# EVALUATION OF RESULT BASED FINANCING PROGRAM AT PRIMARY HEALTHCARE FACILITIES: DATA QUALITY IMPROVEMENT IN HEALTH MANAGEMENT INFORMATION SYSTEMS:

## A CASE OF MAFIA DISTRICT COUNCIL

**By**

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**Dissertation Submitted in Partial Fulfillment of the Requirements for the Degree of Master of Science in Health Monitoring and Evaluation of Mzumbe University**

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## CERTIFICATION

We, the undersigned, certify that we have read and hereby recommend for acceptance by the Mzumbe University, a research report entitled; **"*Evaluation of Result Based Financing Program at Primary Healthcare Facilities: Data Quality Improvement in Health Management Information Systems in Mafia DC"*** in partial fulfillment of the requirements for award of the Degree of Master in Health Monitoring and Evaluation of Mzumbe University.

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## DECLARATION AND COPYRIGHT

**I, Nahoda, Hassan** declare that this dissertation is my original work and that it has not been presented and will not be presented to any other university for a similar or any other degree award.

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Date: _____

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## DEDICATION

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## LIST OF ABBREVIATION

| | |
|---|---|
| AIDS | Acquired Immune Deficiency Syndrome |
| BMGF | Bill and Melinda Gates foundation |
| CCHP | Comprehensive Council Health Plan |
| CDC | Centre for diseases control |
| CHF | Community Health Fund |
| CHMT | Council Health Management Team |
| CMT | Council Management Team |
| CTC | Care and treatment Clinic |
| DANIDA | Danish International Development Agency |
| DC | District Council |
| DFADT | Department of foreign Affairs, Trade and Development |
| DFID | Department for International Development (UK) |
| DHIS2 | District Health Information Systems |
| DMO | District Medical Officer |
| DRCHCo | District Reproductive Children Health Coordinator |
| EHIS | Electronic Health Information Systems |
| EPI | Expanded Program on Immunization |
| GAVI | Vaccines and Immunization |
| GFF | Global Financing Facility |
| GFTAM | Global Fund to Fight AIDS, TB, and Malaria |
| GIZ | Deutsche Gesellschaftfür Internationale Zusammenarbeit |
| HCWs | Health care workers |
| HFGCs | Health Facility Governing Committees |
| HFi/c | Health facility in charge |
| HFs | Health Facilities |
| HIS | Health Information Systems |
| HIV | Human Immune Virus |
| HMIS | Health Management Information Systems |
| HMN | Health Metric Network |
| HMT | Health Management Team |
| HRMIS | Human resource management information systems |

| | |
|---|---|
| ICTs | Information Communication and technologies |
| IDI | In-depth Interview |
| ID card | Identity Card |
| IMR | Integrated Medical Record |
| JHPIEGO | Johns Hopkins Program for International Education in Gynecology and Obstetrics |
| LGA | Local government Authority |
| LMICs | Low and Middle-income countries |
| M&E | Monitoring and Evaluation |
| MOHCDGEC | Ministry of Health Community Development Gender, Elderly and Children |
| MOHSW | Ministry of Health and Social Welfare |
| MSH | Management Science for Health |
| *MTUHA* | Mfumo wa Taarifa za Huduma za Afya |
| NACP | National Aids Control program |
| NBS | National Bureau of Standards |
| OPD | Outpatient department |
| PAS | Patient administration systems |
| PATH | Program for Appropriate Technology in Health |
| PEPFAR | United States President's Emergency Plan for AIDS Relief |
| PMCT | Prevention of Mother to Child Transmission |
| PORALG | President's Office Regional Administration and Local Government |
| PRISM | Performance of Routine Information Systems Management |
| RBF | Result Based Financing |
| RCH | Reproductive Child Health |
| RHMTs | Regional Health Management Team |
| TASAF | Tanzania Social Action Fund |
| TB | Tuberculosis |
| UNAIDs | United Nation Acquired Immune Deficiency Syndrome |
| UNICEF | United Nations International Children's Emergency Fund |

| | |
|---|---|
| USAID/K | United State Aid in Kenya |
| VHW | Village health worker |
| WB | World Bank |
| WHO | World Health Organization |

**ABSTRACT**

The study evaluated result based financing program at primary healthcare facilities, Specifically, it intended to examine the RBF HMIS training on data quality improvement in HMIS at Primary healthcare facilities, examine the extent by which RBF data sharing meeting on data quality improvement in HMIS at Primary healthcare facilities, and evaluate the RBF supportive supervision on data quality improvement in HMIS at Primary healthcare facilities in Mafia DC

A descriptive cross-sectional evaluation design was employed and a mixed method was used where simple random sampling techniques were used to select health care workers from RBF facilities. The self-administered questionnaire was employed and purposively technique was used to select key informants from RBF facilities to participate in an in-depth interview. Quality of health management information systems for managing patients and managerial issues was poor 38.4% in 2017 due to poor knowledge of health workers towards data collects, processing, analyzing and use for further improvement of health services provision. Obviously, this has a profound effect on service quality, customers' satisfaction, health facilities' performance and profitability, increasing morbidity, disability, and death, which also affects stability and economic activities of a country.

The findings revealed that the majority of respondents attended training on HMIS data, it's about 89.9% of them. When supportive supervision on HMIS data towards the quality of HMIS data was assessed, many showed to have contributed to data quality on HMIS data. Moreover, the researcher found data sharing meeting for health staff attended at least in on time which was noted to have great contribution to the improvement of the quality of HMIS data in their facility. The study noted that RBF program has increased health providers' capacity to collects, analyze and use data in promote quality of health services provision. The health workers acquired knowledge and skills on collecting, analyzing, presenting, and using data. However, health care workers claimed that sometimes due to excessive workload they did not have enough time for data collecting and submitted timely to CHMT.

The study concluded that RBF program has increased the improvement of data quality in health management information systems. The RBF program increased knowledge of healthcare workers in perspective of data collections, analysis and use at Primary healthcare facilities in Mafia DC.

The study recommended that more initiatives should be carried out by the government and other stakeholders to advocate on improvement of data quality in HMIS to other districts and regions that are not implementing RBF program. This willpower progressively changes the outlook of health staff towards data collection, analysis, and use in decision making.

Key word: Evaluation; Result Based Financing; Data Quality Improvement

## OPERATIONAL DEFINITIONS

**Data** is defined as theoretical representing of selected uniqueness of each world subjects, actions and concepts articulated understood through clearly definable conventions related to their meaning, collection and storage (Sebastian, 2013)

**Data Quality** is the extent to which data meet the precise need of exact clients. One client may find the data to be of high value while another finds the same data of low value (Redman, 1998). The data quality in HMIS data for RBF program is measured by level of data verification scores in the facility.

**Data quality assessment** is a determination of accuracy, reliability, completeness, uniqueness, consistency, precision and validity of the data for the organization (Bruce, 2014).

**Logic Model** is a visual and systematic way to illustrate program theories by showing the relationship between components of a program and its expected effects. It shows the relations among needed resources to make the program operational, planned activities and changes or results that the program intends to achieve (McCauley, 1914).

**A conceptual framework** is defined as a network that presents linkage of concepts so as to provide a broad understanding of a phenomenon or phenomena, and elaborates a research problem by summarizing the variables in relation to objectives of the study and reviewed literature (Jabareen, 2009)

**Data verification** is defined as assessing data accuracy, completeness, consistency, availability and internal control practices that serve to determine the overall reliability of the data collected (Bielak, 2003).

**Goals** are general guidelines that explain what you want to achieve in your organization (Vassar & Michigan, 1998/9).

**Objectives** define strategies or implementation steps to attain the identified goals (Vassar & Michigan, 1998/9).

**Supportive supervision** is defined as an approach to supervision that emphasizes mentoring, joint problem solving, and two-way communication between the supervisor and those being supervised (NASTAD Global staff, 2016).

**Health** is defined as a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity (WHO, 2011).

**Health management information systems (HMIS)** is defined as a set of integrated components and procedures organized with an objective of generating information which will improve health care management decisions at all levels of the health system (MoH , 2010).

**Result based financing (RBF)** is defined as an instrument that links financing to pre-determined results, with payment made only upon verification that the agreed-upon results have actually been delivered (The World Bank, 2013).

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# CHAPTER ONE
# INTRODUCTION

## 1.1 Introduction

This chapter covers the key aspects of the evaluation of data quality improvement in health management information systems. It starts with the background information of the study on assessment of HMIS in Public Health Facilities. After the background information, the chapter proceeds to highlighting the statement of problem, evaluation questions and objectives, and the significance of evaluation.

## 1.2 Background

Data quality improvement in health management information systems is played a great role to advocacy quality of health services provision in Public and private institutions in health sectors. This is very common means of sources of data in the health facilities and institution including Dispensary, Health centre, Hospital, Referral Regional hospital, Zonal consultant hospital and National hospital as well as others Healthcare institution. The data collected from health facilities provide clear image of strength and weakness of health facilities, socio demographic, health status, health services, and health resources at specific locality. The data are collected by health personnel like Physicians, Nurses, Lab, Pharmacist, health informants, Data Manager, Data Clerk, HFi/c, DHMIS Coordinator, by supervisors (CHMT&HMT), and through routine health facility surveys. The sources of data in heath industry are clients/patients records, records of services delivered, and records of health resources (Measure Evaluation, 2016).

