this feedback was provided. If a problem is noticed, the RH M&E officer provides feedback to the districts via WhatsApp group (text messages, voice notes, and calls), emails, or comments on the DHIS 2. Feedback usually focuses on data quality, such as outliers or data entry errors.

Supervision: According to national guidelines, the RH M&E unit should conduct annual supervision visits. Supervision visits are limited due to lack of resources.

Domain II: Indicator Definitions and Reporting Guidelines

Score: 3.00

Indicator definitions: All Indicators and data elements are defined in the *National Health Indicator Handbook for Monitoring Health Sector Performance*. Some data elements are defined on the first page of the registers. DHIS 2 indicator definitions can be accessed through the system but only the district and the few health facilities entering data into the DHIS 2, have access to it.

Provision of services: The national guidelines for the provision of FP services (*National Family Planning Reference Manual*) available at the facility level does not include indicators. The central-level staff mentioned a FP training manual with several modules on counseling, provision of appropriate methods, and other topics provided to trainees. These materials were not observed in any health facility or district visited during the assessment.

Reporting guidelines: The overall reporting guidelines exist in the *National Health Information System Policy*, which includes reports and guidelines for each level of the health system. However, it does not provide guidelines on reporting deadlines. The HMIS and the RH M&E units provide information on reporting deadlines during HMIS training and supervision visits.

Domain III: Data-Collection and Reporting Forms/Tools

Score: 2.44

Standardized tools: The government issued standardized reporting forms and tools (registers, stock cards, and monthly summary reports) for FP. Data collection forms are consistent countrywide. Instructions on how to complete the data collection tools are included in the first page of the register, and are available at facilities and district offices.

Data analysis: There are no written guidelines for data aggregation and analysis at different levels, but the DHIS 2 has these functionalities integrated. Once districts have entered data on the DHIS 2, the national level analyzes specific reports by type of facility, religious areas, etc. Specifically for FP, data are disaggregated by age, sex, and location. There is interest in analyzing service uptake and types of FP

methods used by location and age group.

Generating indicators: Data at the central level are precise enough to generate indicators.

Domain IV: Data Management Processes

Score: 2.44

Quality controls: All data entry takes place at the district or facility levels. The central level runs validation rules on DHIS 2 to ensure the accuracy of reported data (e.g., detection of transcription errors, outliers, etc.).

Data backup: There is no written backup procedure at the MOH since this function is performed by the software program; the backup is done automatically by DHIS 2 on a daily basis.

Managing reporting: The data flow in the *National HMIS Policy Guide* provides guidance on addressing late, incomplete, inaccurate, and missing reports; including following up with sub-reporting levels on data quality issues. Although the information is included in that document, it is not widely disseminated or used.

Data discrepancies: If data discrepancies are uncovered and addressed in the monthly summary reports, the central level has no system to document how these inconsistencies were resolved. The only written documentation and communication are the feedback section of the DHIS 2. No end report is provided to explain how issues were resolved.

Archiving: No written policy states how long source documents and reporting forms need to be retained nor how program documents should be archived.

Domain V: Links with National Reporting System

Score: 3.0

National reporting system: The relevant national forms or tools are used for data collection and reporting by all health facilities in the country. Data aggregated are reported through a single channel of the national HMIS and are always shared using standardized naming conventions for regions, districts, and health facilities.

Domain VI: Use of Data for Decision Making

Score: 2.86

Data visualization: The RH service M&E unit develops charts, graphs, maps, etc. The RH service develops annual reports with district data that include graphs and charts from DHIS 2.

The staff assigned to develop data visualization and to interpret and analyze the data are the M&E unit and RH section staff. There is one coordinator who works with program-specific staff to compile all results from the different health sectors and programs.

Data use guidelines: The national program provides limited guidance on data use to the sub-reporting levels. Data use is a priority for the HMIS unit as it is directly related to improvements in data quality.

Data dissemination: The analyzed data in the reports discussed above are presented and disseminated to stakeholders during safe motherhood zonal meetings to inform decisions. It is also presented at the coordination meetings with district HMIS officers and stakeholders to show the progress of the FP program

activities.

Data use: Despite the poor quality of data, the national level is interested in the use of data to make programmatic decisions based on the analyzed data. According to the RH Service M&E Officer, "The RH service increased the distribution of Synapses during the floating season, based on those data analysis."

Limitations and Challenges

There was incomplete information about the process of FP data recording and reporting at the health facility level. The outreach activities conducted by the HSAs are reported using registers that were not available during the RDQA visits at the facilities. The RH Service M&E staff and coordinator should have informed health facilities in advance about the need to have HSA registers and monthly summary report forms available for RDQA. Unfortunately, this communication was not done on time, resulting with some facilities missing these important data sources, impacting the data quality.

