Enhancing Use of Routine Health Information for Family Planning to Influence Decision Making in Tanzania

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WORKING PAPER

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ABBREVIATIONS

FP	family planning
HMIS	health management information system
MMR	maternal mortality rate
MOHCDGEC	Ministry of Health, Community Development, Gender, Elderly, and Children
MTUHA	Mfumo wa Taarifa za Uendeshaji wa Huduma za Afya
RCH	reproductive and child health
RCHS	Reproductive and Child Health Section
RMNCH	reproductive, maternal, newborn, and child health
R&R	report and request

EXECUTIVE SUMMARY

Background: Family planning (FP) is a priority in Tanzania's health sector and in strategies for reducing poverty. Family planning makes a critical contribution to reducing both maternal and child deaths. However, implementation of Tanzania's FP policy has faced challenges for many years because of inadequate allocation of funds. As a result, Tanzania has low rates of FP use (32% for modern methods), a high fertility rate (5.2), and high maternal mortality (556 deaths per 100,000 live births in 2015–2016 versus 454 deaths per 100,000 live births in 2010) (National Bureau of Statistics & ICF Macro, 2016; National Bureau of Statistics & ICF Macro, 2011).

Because any effective planning and budgeting depends on evidence, this study examined the sources of FP data in Tanzania and how the data are collected, analysed, and used to inform planning and budgeting. The study investigated five research questions:

- 1. What kind of routine health information is collected for FP and how often does this process happen?
- 2. Who is involved in the information chain at every level of data consumption?
- 3. How adequate is the FP health management information system (HMIS), particularly to inform decisions for FP?
- 4. How and at what level are the data analysed?
- 5. What can be done to address existing information gaps to influence decisions for FP services?

Methods: This was a cross-sectional descriptive study with convenience sampling. The study compared the best-performing (Kilimanjaro) and worst-performing (Mara) regions in relation to key FP indicators. One regional hospital, one district hospital, one health centre, and one dispensary were randomly sampled in each region. The study population included health officers in charge, points of contact for FP or reproductive and child health at each health facility, community health workers, council health management teams in each district, planning officers, regional health management teams, and health administrators. At the national level, the study involved the Reproductive and Child Health Section (RCHS) of the Ministry of Health, Community Development, Gender, Elderly, and Children (MOHCDGEC).

To understand how the HMIS functions and to solicit opinions on how it can be improved for better result, key informant interviews were conducted with 31 members of the study population (12 men and 19 women). Data were analysed using the Statistical Package for Social Scientists version 23.0 and a qualitative pattern-matching approach.

Results: There was a high level of awareness on the type of routine health information collected for FP. Most respondents felt that the collected data are inadequate to inform planning and budgeting. Data from nonpublic facilities, and those obtained from community outreach, are not aggregated and reported. The systems for data collection, aggregation, and submission operate both manually and electronically, which not only doubles the work but also prohibits harmonisation. Data quality is weak at the lower level, which leads to poor data analysis and use. Infrastructure for data management and staff capacity to provide FP services and to collect and use data were all reported as areas needing improvement.

Conclusion: A system for FP data collection has been established at all health facilities, but has limited inclusion of the private sector and of outreach or community-based information. This is coupled with inadequate analysis and use of information to inform planning and budgeting. The paper-based HMIS needs to be harmonised with the new, electronic district health information system, DHIS 2.

INTRODUCTION

Family planning is a priority in Tanzania's health sector and in strategies for reducing poverty. Family planning makes a critical contribution to reducing both maternal and child deaths, and it empowers women to attain their development aspirations, including education and economic achievements. Based on these realities, Tanzania's FP health policy mandates free FP services for clients who need them. However, the implementation of this policy has faced unending challenges for many years because of inadequate allocation of funds for FP. As a result, Tanzania has low rates of FP use (32% for modern methods), a high fertility rate (5.2), and a high maternal mortality rate (MMR) (556 deaths per 100,000 live births in 2015–2016 versus 454 deaths per 100,000 live births in 2010) (National Bureau of Statistics & ICF Macro, 2016; National Bureau of Statistics & ICF Macro, 2011).