However, health management information systems a useful health care delivery tool, is an important component of the health system building blocks. Health information system is not new. It can be traced back to over 4,000 years ago, where clinicians in medieval Islamic era were the first to record patient medical information and have transformed medical records earlier than their western counterparts. As technological advancement transformed the world of records keeping, a front foot in patient information documentation has accelerated into digital medical records. This influenced the ways on how patients are categorized, treated and managed in faster and often in an easier manner (Sheikh, 2014)

Historically, Hospitals in the United States being among the first, in the 1800, to hold this revolutionary health services have begun to organize patients' records, first primarily aimed as an aid for teaching. Over the recent decades, as the volume of patients' information rapidly increased and with the appearance of technological and digital advancement, the development and use of electronic health records for various purposes evolved and advanced, sometimes outpacing other scientific utilities. This has thus resulted rapid growth over the past decade that contributed to the advancement of diseases management and health service delivery efficiency (Sheikh, 2014)

Globally several strategies have been made to improve health management information systems (HMIS) worldwide and sub-Saharan Africa including Tanzania. The numerous development partners have been planned and used huge resources to invest in health information systems worldwide because they believed that through much investing on this field so many projects/programs might bring impacts as intended. The World health organization introduced Health Metric Network (HMN) based on assessing the National Health Information System mainly purpose of this is to progress global health by growth the systems that generate health-related information for evidence-based decision-making. HMN is the first global health partnership that focuses on two core requirements of health system escalation in low and low-middle income countries. This helped to enhance entire health information and statistical systems, rather than focus only upon specific disease a second to concentrate efforts on strengthening country leadership for health information production and use. The Components and Standards of a Health Information System includes HIS resources, indicators, Data sources, data management, information products and dissemination and use (WHO, 2008).

In Sub-Saharan countries face with inequitable digital advance has long been regarded responsible for the widening gap in the health and socioeconomic prosperity of many developing countries, particularly Africa's resource poor nations. There are two main gaps in health information system in Africa; the health information knowledge gap, and the synthesis of existing knowledge to utilize to better the health outcome for the population (Sheikh, 2014).

The gap in translation and sharing of health information and new research outcome hinders the development of functional health system and ultimately quality health service delivery. Furthermore, this is compounded by the lack of readiness of many African institutions for the fast pace of the technological rise. In its report of the 11$^{th}$generalprogramme of work (2006-2015), WHO has identified knowledge gap as one of the gaps responsible for developing countries lagging behind in health service delivery. In recent years, with the rapidly growing stride in digital sciences around the globe, only few African countries have had considerable progress to commit significant portion of their resources to health care research and use DHIS as important gateway to reaching most of their population health care needs. In acknowledging the potential DHIS brings to these nations, WHO has encouraged developing countries establish DHIS for better health care service delivery (Sheikh, 2014).

In Tanzania HMIS was fully rolled out to all regions in 1997. Since the introduction of this HMIS (the MTUHA system), there have been no comprehensive revisions. The expansion of reportable conditions and the advent of vertical programs with their own demands for data have rendered the HMIS inadequate, resulting in multiple and duplicative data collection and reporting subsystems. With the current scarcity of staff and other resources, these subsystems have rendered the MTUHA even more unresponsive to the information needs of the MOHSW and captured data is not only inaccurate but also incomplete and reported late (USAID, 2013). In future the RHIS is looking to invest on Data Quality Assessment (DQA) focusing to support councils and facilities to improve data quality at all levels. The CHMTs and RHMTs should be promoted on health data collection, analysis, interpretation, dissemination and use.

The capacity building on M&E and DHIS2 for CHMTs and RHMTs is highly needed to improve the performance and to conversant with this system.

Nevertheless, URT together with development partners put more emphasize on the RHIS for rational decision making for example has become host of launch of Health data Collaborative to establish one Monitoring and Evaluation Framework for the Health Sector of the Government of Tanzania took place in Dar es Salaam, whereby 145 participants attended across the Ministry of Health (including M&E Unit, ICT Unit), PO-RALG, and partners including Kenya Ministry of Health, WB/GFF, CDC, USAID, BMGF, GIZ, Data for Health, DFID, DFADT Canada, DANIDA, Swiss Embassy, Irish Aid, WHO, UNICEF, UNAIDs, PATH, MSH and Jhpiego. The agenda aimed to improve the data collection, use and dissemination of data (THDC, 2017)**.**

### 1.3 Description of program to be evaluated

#### 1.3.1 Introduction

RBF for Health – "a cash payment or non-monetary transfer made to a national or sub national government, manager, provider, payer or consumer of health services after predefined results have been attained and verified (MoHSW, 2016)

RBF program is relatively new strategy that has a potential to reform the health sector with a system-wide effects on services delivery, leadership and governance, human resources, health management information systems, medicines and health technology. The program intends to involve the payment of financial rewards to health facilities and health workers based on their achievement of performance targets.

The Pilot of this program in Tanzania was started in Shinyanga region, specifically at Kishapu District, involving 41 Dispensaries, 4 Health Centres of Kishapu and 1 District Hospital of Kahama involved on RBF system from April 2015.Later on other 8 regions in Tanzania including Geita (2018), Kigoma (2018), Kagera (2016), Simiyu (2017), Tabora (2017), Mara (2018) and Pwani region (2016) implementing the program. The RBF payments are made to health facilities giving out 75% of funds received for facility investment and operating expenses; and 25% for staff incentives. In 2005, the World health assembly described universal coverage as "access to key to promote, preventive, curative and rehabilitative health interventions for all at affordable cost, thereby achieving equity in "access". Therefore, the MoHCDGEC is

implementing this program to improve accessibility, utilization and quality of health services to respective communities (MoHSW, 2016)

### 1.4 RBF Program Goal

The goal of RBF is to support the government health system to pace up the attainment of Universal Health Coverage in order to ensure that all people obtain the required health services to promote preventive, curative, palliative and rehabilitative health interventions for all at an affordable cost.

### 1.5 RBF Program Objectives

Specifically, the program aims at;

(i) Increase utilization of specified health services in health facilities
(ii) Increase quality of service provision
(iii) Incentivize more focused health workers and management teams
(iv) Strengthen leadership and governance in health systems
(v) To improve health management information systems
(vi) Increase accessibility of medicines and health technology in health facilities at Health facilities (MoHSW, 2016)

This study has then focused on one of the objective of the program which is 'To improve health management information systems'. As part of RBF program, the study will assess the contribution of Result Based Financing program on improving routine health management information systems performance at public health facilities.

### 1.6 RBF Program Major Strategies

The program has the following strategic areas

1. Disbursement of funds to the service providers after internal data verification.
2. Facilitation to ensure effective functioning of LGA to bring about the desired outcome by providing indirect or unobtrusive assistance, guidance and supervision to health facilities, councils and regional secretariat
3. Purchasing specified management services from the health providers.
4. Development of policies, guiding documents and tools used for the RBF system.
5. Verification of internal and external results. The Internal Verification (Monitoring) validates results reported by service providers so as to ensure

payment is done for the real results. External Verification (Evaluation) is for counter-checking the internal verification if it was of sound quality and quantity.

6. Capacity buildings to health care providers in aspects of Health management information systems, leadership and governance as well as logistics of medicines and health technology so as to ensure regular availability of medicines at facility level

### 1.7 Program activities and resources

#### 1.7.1 Activities

In Mafia DC the RBF program is implementing the following activities:

i. Data collection and verification, the RBF team assisted with RHMT do conduct quarterly data collection and assessment and as well provide technical assistant as needed to all supported facility
ii. Display of data and feedback; this is another activity in which the program team assisted with RHMT do conduct after data collection at facility they tend to provides the feedback to respective facility and CHMT so as to addressed all challenges at facility level.
iii. Quarterly data sharing meetings, the RHMT call for meeting to all district to discuss the challenges that raised during data collection and feedback as RHM has a tendency to provide award for the best district and make the regional action plans to address all challenges at facility level
iv. Data quality assessment (DQA), The RBF team from Ministry health does conduct the data quality assessment to supported facility at twice per year.
v. Capacity building to health facility staff and R/CHMT about Leadership and management, health management information systems, medicines and health technology as well as capacitate the Members of Health facility governing committees and Community health workers (CHWs)
vi. Supportive supervision the CHMT have tendency to conduct supportive supervision to respective facility before data verification from RHMT

These activities will all contribute to improve health management information systems to all supported sites particularly in Mafia District Council

### 1.7.2: Resources

For the program to perform well in routine health management information systems, the following resources must be in place:

Funds, Human and physical resources: For proper provision of care, human resources need to be supervised, well managed and trained. Physical resources refer to general facilities infrastructures, which include building, medical and non medical equipments, vehicles and furniture, medical and office supplies

### 1.8 Program logic model

A logic model is referred to the systematic and visual way of presenting and sharing the understanding of the relationships among resources you need to operate to the program, the activities you plan and changes or results you hope to achieve (Kellogg, 2004). The logic model lays out which inputs are necessary for the program activities (process), expected outputs as well as short and long term outcomes of the successful program implementation. The following below are logical model of RBF program

**Table 1.1: Program Logical Model illustrations**

| INPUTS | PROCESS | OUTPUT | OUTCOME | IMPACT |
|---|---|---|---|---|
| • Fund<br>• Human resources<br>• HMIS policy and guidelines<br>• HMIS books<br>• Training Materials<br>• Vehicles<br>• Stationary<br>• Computer accessories<br>• Supportive supervision checklist<br>• DQA checklist<br>• RBF Guideline and protocol | • Display of data and feedback | • Percentage of RBF indicators displayed | Improved quality of HMIS data | Improved health systems performance |
| | • Data sharing meetings | • Number of Meeting conducted | | |
| | • Data quality assessment (DQA) | • Number Health facility assessed in data quality | | |
| | • Supportive supervision in HMIS | • Number of Supportive supervision conducted | | |
| | • Training in HMIS | • Training provided to HCWs | | |

### 1.9 Key Potentials RBF Program stakeholders

Key stakeholders in the scheme who also have interests in this study includes MoHCDGEC, Council Management Team (CMT), R/Council Health Management Team, Facilities Management team, Village/community Health workers, Village Health Committees, Health facilities Governing committees (HFGCs) and Community

These stakeholders have different levels of interests in the program, different levels of communications with RBF program and they also have diverse levels of attention into the evaluation of the program.