Since this activity was the first field implementation of the RDQA, it was a learning experience with many challenges. The post-assessment debriefs with each team were opportunities to address the challenges and observations encountered in the field. Follow up was required for some incomplete sections of the RDQA Tool, unclear comments, or missing data recounting. Scoring was closely evaluated across the teams.

Lack of Chichewa language fluency among health facility staff was a barrier, limiting interactions with the mentors and trainers, but translation from fellow Malawian assessors helped to clarify responses.

Recommendations

(1) Develop and disseminate indicator definition, data use, and data management guidelines.

The district and facility levels need guideline documents to improve data collection, management, analysis, and use. The Central level HMIS and RH M&E Service units are responsible for the development of the missing FP data management tools and guidelines as well as updating the existing tools and guidelines. The *National Health Indicator Handbook for Monitoring Health Sector Performance* needs to be disseminated to all health system levels particularly to the health facility level, so that health service providers can fully understand the data elements collected. Ensuring that all health facilities have a clear and consistent understanding of data elements and indicators will improve data quality in the long term.

FP data use guidelines should be developed and disseminated. The guidelines should address data use at all levels including the health facility level since the RDQA found data analysis and use to be a weakness for health facilities. FP data management guidelines that standardize data management operating procedures, such as how sensitive personal data should be maintained, the length of time source documents need to be archived, when and how data should be archived, etc. need to be developed and shared with health facilities and districts.

One specific data management issue that the RDQA teams observed was a lack of clarity on how districts should manage monthly reports and data from health facilities that enter their own data into DHIS 2. Some health facilities submit their data to the district via DHIS 2 and do not send their reports to the district for archiving purposes, while other districts submit the paper-based reporting forms, however, the majority of districts do not record the date the paper reports are received. This makes it difficult to assess timeliness of reporting from facility to district. New data management protocols need to be developed and codified in the data management guidelines to address the archiving of data entered at the health facility level.

(2) Strengthen capacity of the district and health facility levels on data analysis, interpretation, and use.

Data collection and reporting practices are strong at the health facility level and data entry into DHIS 2 is systematic but data analysis, interpretation, and use practices need to be strengthened. National data use guidelines should be developed to address data use issues at the national, district, and health facility levels. In addition, the national and sub-national levels and partners need to invest in developing other resources and building the skills and capacity of health facility-level staff to interact with and use data for decision making. Health facility level staff attending monthly or quarterly data review meetings at the district should relay the feedback they receive to the other providers within their health facilities to improve overall health facility performance.

(3) Provide refresher trainings to health facility staff on proper use of the data collection and reporting tools such as register and monthly summary reports.

Until new tools have been developed and disseminated, health facilities will need to continue to use the current tools. However, many health facilities are not using the existing tools properly. For example, some health facilities do not fill out the register properly, leaving some blank cells. Health facilities would benefit from on-the-job training or refresher trainings focusing on FP indicators and proper use of FP data

collection and reporting tools. These trainings do not need to be conducted through formal workshops, but can instead be held during regular supervision and mentorship visits.

(4) Reinforce a deadline for locking monthly DHIS 2 data.

As part of the standard data management guidelines, there should be a fixed date at which point data for a particular month are locked, and no further changes can be made to the dataset.

(5) Improve storage and archiving practices at district health offices.

Storage and archiving conditions and practices at the district health offices need to be improved. Health facility reports were generally found stored in paper boxes, and an entire month's reports could not be found in one district.

(6) Institutionalize and implement regular assessments and supervision at the health facilities.

Data management norms, standards, and procedures require health facilities to be visited quarterly to assess and discuss findings. With the health facility team, the supervisor should develop action plans with implementation progress to be monitored at every visit.

(7) Provide feedback virtually or during the district quarterly meeting on data quality.

District data mangers should regularly conduct desk reviews (SS to EMU and DHIS2 validation rules check) after each complete data entry to identify data inconsistency in all health facilities and communicate with health facilities to review and address the data inconsistencies.

Conclusion

The refresher training and mentorship of D4I and Track20 led to the reinforcement of M&E skills and to HMIS staff understanding and practicing the assessment and analysis of data accuracy, timeliness and completeness. This also led to the understanding of how to interpret how the dimension of data quality can influence data collection and management. The SS to EMU helped assessors to analyze and compare data trends from different data sources (DHIS2 and MICS, etc.) and to ultimately identify data inconsistencies on new Depo IM, new Depo SC, new Implanon Insertion, and new Jadelle Insertion within the 24 health facilities of the districts of Lilongwe, Dedze, Mzimba, MChingi, and Bakala. The RDQA results revealed inaccuracies in data for many of the 24 health facilities, with the exception of a few health facilities with accurate data: One health facility on new Depo IM, Four health facility on new Depo SC, 10 health facility on Implanon Insertion, and seven health facility on new Jadelle Insertion. One hundred percent (100%) of those reporting timeliness, data completeness, and data sources availability were only observed at Bakala and Mzimba districts. In the other districts, either the DHIS 2 was not accessible, or data sources were missing. Among the data quality dimensions, only a few facilities scored poor performance on the availability of indicator definition, reporting guidelines, and the use of data for decision making.