Although it is commendable that the Government of Tanzania's financial allocations for FP have been increasing, these allocations are still less than required by the National FP Costed Implementation Plan 2010–2015. One of the factors behind inadequate allocations for FP services is poor utilization of routine health information at the central and local government levels to determine actual needs and costs for desired services.

The Ministry of Health, Community Development, Gender, Elderly, and Children (MOHCDGEC) uses an HMIS, known as Mfumo wa Taarifa za Uendeshaji wa Huduma za Afya (MTUHA) in Kiswahili, to collect information at the health facility level. Health facilities use paper-based report and request (R&R) forms to request commodities from the Medical Stores Department, indicating what they need and the quantity. Unfortunately, neither MTUHA nor the R&R forms are linked to the Integrated Logistic System Gateway or the electronic logistic management system, which are computer-based tools used for ordering and reporting commodities. Because data from the R&R forms are usually based on commodity consumption and are not linked to the Integrated Logic System Gateway, quantification teams have not been generating accurate figures to reflect FP needs and their related costs, which is necessary for budgeting purposes. In particular, figures presented for budgetary purposes have not been backed up by evidence that can inform relevant decision makers.

Civil society organizations working to influence health budgets have observed that the central government budget processes usually take place in capital cities and primarily involve national government decision makers and officials, capital-based stakeholders, and national media (Bujari & McGinn, 2013). They focus on national policies and national budgets by sector, aiming to have a macro-level impact. Such aims, though well-intentioned, create complexity when trying to link national-level efforts to local-level implementation, especially in countries with decentralized health systems, because the local priorities may differ from the national, politically motivated agenda.

Study Objective and Research Questions

This study intended to explore the type of FP information collected, how the data are analysed, and how the information informs planning and budgeting. It examined ways data are handled across all five levels of the health system (i.e., national, regional, district, ward, and village) and when and how the data are utilized. The study involved the RCHS and the budget department within the MOHCDGEC.

We sought to answer the following questions:

- What kind of routine health information for FP is collected and how often does this process happen?
- Who is involved in the information chain at every level of data consumption?
- How are data analysed and at what level?
- How adequate is the health information for informing decisions pertaining to FP services?
- How are data used to inform FP decision making at the five levels in the health system?
- What can be done to address existing gaps to improve decision making for FP services?

We envision that the findings and recommendations from the study will be used to influence decision makers in responsible ministries and agencies: the MOHCDGEC; the Regional Administration and Local Government, Ministry of Finance and Planning (within the President's Office); the Planning Commission (also within the President's Office); and the Medical Stores Department. With this information, they can advocate the development of action plans by regional, district, ward, and village-level staff and inform parliamentary committees responsible for social services and budgeting for FP.

METHODS

Study Setting

The study was conducted in Kilimanjaro and Mara Regions. Kilimanjaro, in northern Tanzania, has a population of 1.8 million and a high contraceptive prevalence rate of 47.8 percent (National Bureau of Statistics and ICF Macro, 2016). The region contains 405 health facilities: 17 hospitals, 47 health centres, and 341 dispensaries. Mara Region is estimated to have a population of about 1.9 million and a low contraceptive prevalence rate of 29.1 percent (National Bureau of Statistics & ICF Macro, 2016). The region has a total of 285 health facilities: 9 hospitals, 40 health centres, and 236 dispensaries.

Sampling Strategy

To obtain a clearer and more inclusive picture of how routine health information is used to influence decision making for FP services in Tanzania, a cross-sectional descriptive study with convenient sampling was employed. The study compared one of the best-performing (Kilimanjaro) and one of the worst-performing (Mara) regions in relation to key national FP indicators. This enabled the researchers to compare strategies for planning, prioritizing, and allocating resources in the two regions. One regional hospital, one district hospital, one health centre (ward level), and one dispensary (village level) were randomly sampled in each region. At the national level, the study involved the RCHS of the MOHCDGEC. The facilities that participated in the study are shown in Table 1.

Mara Region (Bunda District Council)		Kilimanjaro Region (Hai District Council)		National Level
Facility	Nyangere Dispensary	Facility	Lambo Dispensary	Office of Assistant
Name	Ikizu Health Centre	Name	Kisiki Health Centre	Director for RCHS
	Bunda Designated District		Hai District Hospital	Office of Director of
	Hospital			Policy and Planning
	Musoma Regional Hospital		Mawenzi Regional	[HMIS]
			Hospital	

Table 1. Study sites

The study population included health officers in charge, points of contact for FP or reproductive and child health (RCH) at every health facility, district medical officers, health governance committee, HMIS focal people at every facility, and health secretaries (Table 2). Thirty-one people participated in the study (12 men and 19 women).