**Table 1.2: Stake holders' assessment and engagement matrix**

| Stakeholders | Role in the program | Interest or perspective on evaluation | Role in the evaluation | Means of communication | Participation level: High, Medium, Low |
|---|---|---|---|---|---|
| **MOHSW** | Regulator | Effectiveness and efficiency | Technical Advisor and Guidance | Reports, emails and telephones | High |
| **NHIF** | Purchaser | Effectiveness and efficiency | Technical Advisor and Guidance | Reports, emails and telephones | High |
| **MOF** | Fund holder | Effectiveness and efficiency | Technical Advisor and Guidance | Reports, emails and telephones | High |
| **All Public health facilities, RHMTs and CHMTs** | Provider | Effectiveness and efficiency | Implementers and Supervision | Reports, emails and presentation | High |
| **IAG/CAG** | Verifier | Effectiveness and efficiency | Technical Advisor and Guidance | Reports, emails and telephones | High |
| **CMT** | Supervisor | Effectiveness and efficiency | Supervision and advices | Reports, emails and telephones | Medium |
| **PMO-RALG** | Facilitator | Effectiveness and efficiency | Technical Advisor and Guidance | Reports, emails and telephones | High |
| **HFGCs** | Supervisors | Effectiveness | Supervision | Reports and Presentation | Medium |
| **Villages/CHWs** | Implementation | Effectiveness | Implementers and information | Reports and Presentation | Medium |
| **Community** | Beneficiaries | Better services | Information | Reports and display on Notice boards at respective Health facilities | Low |

**Source:** Researcher's construct (2019)

### 1.10 Statement of the problem

Health management information system is vital for heath interventions that use important health indicators to evaluate the performance of health services delivery in the health facilities. The poor routine health information utilization at facility level, which greatly decreases effectiveness, efficiency and service quality, becomes a key challenge to the world, mainly to developing countries. The health management information system in heath industry was poor 38.4% due to residence, poor knowledge of healthcare workers, shortage of heath staffs in performing HMIS tasks in the facility, and HMIS facilities related factors. Obviously, this has a profound effect on service quality, customers' satisfaction, health facilities' performance and profitability, increasing morbidity, disability, and death, which also affects stability and economic activities of a country (Lee & Asemahagn, 2017). The new HMIS focuses on action oriented use of information for management at each level of the health services and by providing timely quality information to all stakeholders in Tanzania. By December 2013 DHIS 2 performance report shows that reporting level has been increased to all districts with an average of 68% remaining with 12% to reach the national target of 80% (MOHSW, 2013).

Umezuruike et al (2017) study, reported that the problem of quality of HMIS data is a challenge and is linked to lack of knowledge and practice among the health workers. This is characterized by insufficient analysis skills, lack of initiative for using information, lack of clear understanding of the purpose users and flow pattern of health data collection (Ansael, Swai, Masue, 2019). The identified challenges are contributed by, inadequate funding, inadequate ICT facilities, training, knowledge gap, incompatibility and interoperability problems, and user engagement problems, among others. In addition, the HMIS/DHIS2 performance report recognizes the increased uses of information at high level for planning and decision-making. Despite these efforts and positive changes in data quality and availability still quality of HMIS data in health setting at the lower level is minimal (MOHSW, 2013).

The level of data quality in HMIS in implementation of RBF program in Mafia DC is measured by data verification scores. The data verification scores have a potential role to play in harnessing the improvement of health services delivery at Mafia DC. Since the HMIS data are the main source of information for individual client/patient and

health facility management, if used and managed effectively, such routine data can provide required information for decision.

At Mafia District council through RBF program, the RBF program initialed various interventions that include orientations/training, supervision and data sharing meetings on HMIS has been conducted to health staff aimed to improve the quality of HMIS data. However, the evaluation of Result Based Financing Program at Primary Healthcare Facilities: Data quality improvement in Health Management Information Systems in Mafia DC has not been adequately carried out. Therefore, this study, intended to assess the contribution of Result based financing program on improving quality of HMIS data at Mafia DC.

### 1.11 Evaluation questions and Objectives

#### 1.11.1: Evaluation Questions

i. To what extent does the HMIS training given to HCWs improve data quality in HMIS at Primary healthcare facilities in Mafia DC?
ii. To what extent does data share meetings improved HMIS data quality at Primary healthcare facilities in Mafia DC?
iii. To what extent is the supportive supervision improved data quality in HMIS at Primary healthcare facilities in Mafia DC?

#### 1.11.2: Evaluation Objectives

The main Objective of this evaluation is to evaluate the Result based financing program on data quality improvement in HMIS at Primary healthcare facilities in Mafia DC.

#### 1.11.2.1 Specific objectives of the evaluation are as follows

i. To examine the RBF HMIS training on data quality improvement in HMIS at Primary healthcare facilities in Mafia DC
ii. To examine the extent by which RBF data sharing meeting on data quality improvement in HMIS at Primary healthcare facilities in Mafia DC
iii. To evaluate the RBF supportive supervision on data quality improvement in HMIS at Primary healthcare facilities in Mafia DC

### 1.12 Significance of evaluation

The study is designed to evaluate the extent to which RBF program contributed to the performance of HMIS in the Mafia District Council. The Study findings will have a great role in data quality improvement in heath management information systems in the District and nation at larger. It will be used as evidence for improving planning and decision making in managing and implementation of Health services. This study will also be utilized as a source of reference for further studies with regard to gaps that need to be realized in health sectors context. The expected results presented in this study will assist in policy formulation in data quality improvement in HMIS as well as assist on what measures to be taken by the government to achieve the millennium goal in 2025.

# CHAPTER TWO
# LITERATURE REVIEW

## 2.1 Introduction

This chapter represents the review of what other scholars have done so far in relation to data quality improvement in HMIS to health facilities within and outside Tanzania. Through this presentation of literatures, the gap existing in the data quality in HMIS to health facilities will be noted. Any gapes that exist in the interventions will be addressed by this evaluation in manner that will improve the data quality in HMIS in the primary healthcare facilities and beyond.

## 2.2 Theoretical literature review

### 2.2.1 HMIS components and basic function

#### 2.2.1.1 Data acquisition

This involves the generalization the collection of accurate, timely and relevant data including extraction from paper records; direct entry into a computer system (keyboard entry, voice, touch screen, pen information capture as many forms, including speech, free text, document imaging, clinical imaging (e.g., x-rays), motion video, binary electronic data representation (e.g., laboratory values, device settings. In Tanzania especially in Public and private health facilities the data are captured for using HMIS tools whereby the patients' data are routine recorded and every months entering in the DHIS2 systems for storage and although there are some challenges in acquisition of data in the health facilities especially shortage of HMIS tools, shortage of staff these may lead sometimes data not be accurate (Joseph, 2001)

#### 2.2.1.2 Data verification

Validation is assessing whether data collected and measured are a true reflection of the performance being measured and having a clear relationship to the mission of the organization. Data are raw materials needing verification, organizing and transformation before they can be useful information. This is assessing data accuracy, completeness, consistency, availability and internal control practices that serve to determine the overall reliability of the data collected. In Tanzania basing in the Mafia District council the Health facilities usually validated their data at the end of specific month before to send them to CHMT also CHMT has a tendency of conduct quarterly data quality assurance (DQA), supportive supervision and HFs in charges meeting

discussing on issues of Data. The MoHCGDC also emphasized that all data should validated before to enter in the DHIS2 (Joseph, 2001)**.**

#### 2.2.1.3 Data storage

The preserving and achieving of data may be regarded as part of storage functions (ie a physical storage. In Tanzania especially in health sector there are several data storage means that are used for preserving and achieving of data such as in the Health facilities there are paper based tools that is HMIS tools, shelves, Computers, data base systems like DHIS2, CTC2 for HIV/AIDS data as well as Shelves also used as a means of data storage. In Mafia the all heath facilities using HMIS tools for storage of data while in the CHMT used data base systems and computed to store all data from all district HFs whereby the DHMIS, DRCHCo and some coordinators are being responsible under supervision of DMO (Joseph, 2001)

#### 2.2.1.4 Data classification

Data classification based on use of a certain key parameters for examples, data referring to a patient's population may be classified and sorted according to various diagnostic schemes (Joseph, 2001)

#### 2.2.1.5 Data computation

This is involving various forms of data manipulation and data transformation such as use of mathematical models, statistical and probabilistic approaches and other analysis process. This task allows for further data analysis and evaluation that can be used for strategic decision making purpose (Joseph, 2001)

#### 2.2.1.6 Data update

The data should be updated in order to obtain the relevant data for future purpose. In Tanzania under the MoHCDGE emphasized to all CHMT to update all data. The data should be in updated so as to archive what we expect and in the essence of improvement of quality health services by making rational strategic decision making in the health sectors (Joseph, 2001).