The results and recommendations of this RDQA are being shared with USAID, Track20, Malawi MOH/RH Service, WHO, and MIS representatives for consideration in improving Malawi's HMIS and as a model for comprehensive, systematic, and routine data quality assessments for other users in strengthening the capacity of data managers and health providers to collect and report accurate, timely, and complete data.

References

Malawi Multiple Indicator Cluster Survey (MICS) Report. (2019–2020).

https://www.unicef.org/malawi/media/6296/file/Malawi%20Multiple%20Indicator%20Cluster%20Survey%20Report.pdf

Government of Malawi, Ministry of Health and Population. (2021). National Family Planning Reference Manual for Malawi.

MEASURE Evaluation. (2008). Data Quality Audit Tool: Guidelines for Implementation. Chapel Hill, NC, USA: MEASURE Evaluation, University of North Carolina.

https://www.measureevaluation.org/resources/tools/data-quality/dqa-auditing-tool-implementation-guidelines

Ministry of Health and Population. (2015). Malawi National Health Information System Policy. September 2015 Malawi National Health Information System Policy.pdf (healthdatacollaborative.org)

Ministry of Health and Population. (2018). Malawi National Health Indicators Handbook for Monitoring Health Performance. <u>Malawi National Health Indicators FINAL v11 clean wt sign combo.pdf (healthdatacollaborative.org)</u>

National Statistical Office – NSO/Malawi and ICF. 2017. Malawi Demographic and Health Survey 2015-16. Zomba, Malawi: NSO and ICF.

Appendix A. Training Agenda

TRAINING AGENDA							
Time	Session	Details	Facilitator				
Day 1							
08:30-09:00	Arrival and Registration		MoH Malawi				
09:00-09:15	Welcome Remarks and Workshop Objectives		MoH Malawi				
09:15-09:30	Overview of HMIS in Malawi		MoH Malawi				
09:30-10:00	Session 1: FP data and Data Quality systems in Malawi	Key Concepts of FP Data and Data types in Togo	Brighton Muzavazi Track20 M&E Officer Zimbabwe				
10:00-10:30	Session 2: Introduction to Service Statistics to Estimated Modern Use (SS to EMU)	Getting to a better Coverage Indicator from FP DHIS 2 data	Brighton Muzavazi Track20 M&E Officer Zimbabwe				
10:30-10:45	BREAK	L	L				
10:45-12:00	Session 3: Using the Track20 EMU tool	Walk through of default data, data inputs required, and outputs produced. Reference example from Malawi National	Brighton Muzavazi Track20 M&E Officer Zimbabwe				
12:00-13:00 Session 4: Interpreting Outputs from the EMU tool Systematic review process of: 1. Reporting 2. Data outliers 3. Trends 4. Method mix 5. EMU trends benchmarked against survey and modelled estimates 6. Rates of growth		What do the EMU outputs tell us about overall data quality?	Brighton Muzavazi Track20 M&E Officer Zimbabwe				
13:00 - 14:00	LUNCH BREAK						
14:00-15:00	Session 5: Practice Session Use of subnational data to identify PRIORITIES FOR data quality interventions • Data Entry • Data Review Interpretation of data quality issues	All participants require access to DHIS 2	Brighton Muzavazi Track20 M&E Officer Zimbabwe				

3:00-4:30	Session 6: Feedback Session from Groups What does the data suggest about what is the highest priority for targeted data quality intervention? Which methods, which regions, facilities in Malawi?	Selection of sites	Brighton Muzavazi Track20 M&E Officer Zimbabwe
DAY 2			
9:00-10:00 Session 1: Data Quality Conceptu Framework and Dimensions			Fanor Joseph
10:00-11:00Session 2: Family Planning Data Quality Problems			Fanor Joseph
11:00-11:30	Tea Break		
11:30-1:30	Session 3: Data Quality Assessment Methods		Fanor Joseph
Session 4: Introduction to Routin Data Quality Assessment tool			Fanor Joseph
1:30- 2:30	Lunch Break		
2.30–3.30 Session 5: Introduction to Routine Data Quality Assessment tool			Fanor Joseph
3:30-4:00 Tea Break + Logistics			Fanor Joseph