Study Category	Kilimanjaro	Mara	National Level	Total
Facility in-charges	2	2		4
Health governance committee	2	2		4
District medical officer	1	1		2
HMIS unit	1	2		3
Health secretaries	2	2		4
FP unit	2	2		4
RCHS	4	3		7
Directorate of preventive service			1	1
Directorate of policy and planning			2	2
Total	14	14	3	31

Table 2. Study participants at the national and regional levels

Key informants needed to have been involved in either one or more of the following: FP or RCH, HMIS, decision making for FP, or budget preparation. They needed previous or similar experience in RCH within the past five years if they had been transferred to another function.

Data Collection

After the research proposal was approved, data collection instruments were developed and submitted alongside the application for ethical clearance (Appendix A). The instruments were pilot tested in Dar es Salaam for convenience.

Qualitative data were collected through key informant interviews. The key informants helped researchers understand the way the HMIS functions and provided opinions on how it can be improved for better results. Data collectors recorded all the interviews in a master data collection sheet, which was later used for data analysis. Not all questions were posed to all respondents, given the respondents' different positions and experience; some questions were omitted depending on the nature of the respondents' functions. For example, those at the national level were not asked health facility questions.

Data from the key informant interviews were carefully analysed using Statistical Package for Social Scientists software. From the analysis, findings, along with conclusions and recommendations, were compiled into a report.

Quality Assurance

Three research teams were formed for the data collection: one for the national level, another for Kilimanjaro, and a third for Mara. The research teams were trained on ethics (including confidentiality) and data quality. Data collectors documented all nonresponses, delineating whether the respondents were unavailable or refused to participate. The principal investigator conducted daily data quality checks and quality control procedures to minimize study errors. The principal investigator also verified data collected from the master record sheet and audio records.

Ethical Considerations

Research clearance was sought and granted by the National Institute for Medical Research (Appendix B). During data collection, researchers adhered to the principles of ethics, including informed consent to participate and consent to be recorded.

RESULTS

This section presents the study findings with responses corresponding to the research questions. It presents qualitative data derived from questionnaires and interviews. Three respondents from Mara had limited responses, with many questions receiving "don't know" answers; the three respondents were an RCHS focal person and two village health governance committee members from one dispensary.

Awareness of Routine Health Information Collected

All respondents except for one (from Mara Region, Bunda District) were aware that routine health information is collected at facilities. However, knowledge of what kind of routine health information is collected varied. The common kinds of routine health information mentioned by participants were FP (including methods used and number of clients), prenatal care, postnatal care, diseases, vaccinations, and deaths.

Participants were asked to identify when FP data are collected: during prenatal visits, postnatal visits, or another period. Two informants said they did not know. Among the remaining respondents, 20 (69.0%) said that FP information is collected during prenatal visits, but nine respondents (31%) did not think FP data are collected during these visits. Table 3 summarizes the responses.

Variable	Frequency	
	Yes	No
Prenatal Visit	20 (69%)	9 (31%)
Postnatal Visit	27 (93.1%)	2 (6.9%)
Other Period	23 (79.3%)	6 (20.7%)

Participants were asked to identify the source of routinely collected FP information: women, men, or youth. Thirty-one individuals responded to this question. Twenty-seven (84%) acknowledged women to be a source of FP information collected, and four respondents did not know. Regarding men being a source of FP information collected, 25 respondents (81%) responded affirmatively, and six respondents (19%) didn't acknowledge men as a source of FP information. Twenty-one respondents (68%) acknowledged youth to be a source of FP information, and 10 respondents (32%) did not. Table 4 summarizes the responses.

Table 4: Sources of FP information collected routinely (N=31)

Variable	Frequency	
	Yes	No
Women	27 (84%)	4 (16%)
Men	25 (81%)	6 (19%)
Youth	21 (68%)	10 (32%)

Participants were asked to state whether DHIS 2¹ information is collected. Twenty respondents (65%) acknowledged that DHIS 2 information is being collected, three (10.7%) said that DHIS 2 information is not collected, and eight (26%) didn't know. Half of the respondents both from Mara and Kilimanjaro reported that they were not aware whether DHIS 2 data are collected or not. This included people from dispensary and health centre levels—specifically RCH personnel, health governing committee members, and dispensary and health centre facility in-charges.