#### 2.2.1.7 Data retrieval

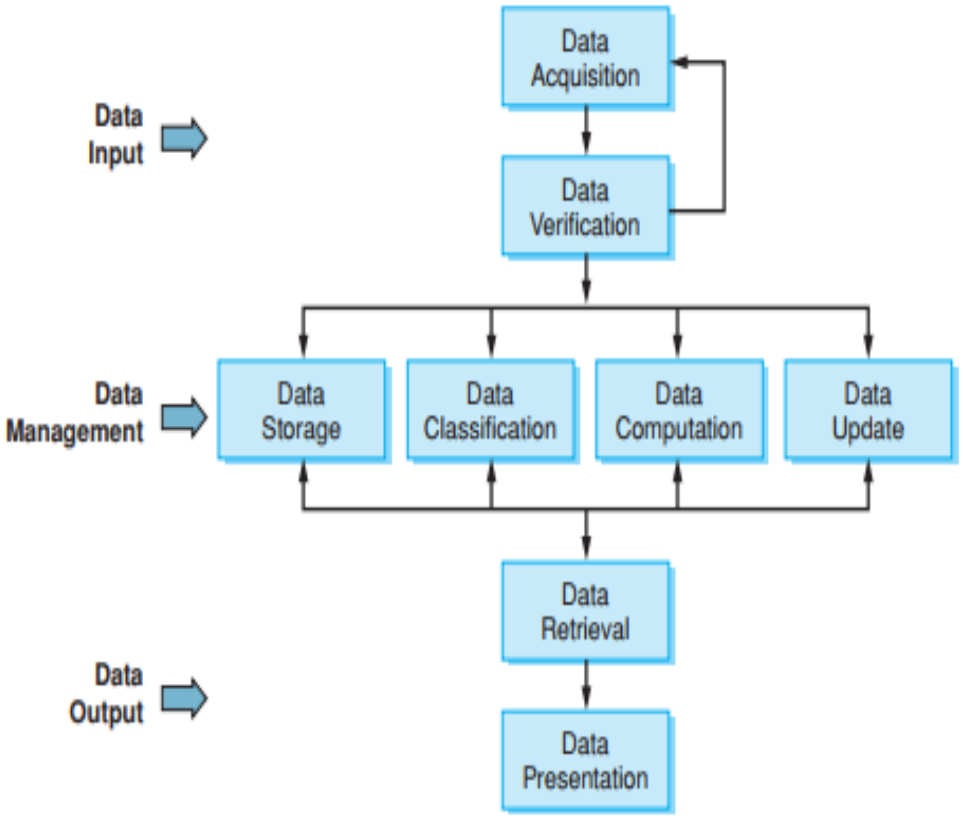
This is concerned with the process of data transfer and data distribution. In Tanzania basing in Mafia District Council the data can be transferred from Dispensary level to

the National level. The data tend to channel with different level within in health sectors (Joseph, 2001).

#### 2.2.1.8 Data presentation

This has to with how users interpret the information produced by the systems. In Tanzania the data can be presented to the responsible authority for regarding making rational decision in the planning process and also the Data can be presented to the stakeholders so as to get pictures of the trend of the project existing (Joseph, 2001). These components as shown in the **figure 2.2**

**Figure 2.1: HMIS components and Basic function**




**Source: Adapted from** (Joseph, 2001)

### 2.3. HMIS Development

In recent resource constraints, good governance, transparency and accountability have become, and consequently more attention is given to strengthening evidence-based decision-making and information systems. Also, the emphasis on tracking the practice of performance-based release of funding requested by international funding agencies, such as the Global Alliance on Vaccines and Immunization (GAVI) and the Global

Fund to Fight AIDS, TB, and Malaria (GFTAM), require increasing amounts of quality information. This trend is reinforced in the health sector by emerging infectious diseases and environmental disasters, which need timely information for action. The international donors such as UNICEF and USAID heavily influenced health information system development. Despite paying attention to management information needs, the information systems were modeled upon the epidemiological surveillance system, focusing on a single disease (e.g. diarrhea disease, or acute respiratory disease) or on a group of diseases (e.g. the Expanded Programme on Immunization (EPI) (Aqil, Lippeveld, Hozumi, 2009)

### 2.4. HMIS in developing countries

The study which conducted in South Africa, explained that there is increasing demand for health information to inform policies, priority setting, resource allocation, monitoring of the impact of health programmes, and progress towards goals. Data collection within the health system includes disease surveillance, facility surveys, and routine reporting of health service statistics. Also the same study indicated that in developing countries like South Africa there has been little evaluation of primary care information systems, particularly in developing countries. Evaluation is fundamental to ensure that the information systems are efficient, collect high-quality relevant information, and are used by care givers, managers, and policy makers. As larger amounts of money are spent on HISs, the emphasis on cost-effectiveness in health care creates new pressures to evaluate their impact and determine whether they are achieving their accepted benefits and justifying their costs. This study most focused on Computerization as means of data collection, analysis and data transfer is often offered as the answer to health information problems and excluded other means of data tools like HMIS tool, my study will focus on the both means of data collection such as paper based and DHIS2 (Garrib, Herbst, & Dlamini, 2008).

In Uganda Taking full advantage of lessons learned by pioneers around the world and others who had recent experience of HMIS reform, Malawi conceptualized, designed and implemented a simple, decentralized, action-oriented HMIS. Though the achievements made in 4 years are quite remarkable, the main aim of optimizing data quality and use have not yet been fully achieved. The support for further

strengthening must be continued until a culture of information is created in the entire health sector.

The study indicates that in Malawi until 1999, the systems used to gather information for the management of health services were too many and uncoordinated. Most were not able to produce the information required for management decision-making. Data were of poor quality and rarely used in planning and management of health services. Collection of data for performance monitoring and evaluation was not a priority in the districts. Information related to diseases, vital statistics, maternal, child and reproductive health indicators, and tracking of financial resource allocations was neither systematized nor easily accessible for proactive analysis or planning purposes. The restructuring of health information systems has become an important trend in the entire developing world since the adoption of primary health care as a global strategy for achieving the 'health for all' goals (Chet & Koot, 2005).

### 2.5 HMIS in Tanzania

In Tanzania, the first version of the health management information system was launched in 1993 and the second in 1998. The first version was entirely in English and it was soon realized upon testing that the users had limited commands in this language and was therefore technically changed to Kiswahili, the national language. The latest version involves manual data entry into 12 HMIS booklets. The system covers all health programs and health care services, and requires all health facilities, regardless of ownership, to use this system and report to the district health authority on quarterly basis. The overall goal of this system is to optimize the performance of health services at all levels of administration through the timely provision of necessary and sufficient information needed by the health managers to monitor, evaluate and plan their activities. Its success requires a system that is integrated, decentralized, functional and reliable (Nyamtema, 2010). With support and co-financing from major donor agencies, the earlier system was further developed and successfully pilot tested in the Mbeya region. Version 1 was introduced nationwide between 1994 and 1997 (Smith, Madon, Anifalaje, 2017).

Tanzania first adopted DHIS as the HMIS tool in the year of 2007. This was followed by the review of the HMIS tools to fit the current needs from HMIS and vertical program. The revised tools were customized into DHIS2 and piloted in Pwani Region

in 2011. The results of the pilot demanded another review of the tools to accommodate few changes from the stakeholders. Implementation of the tools and DHIS2 proceeded to next 5 regions in 2012. In December 2013 Tanzania completed rolling out of the HMIS tools and DHIS2 in the remaining 19 Regions. To date we are receiving data monthly from all regions and district councils. On completion of this rollout, efforts were directed towards the integration of all major vertical programs such as malaria, TB/leprosy, RCH, HIV/AIDS into DHIS2. Along with the implementation process, training programs were held for implementing partners, district and regional hospital staff, and the MoHCDGEC staff (Claud, 2014).

At the health facilities, data collection is done by hand with monthly tabulations being made in the 12 HMIS booklets. These booklets consist of forms and registers, where the registers are pre-set algorithms for data processing. The health facilities (hospitals, health centers, and dispensaries) "record data on their activities, including attendances, diagnoses, drug use and treatment, in (HMIS) registers. Further information was recorded by the village health workers (VHW) who also completed one HMIS booklet and reported to the district level. Quarterly, the compiled information was sent up the institutional hierarchy where at each stage it was compiled and ultimately the Head Office produced a national health abstract (Smith, Madon, & Anifalaje, 2017).

Currently the Government of Tanzania use District health information software2 (DHIS2) is an free and open source health management data platform used by multiple organizations, including the governments of Tanzania.DHIS2 is a development project by the Health Information Systems Program (HISP) and is used for aggregate statistical data collection, validation, analysis, management, and presentation. This data analytics and management platform is completely web-based and boasts great visualization features and the ability to create analysis from live data in seconds. DHIS 2 can be used to monitor patient health, improve disease surveillance and pinpoint outbreaks, and speed up health data access for health facilities and government organizations. The user interface of DHIS2 has been fully translated into eight languages (Kiim, 2016). Another study on Benefits and Challenges of Integrating Fragmented Health Information Systems: A Case Study of the Vaccine Supply Chain in Tanzania, the findings showed that there were several factors that contribute to HMIS gaps in health facilities including Overburdened

health workers, poor data quality can consequently lead to the data not being used for decision-making and health improvement. Although a vast amount of data may be collected, only a small proportion is synthesized, analyzed and used. Overlapping forms, providing a lot of irrelevant information are in use at the same time. With paper-based systems on facility level, this leads to a high burden for a health worker as they need to fill the same information in a range of different reporting forms by hand (Mjelva, 2017).

Similarly, a study of health information systems at local levels in Tanzania and Mozambique: Improving the use and management of improving use and management. This study finding that there are numerous challenges towards the use and management of information at local levels within the HIS which do not provide the necessary information support for decision-making including poor and inadequate resources and infrastructure for health care activities which leads poor quality of data, weak analysis of data, lack of an information culture, lack of trained personnel, HIS activities seen as a burden due to high workloads especially at the health facility level (Mukama, 2003).

### 2.6 Empirical Literature Review

The study done to examine the current challenges and opportunities faced by Africa's developing countries in Health Information System in Africa's resource poor countries results shown that the management of primary healthcare facilities is to have strengthened health staff with knowledge of data quality in heath management information systems and to be more coordinated information sharing and dissemination. Lacks of investments in health information technology are the key factors lacking in many of the African countries' strategic direction. However, despite that it remains under-resourced and uncoordinated; Africa's HMIS has great potential (Sheikh, 2014).