Appendix B. Participants List

			Family Pla	Registration Form	DA Thinh	o (Xrads H	tel IL mus)	
	Ac	tivity Nar	30 - 05	-2023	~1)	.)	100,0011109	
#	NAME	GENDER	From (City/town/district	INSTITUTION	DESIGNATION			
	chatra Phiri	other	Lilowawe.	BIM	RME Shipe			
;	2 Pralcom Helm	M	ATU	PH	MER Adv.			
	Jetra Orko	M	Helongue	Wito	Consultant			
	David Mwale	M	LIOSCOR	FPAM	MUEC			
	5 Brostome Numper	NP	leboque	WHO	The words			
	6 LUKA MGONA	M	DEDZA	DEDZA-MOH	HP COORD			
1	7 liwonge Gondue	F	Blantyne	Blantyre SHO	FP (portinator			
1	BGolden Chanansi	m	Longwe	CMGD MOH	Mar			
	Emmanuel Isdes	M	Dowa	Dowa DHO	Amiso			
10	Rida Kalonga	F	Lilongwe	Momentum I ujeni	MEL Marage			
1:	HARRY MILLA	H	Thyolo	Thyold Otto	15000 44			
12	Viggler 194	M	atcher	Ntchey DHO	HM30			
13	EmpodelNich	ND	Chiating	Clatter NH	House			
14	treising Charles	E	1 iboo w	PHO MADIO	Q M G			
15	TOWN TOSEPH	M	NoAgenclan	JST	RHTSASVER			
10	Vamilani Mnado	in	Lilongue	RHD-MOH	effeath Off			
1.9	Flingt Mature	X	Lilonaine	CHAI	PM-FP			
19	Gisan Kantala	t	h	INTO	NPO			
20	Okello Joel	M	LiLonque	KEHD	SDSO			
20	1				A STATE OF			
	,							
				Registration Form				
			In 1/2 Pl	and R	DA T	1 (and	Hotel II and	
	Activ	ity Name	Toming 10	and cl	LALL ILAN	ng (Xrezos	(loves, a, love)	
	Date	e:	50 - 05 - 2	020				
			production of the second					
NA	ME G	ENDER	From (City/town/district	INSTITUTION	DESIGNATION			
t	raver Kalonga	M	letog	Anot I CHI	Stehshan			
K	Euromi Jerila	M	U	mott-12HA	pit Manage			
IX	MGUPH Myzavaz	M	tame	marzo	mas			

Appendix C. Sampled Districts and Health Facilities

Health Zone	District	Facility
		Mthethera Health Center
	Lilongwe	Chitedze
		AREA 25 health facility
		Lumbadzi health facility
		Kaphuka
		Dedza District Hospital
	Dedza	Lobi
		Kasina
		Golomoti
		Balaka District Hospital
		Namndumbo
	Balaka	Komfort HC
		Calembo
		Mphimbi
		Mzuzu Urban HC
	Mzimba North	Kaweche HC
		Njuyu HC
		Kafukule HC
		Kamwe HC
		Каzyozyo
		Mkanda
	Mchingi	Nkhwazi
		Kaigwazanga
		Mchingi District Hospital

Appendix D. Data Collection Team

#	Name	Title	Email Address	Telephone
1	LUKA MGONA	FP COORDINATOR		
2	EMMANUEL TSOKA	HMIS OFFICER		
3	HARRIET MBOZANANI	DATA CLERK		
4	Emmanuel Musukwa	HMIS Officer		
5	Harry Milala	HMIS Officer		
6	Regina Mponya	FP Coordinator		
7	Frezimina Chadzala	Resource Mobilization officer		
8	Kingsley Laija	HMIS officer		
9	Memory Nyasulu	HMIS officer		
10	Cecilia Mzamu	Community Nurse		
10				
12	EMMANUEL ISUKA	HMISOFFICER		
13	Tiwonge Gondwe	FP coordinator Blantyre		
14	Yamikani Mnapo	eHealth Officer		
15	Maurice nyamuka	HMIS Officer		
16	Mafunase Longwe	Community Health Nurse		
17	Luka MGONA	FP Coordinator		
18	Francis KALONGA	Statistician		
19	Temwani JENDA	M&E Manager		

Data for Impact

University of North Carolina at Chapel Hill 123 West Franklin Street, Suite 330 Chapel Hill, NC 27516 USA

Phone: 919-445-6949

D4l@unc.edu http://www.data4impactproject.org

This publication was produced with the support of the United States Agency for International Development (USAID) under the terms of the Data for Impact (D4I) associate award 7200AA18LA00008, which is implemented by the Carolina Population Center at the University of North Carolina at Chapel Hill, in partnership with Palladium International, LLC; ICF Macro, Inc.; John Snow, Inc.; and Tulane University. The views expressed in this publication do not necessarily reflect the views of USAID or the United States government. TR-23-532 D4I