Participants were also asked if they were aware that the tool used for data collection includes outreach and mobile services data. Twenty (65%) responded yes, two (6%) said no, and nine (29%) didn't know. Again, at least one in four respondents did not know if the tools used capture outreach and mobile FP data. Among those who didn't know, eight were from Mara Region and one was from the national level (ministry). Generally, at least one person at every level was not aware of whether the tool used to collect data includes outreach and mobile services.

Respondents were asked if the information collected through the HMIS (i.e., MTUHA) is linked to DHIS 2. Thirteen respondents (42%) said yes, two respondents (6%) said no, and 16 (52%) said they didn't know if the two systems are linked. Among those who declared that they didn't know if the information collected is linked to DHIS 2, an equal number were from Kilimanjaro and Mara Regions, with no one at the national level unaware. Again, the group who said they were unaware included personnel from all levels, ranging from the dispensary level to the regional level, with health governing committee members, health facility incharges, health secretaries, district medical officers, and FP and HMIS focal persons acknowledging a lack of awareness.

Knowledge of Key Actors Involved in the Information Chain

Participants were asked what they knew about the actors who are involved in HMIS at every level. Twentyfour respondents (77.4%) could identify which actors are involved in the system, but seven respondents (22.6%) could not. Despite several respondents being able to identify key actors involved in the information chain, some failed to identify key actors involved in data analysis. However, those who identified actors within the same level had different explanations for their involvement in the information chain.

Data analysis is done by all of the staff. – RCH focal person

Data analysis is done by facility in-charge. - Health governing committee

The system offers option for data analysis. Everyone in his/her respective department analyses data. – Health centre in-charge

Data is analysed by individuals depending on the need. - RCH focal person

Adequacy of the Health Information Collected

Participants were asked to explain the adequacy of the collected routine health information to inform FP allocations. Adequacy was assessed in three areas: service needs, equity, and quality of services. Table 5 summarizes the responses.

¹DHIS 2 is the electronic health information system that captures community-based health information collected at each health facility in a given district council. This includes information related to outpatient departments, in bed records, antenatal care, postnatal care, FP, deliveries, immunizations, and specific diseases.

Adequacy to determine service needs addresses whether the information collected is sufficient to enable decision makers to determine actual service needs and client demands. Among the 31 participants who responded, 18 (58%) declared that the information collected is adequate, and 11 (35%) said that the information is not adequate to assess service needs. Two (6%) did not know. Some respondents thought the system could be improved and made more user-friendly.

To some extent, they can't rely on the collected information. Some information is not collected; there is a gap. System is not user-friendly to collect all information unless you establish a local system to capture all data from all facilities, including private facilities – Regional health secretary

Adequacy to assess equity relates to knowing if the data collected represent marginalized groups, such as young people and those living far from health facilities, so that decision makers have the necessary information to account for their needs. Among the 31 participants who responded, 20 (65%) acknowledged that the information collected provides enough evidence for decision makers. Five respondents (16%) said no, and six respondents (19%) didn't know if the information was adequate to inform decision making on equity issues.

We normally put a target and if there is any group which is left behind, through the available information [it] helps to consider them in establishing their services. – Regional RCH staff

Adequacy to provide quality of the services pertains to assessing if the information collected through the health system enables decision makers to plan for and provide a wide range of quality services to give clients their desired choice. Eighteen respondents (58%) reported that the information is adequate, eight (26%) reported that it is somewhat adequate, and five (16%) responded that it is inadequate.

The information is adequate to provide quality of services, for example, previously we had no screening services, but now we have [services] and clients have accepted it and they are satisfied. – District reproductive child health coordinator

	Yes	No	Don't Know	Somewhat
Service Needs (n=29)	18 (58%)	11 (35%)	2 (6%)	0 (0%)
Equity (n=29)	20 (65%)	5 (16%)	5 (10.3%)	1 (3%)
Quality of Services (n=28)	18 (58%)	5 (16%)	0 (0%)	8 (26%)

Table 5: Adequacy of the health information collected (n=31)

Data Analysis and Data Use in the Health System

Participants were asked if and how data analysis is done at their level of the health system. Twenty-three participants (74.2%) acknowledged that data analysis is done at their level (facility), and eight participants (25.8%) were unsure.