Muhindo *et al.* (2016) conducted the study to assess the Health Management Information System (HMIS); Whose Data is it anyway? in Kenya. The results indicated that in health care system that many times data have not be used, activities including planning seem to continue in a more or less predicted manner in order to crate data quality improvement in HMIS health care workers to create demand for commitment to HMIS related activities as well as HMIS should be seen as a major

fundamental policy reform in the health sector that requires a new mind set, in particular the use of data (Richard & Edith, 2016).

Another study which was conducted was assessing bridging the gaps in the heath management information systems in the context of changing heath sector in Tanzania. The finding indicated that the problem of quality in HMIS data is huge and is linked to lack of knowledge and practice among the health workers characterized by insufficient analysis skills, training, lack of initiative for using information, lack of clear understanding of the purpose, users and flow pattern of health data collection, low knowledge and attitudes towards HMIS, lack of emphasis on HMIS in the pre-service curricula and hence a lack of evidence-based training in medical and paramedical training institutions in the country (Nyamtema, 2010).

Mutale *et al*. (2013) carried out the study which was aimed at examining the improvement in health information systems for decision making across five sub-Saharan African countries: implementation strategies from the African Health Initiative. In their study results found that training alone is insufficient to engage and build capacity for facility and community health workers. Stakeholder meetings, data reviews, and mentored use of data as a basis for decisions have been utilized to engage health workers and managers and demonstrate the value of data, HMIS quality, and ownership of tools to summarize data and guide decision making.

However, a study was conducted by Mwangu *et al.,* (2006) to assess Factors influencing Quality of Health Management Information System (HMIS) data the case of Kinondoni district in Dar es Salaam Region, Tanzania. The finding indicated that knowledge on HMIS basic concept was found to be associated with improved quality of data; training in HMIS did not seem to correspond with improved quality of data. Regardless of duration, supervision had no relationship with quality of data thus raising serious doubts on its quality. Presence of a focal person, responsible for day to day HMIS activities, had a positive influence on the quality of data where facilities with a focal person had a higher data completion rate (69.9%) compared to those without (44.7%).

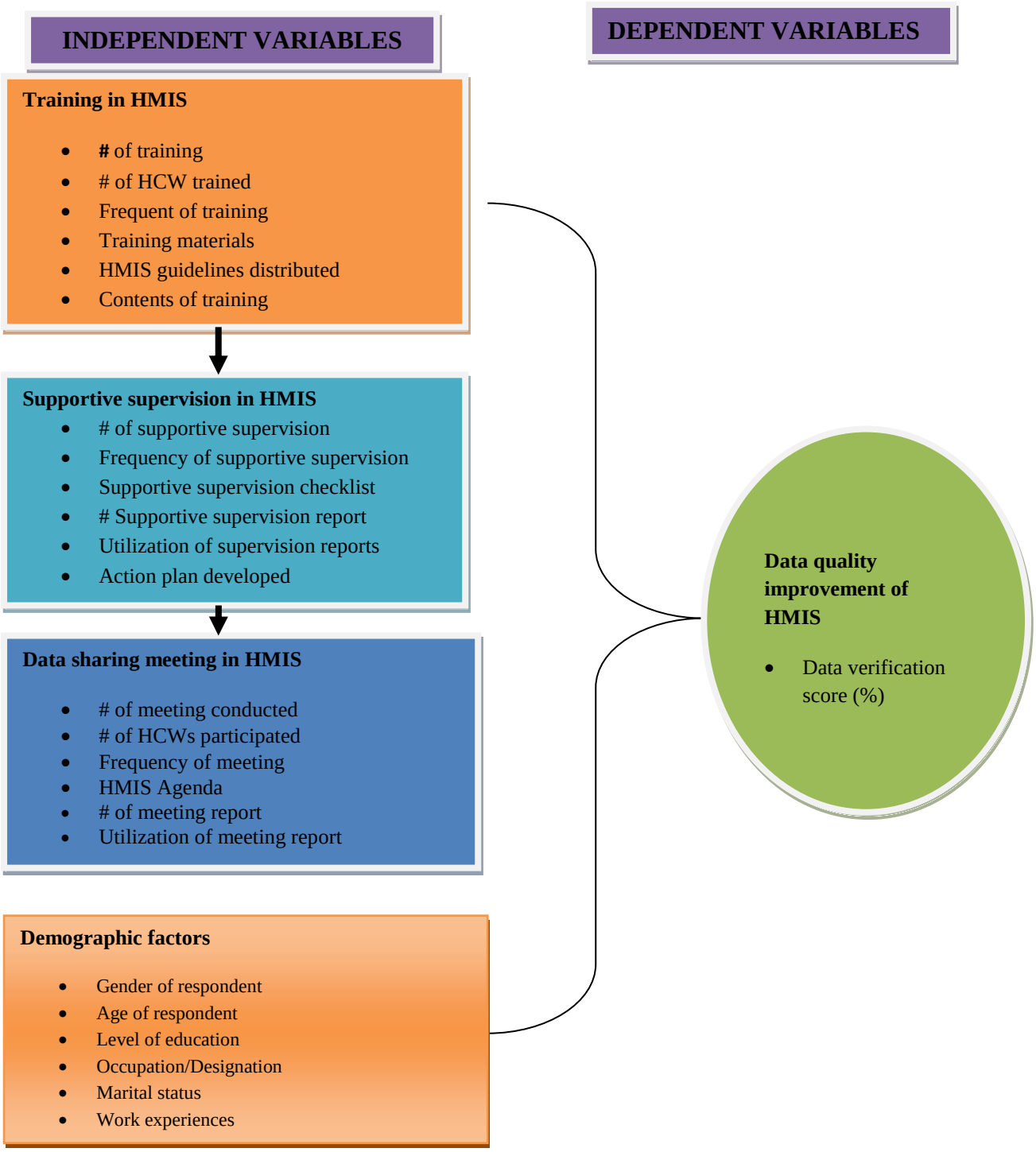
### 2.7 Conceptualization mode of evaluation

A conceptual framework is defined as a network that presents linkage of concepts so as to provide a broad understanding of a phenomenon or phenomena, and elaborates a

research problem by summarizing the variables in relation to objectives of the study and reviewed literature (Jabareen, 2009).

The developed conceptual framework acted as a guideline for assessing changes in training, data sharing meeting and supportive supervision towards improvement of quality of HMIS data. It shows relationship of predictors and dependent variables.

**Figure 2.2: Conceptual frame work**



# CHAPTER THREE
# EVALUATION METHODOLOGY

## 3.1: Study area

The study was conducted in Mafia district; this is among the nine Councils in Pwani region. It is located about 195kms south-east of Dar es Salaam in Tanzania mail land. The district Council is administratively sub divided into two divisions, eight wards and 23 villages. The general population of the district is 52,131 people (National census of 2012, projection 2017). Geographically is a network of 8 islands of variable sizes situated in the Indian Ocean, south east of Dar es Salaam, about 195 km. away. It is located on the south east of Coast region and lies between longitude 39E – 40E and latitude 7.38S. To the North West bordered by Mkuranga district, to the south west, by Rufiji and Kilwa districts, to east and south east by Indian Ocean.

The District is divided into two divisions, 8 wards, namely Jibondo, Kiegeani, Kilindoni, Miburani, Baleni, Ndagoni, Kirongwe and Kanga. It is further divided into 23 villages. Mafia District communication/transport infrastructure network is divided into three categories namely Air travel, water travel and ground travel. Within the islands of Mafia, Road network is ~224 kms; of which 68kms are gravel and 156kms are earthy roads (sandy). 14.6Kms are tarmac road. Total road network in health facilities is 1042kms and 382kms are sea route distance to reach the health facilities in the Sub islands. There are 20 health facilities (1 hospital & 19 dispensaries) serving this population and 2 dispensaries are under construction. One hospital and 17 dispensaries are government owned, whereas two dispensaries are privately owned. Whereby the operationalization of RBF program is being implemented for CHMT, 1 Hospital and 17 Dispensaries owned by government after fulfilling the RBF conditions (CCHP, 2018/2019)**.**

**Figure 3.1 Map of the Mafia DC with all health facilities (Public & Private) including those under construction**


**Source:** (CCHP, 2018/2019)

### 3.2: Evaluation Period

This evaluation study took eight months starting from November 2018 to June 2019. The evaluation proposal was developed from November 2018 to March 2019. The Data collection of this evaluation was carried out between April and May 2019.Neverthelessis the process of data analysis started soon after data collection that was in the mid May and then presenting finding and discussion at the end of May to June. By June 2019, the final report of the evaluation submits to respective supervisor.

### 3.3: Evaluation approach

This study applied an outcome evaluation approach. Patton, (2002) and Scriven (2003) describe outcome evaluation as a study intended to collect information so as to

improve a program or provide feedback to program implementers and other stakeholders who are trying to improve a program. It gives answers to questions such as how can the intervention are modified to achieve its expected results? Furthermore, Patton (2002) described that outcome evaluation does not attempt to make generalization of the findings beyond area where evaluation takes place. Therefore, this study assessed the RBF program on data quality improvement of HMIS and provides recommendation to the program implementers on how to improve the HMIS

### 3.4: Evaluation design

A cross sectional study design was applied to evaluate this program. The choice of this design was based that the evaluation intends to collect information one point at a time. The evaluation also involved mixed method approach whereby quantitative and qualitative data was collected and analyzed. The use of this approach enabled the researcher to get detailed information required for the study.

### 3.5: Focus of evaluation and dimensions

This evaluation study focused on evaluation of Result based financing (RBF) program on data quality improvement of HMIS at Primary healthcare facilities in Mafia district council. The focused of outcome evaluation to sake of improving the program implementation. It was intended to asses` implementation of training in HMIS, supportive supervision and data sharing meeting in improving performance of routine HMIS based on data verification score. The outcome evaluation carried out in order to understand what is going on with the implementation of the program, to find ways and make recommendation on improving the quality HMIS data so as to reach intended goal.

### 3.6: Indicators/Variables

The assessment of the contribution of Result based financing (RBF) program on improving quality of HMIS data it was comprised both independent and dependent variables. Independent variables encompass the training, supportive supervision and data sharing meeting in HMIS. Dependent variables comprise data quality improvement of HMIS whereby this quality of HMIS data will be measured through data verification score. Each facility is required to submit monthly report timely to the CHMT and management team will be required to enter these reports into DHIS2

where the reported data will be linked to RBF Verification form. The internal Verifier after the end of the quarter will print this Form as a trigger for data verification process. The claim invoice describes the quantity of services provided for each indicator and their quality score. The invoice will be submitted to the R-RBF committee for compilation to get the total claim for facilities in the council.

### 3.7: Populations and sampling

#### 3.7.1: Target and Source population

The target population involved different carders in health industry in Mafia District Council particularly at dispensary and those who underwent training in HMIS and are directly responsible in performing HMIS tasks.

#### 3.7.2: Study population

The study population involved all health workers implementing health information system in their duties in Primary healthcare facilities, particularly at Dispensary.

#### 3.7.3: Study units and sampling units

Study unit was Primary healthcare facilities (dispensary) which are implementing and involves in implementing of RBF program on improving quality of HMIS data. The reason to include only dispensary in this study because Mafia DC has no Health Centre

#### 3.7.4: Sample size

The sample size were the number of patients/staff or other experimental units included in a study, and one of the first practical steps in designing a trial was the choice of the sample size needed to answer the research question. The main aim of a sample size calculation was to determine the number of participants needed to detect a clinically relevant treatment effect. Pre-study calculation of the required sample size was warranted in the majority of quantitative studies. Usually, the number of patients in a study was restricted because of ethical, cost and time considerations (Noordzi, Tripepi, & Zoccali, 2010).

The sample size of this study was determined by applying the formula developed by Yamane (1973) whereby the level of precision was 5 (0.05) %. The study area had a population of 64 health workers from 16 health facilities (Dispensaries) level who

were 18 years and above from them sample population was drawn. Based on these data the sample size for this study was obtained as follows;

**n** = N / (1+N (e) $^{2)}$

Where; **n**= Sample size

**N**= Number of health workers

**e**= Level of precision

Whereas

**n**=?

**N**= 64 health workers at health facilities level

**e** = 0.05 level of precision

Thus, n =64/ (1+ 64 $(0.05)^2$ = 55

Therefore, the numbers of study respondents were 55 that were obtained at the level of precision of 5% to represent the entire study population. Therefore 55 respondents who are working in these facilities were involved in this study from 16 dispensaries in Mafia DC.

However In-depth interview there was no specific or formula for sample determination. The interview was done until reached the saturation that was achieved after interviewing the sixteen (16) respondents. Thus, the sample consisted of Health facility in charges, Staff responsible for HMIS data and experienced staff on HMIS data

**Table 3.1: Distribution of respondents participated in the study per facility**

| Sn | **Name of facility/Dispensary** | **No. of study population** | **No of respondents selected into study** |
|---|---|---|---|
| 1 | Kirongwe Dispensary | 6 | 5 |
| 2 | Baleni Dispensary | 5 | 4 |
| 3 | Chole Dispensary | 3 | 3 |
| 4 | Utende Dispensary | 4 | 3 |
| 5 | Jibondo Dispensary | 4 | 3 |
| 6 | Juani Dispensary | 3 | 3 |
| 7 | Chemchem Dispensary | 5 | 4 |
| 8 | Marimbani Dispensary | 4 | 3 |
| 9 | Ndagoni Dispensary | 3 | 3 |
| 10 | Chunguruma Dispensary | 4 | 3 |
| 11 | Kungwi Dispensary | 4 | 3 |
| 12 | Jimbo Dispensary | 4 | 3 |
| 13 | Banja Dispensary | 3 | 3 |
| 14 | Jojo Dispensary | 4 | 3 |
| 15 | Kanga Dispensary | 4 | 3 |
| 16 | Bweni Dispensary | 4 | 3 |
| **Total** | | **64** | **55** |

**Source:** Data from the field (2019)

### 3.7.5: Sampling procedure/technique

Simple random sampling using the lottery method was used to select participants into the study from a total number of participants found in the facility as based on our actual number calculated from Yamane formula. This is based on the argument that all the health staff operating in the RBF program in their facility equally possessed the characteristics of interest and therefore they had an equal chance to be included in the study.

The distribution of respondents participated in the study, selection was based on their respective dispensary that are implementing RBF program in Mafia DC. The respondents were obtained by finding out the percentage of the total number of respondents which was 55 (86%) out of 64 of the total number of the study population. This percentage was 86% which was times by an actual number of study population based on the facility which ultimately brought a respective number of respondents being selected into the study at each facility

Purposive sampling was involved identifying and selecting individuals that were especially knowledgeable about or experienced with a data quality in HMIS in the primary healthcare facilities. The Health facility in charges, staff responsible for data and experienced staff in HMIS data were selected to participate in this study.

Meanwhile all 16 Heath facilities (Dispensaries) that are implementing RBF program were involved in this study.

### 3.7.6 Inclusion and exclusion criteria

The **Inclusion criteria** in this study are all Primary healthcare facilities (dispensary) which are implementing the RBF program**.** The health workers who underwent training on data quality improvement in HMIS and involves in providing quality of HMIS data at the Primary healthcare facilities (dispensary) whereas **exclusion criteria** all Primary healthcare facilities that are not implementing RBF program as well as all absent health workers by time of collecting data and all not directly involves in implementing of HMIS.

## 3.8 Data Collection

Both primary and secondary data was used to collect data from the field. Primary data obtained from Self Administered Questionnaire that was helped to seek information on contribution of RBF program of quality HMIS data and in-depth interview was used to explore the participant's experiences, opinion and beliefs towards program.

### 3.8.1: Development of data collection tools

The data collection tools were self-administered questionnaire and in-depth interview. In-depth Interview guide was developed in English and translate in Kiswahili so as to create good communication among participants. The research conducted a pilot study in Mafia DC. Then some questions were modified and other refrains was added before going in the field whereas data collection questionnaires were pre-test before starting data collection in one/two randomly selected facility. Appropriate amendments were then made to remove or modify ambiguous questions before the actual data collection begins.

### 3.8.2: Data collection field work

The study was collected both quantitative and qualitative data from the field. The researcher used Self Administered Questionnaire **(SQA)** to collect data towards quality of HMIS data where participants were invited to answer questions on their own without the assistance of the researcher by selected their response by circling appropriate choice. The important of using the Self-Administered Questionnaires is to lower cost, respondent had more control over pace of questions and amount of time, reduced social desirability bias of sensitive questions (more privacy), Less human

error due to asking questions that should not have been asked and didn't affect responses provided by respondents (no interviewer variance). Meanwhile the researcher also used in-depth interview to collects data from the field, firstly the researcher built a rapport, probing and actively listens. This was because the researcher wanted to lets participants know that this interview is designed to allow them to share their experiences in their own word, lets participants know that they are experts and I interested in what they had to share and Puts participants at ease and helped them feel comfortable to open up and shared experiences. The reason of using this is to get the individual to describe in detail his/her experience, opinions and beliefs through open ended questions on improvement of RBF program towards quality of HMIS data.

### 3.9: Data management and analysis

#### 3.9.1: Data entry and Cleaning

The collected quantitative data was cleaned, coded and entered to MS excel ready for analysis. In the process of cleaning the data the evaluator generated new variables, then variables were labeled, a variable was defined.

In Qualitative data was transcribed and translated from Swahili to English language and upload into Atlas.ti software for Analysis. Data analysis through contextual analysis/thematic analysis approach by identifying the responses relevant to the main questions asked by the study from the in depth interview. The approach involved shortening of the texts and creating categories. Data analyzed by reading through the data, organizing and coding from which the codes with same concept grouped together to form a category then data interpreted.

#### 3.9.2: Data Analysis

Descriptive analysis was performed through Self-Administered Questionnaire and by quantifying data from the in-depth interviews. The findings were presented infrequency, percentage (%), table, charts as well as graphs helped by the evaluator to reach at findings, conclusion and recommendation of study.

In Qualitative analysis the interpretative phenomenological analysis was attempted to explore personal experience and is concerned with an individual's personal opinions and experience towards Result based financing on data quality improvement in HMIS (Smith & Osborn, 2007). This interpretative phenomenological analysis was

performed to explain individual practices of health providers with quality of HMIS data and its perception of RBF programs towards quality of HMIS data.

Thematic analysis was done to describe common themes arising from the providers. Recorded information was transcribed within 24 hours after the In-depth interview. The transcriptions were in English while the interviews were in English and Swahili. Then, the transcribed texts showing data analysis were imported into Atlas.ti.1 within the program, all data were coded inductively. “Families” of content were created by grouping similar themes. Coding and creating families went hand in hand with the memo process where the evaluator added their views and reflections on the coded concepts. The final report was written based on the outputs downloaded from the Atlas.ti software, which comprised codes, families, and memos

### 3.10: Ethical Issues

Ethical approval was obtained from different institutions required to provide the approval for this study. The first institution was Mzumbe University through Ethical Clearance Committee, which provided ethical approval by providing an approval letter to respective District Executive Director (DED). The permission for the collection of data was obtained from DED of Mafia DC. All participants were informed about the purpose of this study and assured that participating in the study is solely voluntary. Written consent was provided to the participants before interviews and verbal consent was asked during conversations. Furthermore, all data collected were kept in a safe place anonymously and only given a special identity to help during analysis. Privacy was maintained during data collection to give the participants the freedom to express themselves without external or internal interferences. Audio taped and paper-based were carefully stored in a manner that wouldn’t allow any unauthorized persons to access. The electronic materials and database were stored and where appropriate a password was used. The researcher was guided and adhere Universal Declaration of Human right 1948, Helsinki Declaration 1964, indigenous culture, and beliefs, local and national rules.