Twelve respondents (39%) said data are analysed by calculating indicators for their catchment area. More than half of the respondents (19; 61%) were not sure how data analysis is done. They provided different explanations for how the data are analysed, if at all, but they were unclear and failed to explain exactly how the data analysis is done. Among those who were not sure how data are being analysed, 12 (63.2%) were

from Mara Region and seven (36.8%) were from Kilimanjaro Region. This group consisted of personnel from the dispensary level to the regional level, excluding the district reproductive child health coordinator and regional reproductive child health coordinator. No one from the national level reported being unaware of how the data are analysed.

Participants were asked to confirm if any decisions are made based on the data collected, such as adjusting contraceptive orders, planning for service use, or making budget allocations. Most respondents (29) acknowledged that several decisions have been made based on routinely collected data, but one respondent was not aware of any decision having been made that was based on the collected data.

We have been making decisions especially on where to focus and direct FP outreach services. - Respondent from Mara Region

We have been placing an order basing on the available information that has been showing the need of supplies, but also the budget has been made basing on the need, which has been reflected in the available data collected routinely. – FP focal person at Hai District Hospital

There are some areas where there were no FP services, but due to data/information collected, now there are services, or if there was no service provider, the government has recruited providers to serve in such areas. – Regional reproductive child health coordinator from Kilimanjaro Region

For instance, there has been low FP use by youths. Right now we do public announcements to sensitize youths to utilize services. That has been a result of data which has been collected every day. – Facility in-charge from Lambo Dispensary in Hai District

Regularly basing on the data, we have been doing stock balancing for family planning commodities in our region. – Respondent from Mara Region

To a large extent, the FP budget in the Comprehensive Council Health Plan 2016/2017 is based on the data collected from different facilities. – Respondent from Mara Region

Views and Suggestions to Address Gaps in Use of Family Planning Data

Participants were asked to provide their views on what could be done to address gaps in the use of FP data to influence decisions, particularly allocations for FP. First, they were asked whether it is possible to harmonise the HMIS and DHIS 2 and streamline the tools for improved outputs. The majority (23 respondents; 74%) believed it is possible to harmonise the two systems, two respondents (6%) did not think it is possible, and six respondents (19%) were not sure. Respondents suggested the two systems should be combined, because what is entered manually is repetitive and wastes time (i.e., manually recording in MTUHA books and transferring data to DHIS 2). They expressed that, in practical terms, the HMIS and DHIS 2 are already combined, in that what is recorded in the HMIS is shifted into DHIS 2, but the inputs are not the same.

We should be given computers so that we can directly enter data in DHIS 2 and abandon recording data in MTUHA books. – Service provider, dispensary level

Participants were also asked to identify the actors who can bring about changes, particularly harmonising the HIMS and DHIS 2. The majority (19 participants; 70.4%) acknowledged that many people are in a position

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to affect change. Most identified the government (i.e., MOHCDGEC) and nongovernmental organizations (i.e., those that support the government to provide outreach services) as key actors to make the desired changes, with few participants identifying different actors.

All RMNCH [reproductive, maternal, newborn, and child health] stakeholders can make desired changes if they sit together. If stakeholders will sit together, [they] will come up with a strong decision, because they differ from each other in their needs. – Regional child healthcare coordinator

Areas of the Health System Requiring Improvements

Most respondents felt that health facility infrastructure, especially data management software and hardware, needs improvement.

We lack some equipment, we really suffer, for instance we don't have a modem, sometimes data are not entered on time, the available computer has viruses, and sometimes we even borrow laptops from other people just to enter data in the system. Administrators do not see the importance of data. – HMIS focal person, regional hospital

Another suggestion by respondents was to provide education to the community and clients on FP.