# CHAPTER FOUR
# PRESENTATION OF FINDINGS

## 4.1: Introduction

This chapter presents the findings based on the evaluation objectives. The general objectives of this evaluation was to examine the extent of HMIS training given to HCWs to improve the quality of HMIS at public facilities in Mafia DC; to examine the extent by which data sharing meeting improve quality of HMIS data at Public facilities in Mafia DC and examine the contribution of supportive supervision in improving the quality of HMIS data at public facilities in Mafia DC

## 4.2: Demographic information of respondents

Demographic information of respondents which were taken into custody in this study includes Gender, Age, Education, Marital status and Occupation. The study involved both male and females. The number of female who participated in the study were 34 (61.82%) of all respondents while the number of Male respondents involved in the study were 21 (38.18%) of all respondents involved in the study. The Age of respondents of the study ranged from 25-57 years' old which were categorized as follows 25-30 years were 23 (38.18%) of all respondents, 31-35 years were 16 (29.1%) of all respondents, 36-40 years were 5 (9.1%) of all respondents,41-45 years was 2 (3.64%) of all respondents,46-50 years were 5 (9.1%) of all respondents,51-55 years were 2 (3.64%) of all respondents and 56 and above were 2 respondents making the 3.64% of all respondents.

The findings revealed that 38 (69.1%) of respondents were married and 17 (30.9%) were single. Hence, the majority of respondents who responded to the questionnaire were with married status. The education level of participants was the other attribute which was considered in this study. Study participants with certificate level were 46 making 83.64% of all respondents and 9 respondents had diploma level which accounting 16.36% of all respondents.

It was also found that, majority of respondents of the study were Medical attendant who accounted for 22 (40%) of respondents, followed by Nurse who were 20 (36.36%) others include Clinical officers 8 (14.55%), Clinical Assistant were 2 (3.64%), Asst. Lab were 2 (3.64%) and Asst. Nursing officer was 1 (1.82%).

**Table 4.1: Demographic characteristics of study participants**

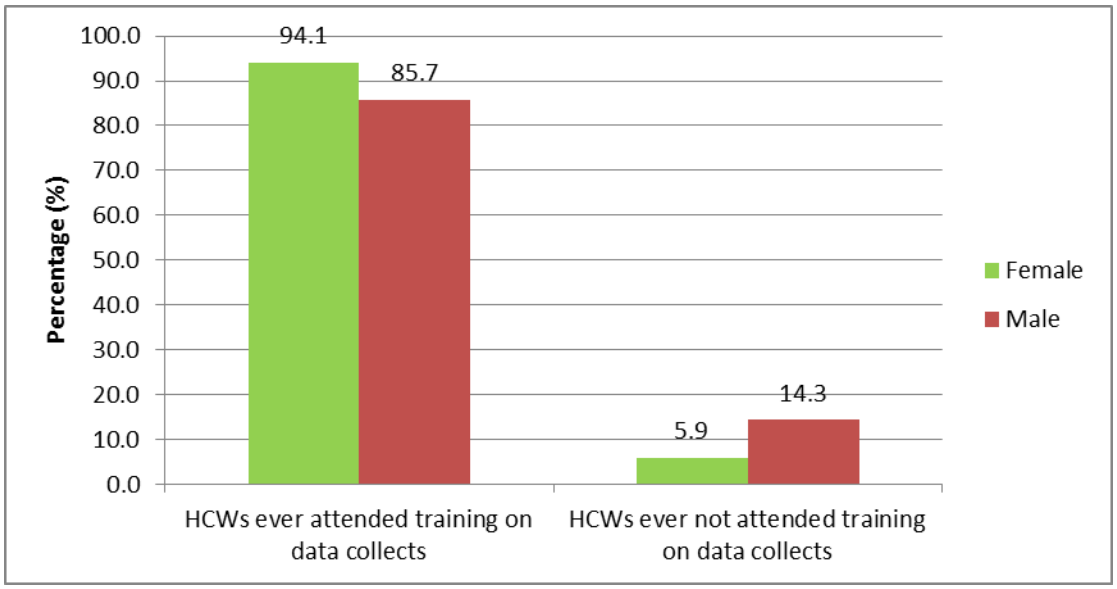
| Characteristic | Frequency | Percent |
|---|---|---|
| Total | **55** | **100%** |
| **Age group (Years)** | | |
| 25-30 | 23 | 41.82 |
| 31-35 | 16 | 29.1 |
| 36-40 | 5 | 9.1 |
| 41-45 | 2 | 3.64 |
| 46-50 | 5 | 9.1 |
| 51-55 | 2 | 3.64 |
| 56+ | 2 | 3.64 |
| **Gender** | | |
| Male | 21 | 38.18 |
| Female | 34 | 61.82 |
| **Marital status** | | |
| Married | 38 | 69.1 |
| Single | 17 | 30.9 |
| **Education level** | | |
| Certificate | 46 | 83.64 |
| Diploma | 9 | 16.36 |
| **Occupation of respondent** | | |
| Medical attendants | 22 | 40 |
| Nurses | 20 | 36.36 |
| Clinical Officers | 8 | 14.55 |
| Clinical Assistants | 2 | 3.64 |
| Asst .Laboratory tech | 2 | 3.64 |
| Asst. Nursing Officer | 1 | 1.82 |

**Source:** Data from the field (2019)

### 4.3 Training on data quality improvement in HMIS

From **figure 4.1** below present percentage of HCWs who are trained and those who are not trained on recording (collects) the data of HMIS by Sex of respondents. The training in recoding data to have potential role for HCWs in order to acquire knowledge and skills about proper documentation of data at health facilities hence led to accuracy of data. Furthermore, the finding revealed that percentage of HCWs who ever attended training 32 (94.1%) was Female workers and 18 (85.7%) was Male workers while percentage of HCWs not ever attended training 3 (14.3%) was Male and 2 (5.9%) was female workers by their Sex.

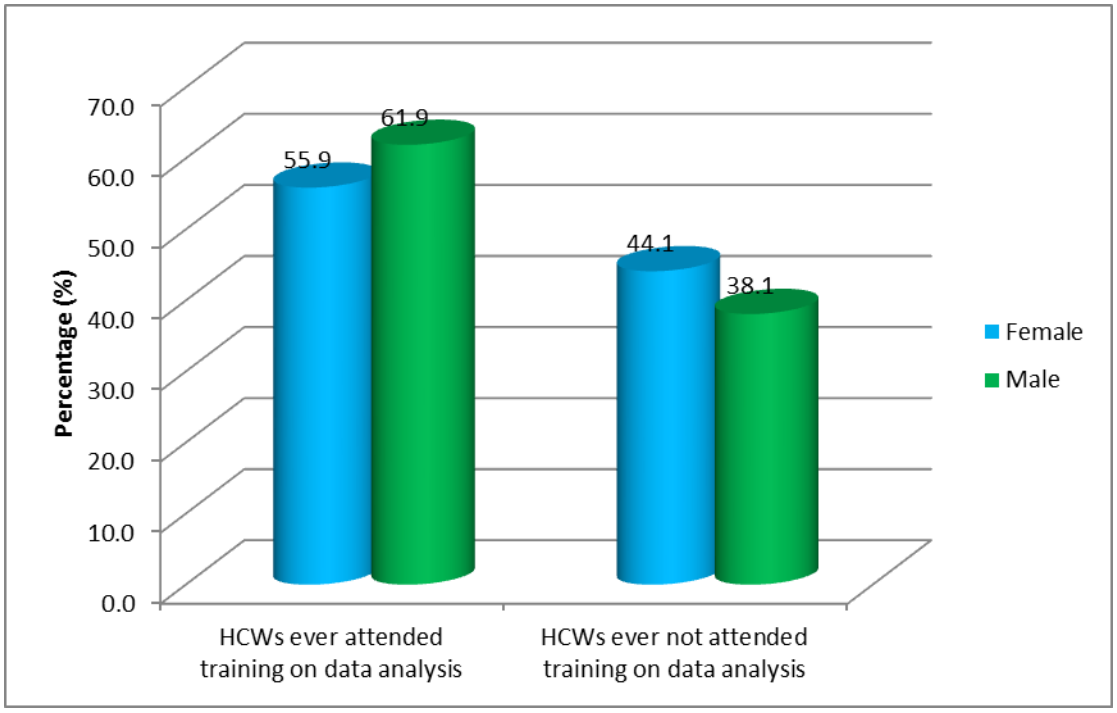
**Figure 4.1: Percentage of HCWs who are trained on recording (collects) data in HMIS by Sex**




**Source:** Data from the field (2019)

The **figure 4.2** below shows that, the percentage of HCWs who are trained on data analysis in HMIS the researcher had a confidence that through this training the HCWs could be able to make interpreting of data and identifying patterns and trends in data sets. The finding showing that the percentage of Male workers who attended training in data analysis its about 13 (61.9%) and Female workers was 19 (55.9%) whereas by HCWs not ever attended training in data analysis on HMIS also the male workers still leading by 8 (44.1%) followed by female workers as by 15 (38.1%).