Government should increase efforts to mobilize communities to use FP, as it reduces MMR by 25 to 40 percent; teenage pregnancy has gone up to 27 percent in 2015. – National-level respondent

Most of women do associate cancer and contraceptive. Thus there is a need of providing more education to the community. – District-level respondent

According to one district-level respondent, the FP education should also extend to health facility staff. The respondent questioned the rationale for including youth in FP efforts if they have not reached reproductive age. While acknowledging that communities are not well-educated on FP, she asked, "Why include youths in FP while they have not reached a time to get pregnant?"

Respondents suggested trainings for staff, especially FP service providers and those who interact with the health information system. The perception is that these personnel lack the knowledge and expertise to effectively provide quality FP services and manage data or work on the information system. One respondent from the district level explained:

Training should be provided to FP providers and updating them on new FP methods; this would be important for us.

Two other respondents noted the importance of training service providers on long-term FP methods.

FP is doing well but service providers are very few. They should be trained to be competent in all kind of methods especially long-term methods, as most service providers are not competent on these methods. – Health centre incharge

Service providers expressed frustration at the lack of training on the HMIS.

We are not aware of many updates, we are not taken to trainings, the ones who are taken to training are not even dealing with HMIS, and we don't even know them. We are the ones who work on this system but we are not given training. – HMIS focal person

Information shouldn't be used in HMIS [MTUHA system]. [It] is boring, because it operates manually; education should be provided on how to use electronic methods. – HMIS focal person

Most respondents acknowledged a data gap in the HMIS, especially with FP information from private facilities. Many participants suggested that the system should include all information from all service provision units including public health facilities, private health facilities, accredited drug dispensing shops, and outreach services.

The system should be formalized to be available even in private facilities and to have a system where information will be captured, stakeholders from private sector need to be encouraged and trained at council level. Moshi District Council reported that they have been able to create a local tool that captures all FP information from government and private facilities. – Regional health secretary

DISCUSSION

The study findings revealed a high level of awareness of routine FP data collected in health facilities. However, there was a lack of agreement regarding when the data gathered. For instance, some respondents reported that FP data are collected during prenatal visits, while others disagreed, indicating a lack of understanding among service providers and key FP stakeholders.

There was also a discrepancy in responses to the source of FP information. One-third of the respondents did not think that FP data can be collected from youth presenting themselves at health facilities, indicating their limited acknowledgement of youth's need for FP. According to the 2012 Population and Housing Census (National Bureau of Statistics, 2012), Tanzania has 8,297,772 youth (defined as those 15–24 years old), who constitute nearly one-fifth of the entire population. Another 19,171,107 members of the population (45%) are children (0–14 years old) who will soon enter the youth age bracket (United States Agency for International Development & ICF International, n.d.). Ignoring the health needs of these two groups, who together make up almost two-thirds of the population, will affect economic growth and lead to a missed opportunity in harnessing gains from a demographic dividend.

Another discrepancy was that some participants acknowledged that the current data collection tool includes mobile and outreach services, and other participants disagreed. This raised concerns regarding adequacy, completeness, accuracy, and reliability of data. These concerns may have a bearing toward informed decision making.

Many personnel working in the health sector do not have a good understanding of the HMIS and its potential for data analysis and use. They reported their major interactions with the HMIS to be collecting data and reporting service statistics to districts. Staff are confused by DHIS 2 and MTUHA; some respondents see the two systems as the same, while others consider them quite different. The study findings also showed a lack of unified understanding of what should be done at what level when it comes to data analysis.

The study findings confirmed that the adequacy of data is one factor that influences the use of routine information in decision making. Some respondents declared that they cannot rely on data for decision making, because of data gaps. Thus, the available data do not reflect real need. This implies that adequacy of FP data affects decision makers' ability to effectively use the data, which affects the allocation of resources.

For an HIMS to function effectively and be used as a reliable resource for health planning and budgeting, it must capture all relevant health data—not just data from public health facilities. Currently, the HMIS does not support the private sector, such as accredited drug dispensing facilities. Therefore, not all FP

consumption data are collected, which limits decision makers' ability to accurately rely on the HMIS to estimate service needs.

Another impediment to the functionality of the HMIS as a tool for decision making is limited staff capacity to manage FP stock and provide long-term FP methods, both of which deny access to those in need. Because the HMIS is one of the key building blocks in a health system, its performance affects the rest of the health system. A poor HMIS impedes attempts to improve health for all (a Sustainable Development Goal) and reach 4.2 million women in Tanzania by 2020, as has been committed by Family Planning 2020 (Family Planning 2020, 2017).

Data collection and submission to the district level seems to be emphasised more than data analysis and use for decision making. Nearly all the respondents (29; 96.7%) acknowledged that several decisions have been made based on routinely collected data. It appears there are no guidelines or systems for data use for decision making; rather, data analysis and use has more to do with the leadership than the information system.

Service providers are required to collect data while providing services. This increases their work burden, because a single person performs two tasks simultaneously. This has implications for data quality, which is exacerbated by the additional step of starting with a paper-based tool and then transferring the information to an electronic tool at the district level. Facility-level staff focus only on data collection and compilation and neglect data analysis and interpretation. The current setup offers little incentive for those collecting the data actually to collect accurate and complete data that can be useful. As such, the entered data are often inconsistent and prone to errors.

RECOMMENDATIONS

Based on the study findings, we developed the following recommendations:

- 1. Support further studies to examine how to include data from the public sector, private sector, and community outreach in the HMIS.
- 2. Develop specific guidelines for data collection, data analysis, and data use, bolstered by structured and systematic on-the-job training for staff.
- 3. Address the poor information and technology infrastructure for data collection, such as the inadequate supply of computers and unreliable Internet access, so that the HMIS can be fully functional.
- 4. Include on-the-job training for service providers on youth FP services, population dynamics, and the demographic dividend.
- 5. Revise guidelines for planning and budgeting to require evidence from routine data collection to justify what is being planned or budgeted. This will foster a culture of health information use in planning and allocating resources.
- 6. Advocate that the Government of Tanzania establish data-quality mechanisms to improve data completeness, accuracy, and reliability.
- 7. Integrate the health information systems so there is one system from the dispensary level to the national level.

CONCLUSION

Despite commendable changes to the HMIS in Tanzania, many challenges still need to be addressed: low technical capacity of data collectors, data-quality issues, a poor system for data analysis and its use at different levels of the health system, and parallel data collection systems (MTUHA and DHIS 2). The lack of a system to ensure data are captured from public, private, and outreach services is another intricate issue that has not been addressed across the study areas.

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APPENDIX A. INTERVIEW GUIDE FOR HEALTHCARE PROVIDERS AND HEALTH SERVICE ADMINISTRATORS

Facility name:
Facility type:
Interview No:



District:	 		
Region:			
0			

"Every Life of a Mother and Child Counts"

DATA COLLECTION TOOL FOR MEASURE EVALUATION FAMILY PLANNING RESEARCH IN TANZANIA:

1. Existing health information systems in use:

a. What kind of routine health information on maternal and child health (MCH) is collected at this health facility?

No	Type of information	When is it collected
110	Type of information	when is it concered
11		
1.1		
12		
1.0		
1.3		
1 /		
1.4		
15		
1.5		

b. What kind of FP information is collected at this health facility from the client?

No	Information	When is it collected	Frequency
		(time of the year)	(how often)
1.1			
1.2			
1.3			
1.4			
1.5			

c. Do you collect the above FP data during:

i.	Prenatal visit	s? YES NO					
ii.	Postnatal vis	its? YES JO					
 111.	Other period	(Mention)					
Which	Which is the source of information in 1b above						
	(i)	Women YES NO					
	(ii)	Men YES NO					
	(iii)	Youth YES NO					
	(iv)	Others (Mention)					
Do you collect DHIS 2 (Community based info) information? YES NO							

If **YES**, go to Question (f) below. If **NO** skip to Question (g)

f. Which DHIS 2 information do you collect?

d.

e.

No	Type of information	When is it collected	Frequency
		(time of the year)	(how often)
1.1			
1.2			
1.3			
1.4			
1.5			

- g. Does the tool you use include Outreach and Mobile services data? YES 📃 NO 🗌
- h. Are the information collected through HMIS (MTUHA) linked to DHIS 2? (Not applicable at Dispensary and Health Center)

YES NO If **YES**, proceeds to Question (i) below, If **NO** skip the Question.

i. Explain how information collected through the two systems is linked to each other? (Not applicable at Dispensary and Health Center)

2. Who is involved in HIS at every level (Government and other key stakeholders?) (District, Regional, and National)

This section aims to identify officials and other key stakeholders involved in the information chain at every level from data entry, analysis, and consumption for decision making. Also, it intends to find out who is actually responsible for using the aggregated HIS data to make FP budget decisions including where and when data aggregation takes place, by whom, and for whom.

Level	Gvt official	What they do	Stakeholder	What they do	When
District					
Hospital					
Regional					
Hospital					
National					
RCHS					

a. What exactly do these actors do? (Collection, collation, analysis, sharing, use, etc.)

b. Explain how the output of their work is used and passed upwards and downwards?

3. How adequate are the data?

Through this question, the study aims to understand if the data collected are adequate to enable decision making at various levels on issues regarding **Access** to, **Equity**, and **Quality** of services into account.

Equity does the information provide the required base for desiries makers to take into account t
Equily: does the information provide the required base for decision makers to take into account in
needs of marginalized groups such as young people and those living distant from facilities?
Quality of the services: is the information relevant to enable the health system to plan and provide
<i>Quality of the services:</i> is the information relevant to enable the health system to plan and provide a wide range of services and give desired choice to clients?
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- 4. How are the data analyzed throughout the information chain and data utilization system?
 - a. Please explain how data are analyzed at different levels of the health system.

b. Are there any decisions made based on the data collected (e.g., increasing or decreasing contraceptives orders influencing increase in service use, budget allocations)?

Level	Is data analysis happening at this level? Give example on what type of data are analysed and how.				
	(Researcher may verify output)				
Dispensary					
Health					
Centre					
D' . ' .					
District					
Hospital					
Regional					
Hospital					
Hoopital					
National					
Hospital					

5. What can be done to make the system work better?

a. Is it possible to harmonize HMIS and DHIS 2 and streamline the two tools for improved outputs?

b.	Are there any	actors who	can make	the changes	that you	desire to se	e happen?
υ.	The there any	actors who	can mane	the changes	mai you	desire to se	e nappen.

c. Do you have any other information related to FP that you would like to share?



APPENDIX B. ETHICAL CLEARANCE CERTIFICATE



THE UNITED REPUBLIC ' OF TANZANIA



Ministry of Health, Community

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17th January 2017

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NIMR/HQ/R.8a/Vol. IX/2391

Dr Peter Simon Bujari Health Promotion Tanzania Head Office 12 Senga Road, Mikocheni A C/O Dr Cosmas W Swai, Reproductive and Child Health Section, Ministry of Health, Community Development Gender, Elderly & Children 6 Samora Machel Avenue P.O. Box 9083, 11478 DAR ES SALAAM

CLEARANCE CERTIFICATE FOR CONDUCTING MEDICAL RESEARCH IN TANZANIA

This is to certify that the research entitled: Enhancing the Utilization of Routine Health Information on Family Planning to Influence Allocations in Tanzania (Bujari P S *et al*), whose Local Investigator is Dr Cosmas W Swai, Reproductive and Child Health Section, Ministry of Health, Community Development Gender, Elderly & Children, has been granted ethical clearance to be conducted in Tanzania.

The Principal Investigator of the study must ensure that the following conditions are fulfilled:

- Progress report is submitted to the Ministry of Health, Community Development, Gender, Elderly & Children and the National Institute for Medical Research, Regional and District Medical Officers after every six months.
- 2. Permission to publish the results is obtained from National Institute for Medical Research.
- 3. Copies of final publications are made available to the Ministry of Health, Community Development, Gender, Elderly & Children and the National Institute for Medical Research.
- Any researcher, who contravenes or fails to comply with these conditions, shall be guilty of an offence and shall be liable on conviction to a fine. NIMR Act No. 23 of 1979, PART III Section 10(2).
- 5. Site: Kilimanjaro and Mara Regions.

Approval is for one year: 17th January 2017 to 16th January 2018.

Name: Prof. Yunus Daud Mgaya

Signature CHAIRPERSON MEDICAL RESEARCH COORDINATING COMMITTEE

CC: RMO Kilimanjaro, Mara DED DMO Name: Prof. Muhammad Bakari Kambi

Signature CHIEF MEDICAL OFFICER MINISTRY OF HEALTH, COMMUNITY DEVELOPMENT, GENDER, ELDERLY &CHILDREN

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