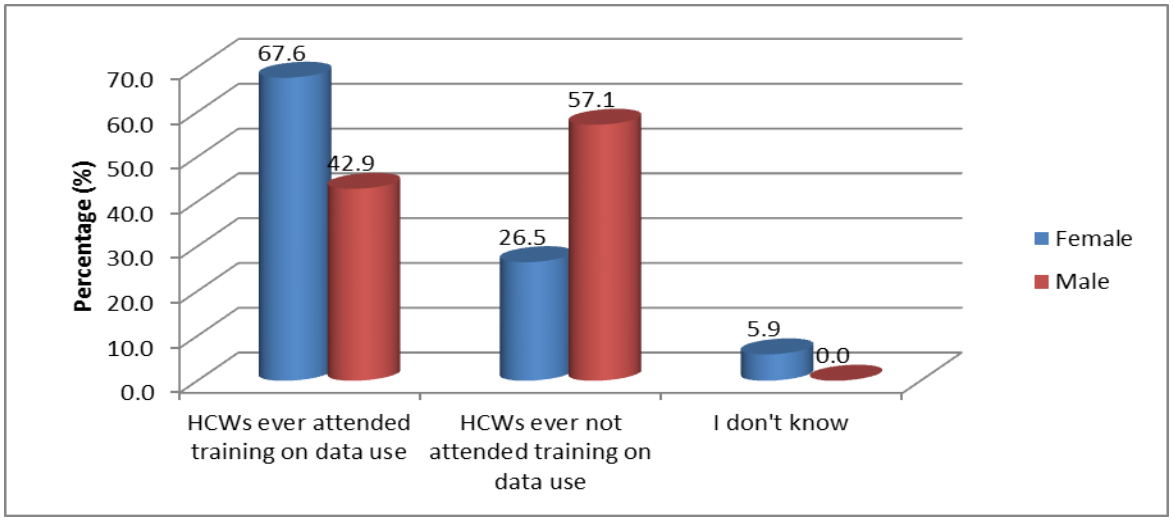
**Figure 4.2: Percentage of HCWs who are trained on data analysis in HMIS by Sex**




**Source:** Data from the field (2019)

**Figure 4.3** below shows the percentage of HCWs who are trained on data use in HMIS by sex. The researcher aimed at finding out if HCWs had knowledge on data use on improvement of health services delivery at facility level. The finding indicated that there was a higher percentage of female workers who ever attended training on data use by 23 (67.6%) and male workers was 9 (42.9%) however there was higher percentage of Male workers who had not ever attended training in data use by 12(57.1%) and female who had not attended training on data use was 9 (26.5%). However, 2(5.9%) of female workers had no ideas if had or not attended training on data use.

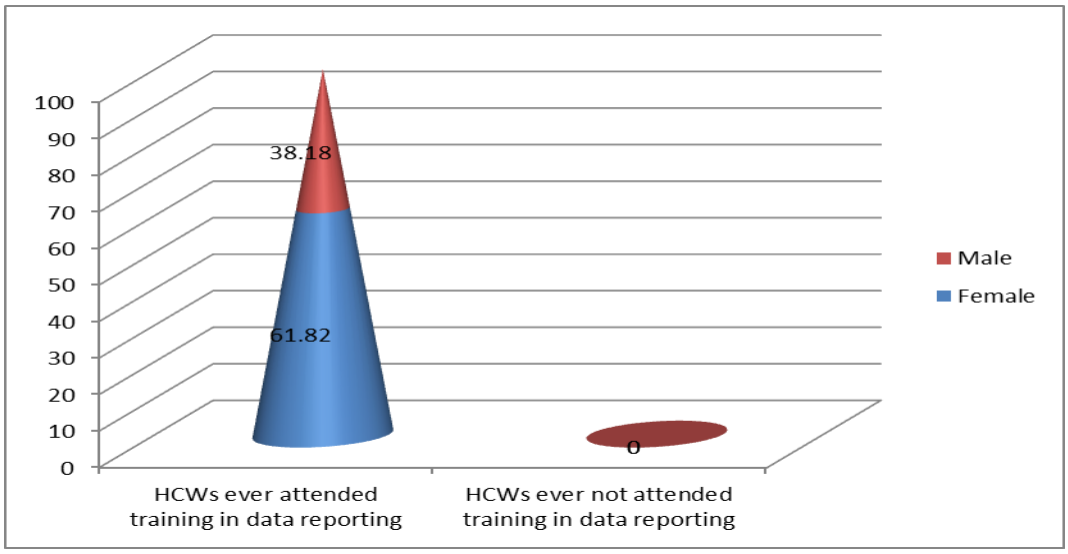
**Figure 4.3: Percentage of HCWs who are trained on data use in HMIS by Sex**




**Source:** Data from the field (2019)

**Figure 4.4** below shows that the percentage of HCWs who are trained on data reporting in HMIS by sex. The finding shows that there was high percentage of Female worker by 34 (61.82%) who ever attended training in data reporting on HMIS whereby only 21 (38.18%) was male workers who are ever attended training on data reporting. However, the finding shows that there were no any HCWs who are not ever attended training on data reporting.

**Figure 4.4: Percentage of HCWs who are trained on data reporting in HMIS by Sex**




**Source:** Data from the field (2019)

Table 4.2 below shows the frequency of HCWs by Carder who attended training in quality of HMIS data at facility level. The finding shows that the highest number of Carders that attended in this training in one time was Medical attendants who attended 14 (54.16%) Staff followed by Nurses who were attended 9 (29.03%) staff. For the highest number of Carders that attended two times was Nurses that attended 11 (55%) followed by Medical attendant that attended 6 (30%) staff. However, for the Carders that attended this training for more than 3 times and above were Clinical officer and Medical attendant that was only two (2) staff attended.

Table 4.2: Frequencies of HCWs attended training in quality of HMIS data

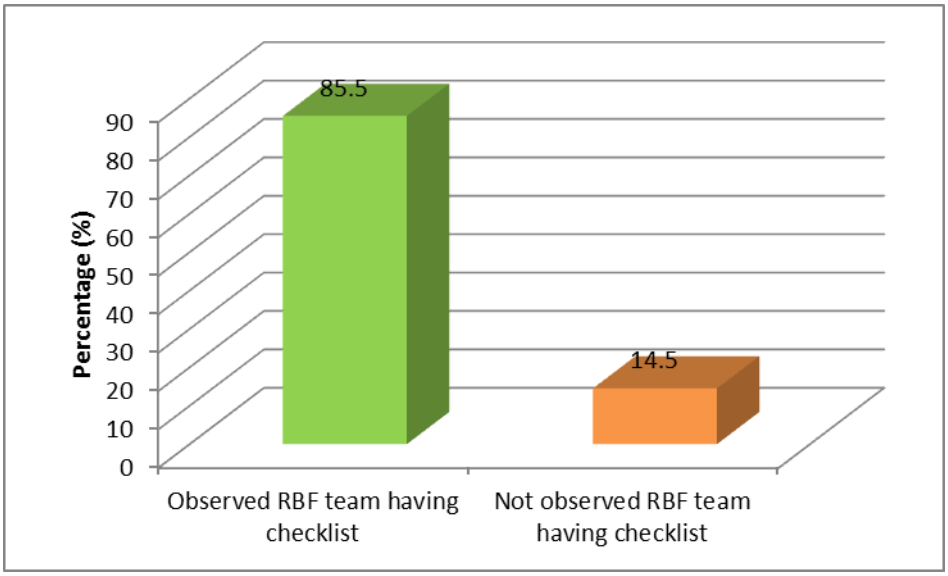
| | **Number of training on data quality HMIS attended by Carder** | | | | | | |
|---|---|---|---|---|---|---|---|
| **Occupation** | 1 time | % | 2 times | % | 3 + times | % | Total |
| Clinical Officers | 4 | 12.9 | 2 | 10 | 2 | 50 | 8 |
| Clinical Assistants | 1 | 1.82 | 1 | 5 | 0 | 0 | 2 |
| Asst. Nursing Officer | 1 | 1.82 | 0 | 0 | 0 | 0 | 1 |
| Nurses | 9 | 29.03 | 11 | 55 | 0 | 0 | 20 |
| Asst. Lab tech | 2 | 6.45 | 0 | 0 | 0 | 0 | 2 |
| Medical Attendants | 14 | 45.16 | 6 | 30 | 2 | 50 | 22 |
| **Total** | **31** | **100** | **20** | **100** | **4** | **100** | **55** |

**Source:** Data from the field (2019)

### 4.3 Supportive supervision on data quality improvement in HIMS

The finding revealed that all facility had regular supervised by 100% in which all facilities supervised four times for year 2017/2018. The figure 4.5 below shows supportive supervision checklist is a list comprising main priority issues that must be observed and recorded by the supervisor. The checklist enables the supervisor to focus on priority issues and reminds him/her to observe and record them. A checklist contains items to be checked at every site visited. Meanwhile it should not discourage the supervisors from recording and following up on other critical issues that he/she has observed during the field but that are not included in the checklist. From above figure 4.5 the finding revealed that there is high percentage of HCWs by 47 (85.5%) found that the supervisor had a checklist that guided them during supervision while the least 8 (14.5%) of HCWs did not observe if the supervisor had a checklist.

**Figure 4.5: Percentage of HCWs observed that RBF team having checklist during Supportive supervision**




**Source:** Data from the field (2019)

From **table 4.3** below the finding revealed that at all sixteen (16) facilities received supervision reports and feedback however it's about twelve (12) facilities developed action plans to address the gaps identified by last visits and it's about six (6) facilities not developed actions plan namely Bweni Dispensary, Kungwi Dispensary, Chunguruma Dispensary, Ndagoni dispensary and Marimbani Dispensary.

**Table 4.3: The Facility that received supervision reports vs. facility developed action plans to address supervision gaps**

| S/N | Facility Name | Facility received supervision reports | Facility not developed action plan to address supervision gaps |
|---|---|---|---|
| **1** | Juani Dispensary | ✓ | ✓ |
| **2** | Chole Dispensary | ✓ | ✓ |
| **3** | Jibondo Dispensary | ✓ | ✓ |
| **4** | Utende Dispensary | ✓ | ✓ |
| **5** | Chemchem Dispensary | ✓ | ✓ |
| **6** | Marimbani Dispensary | ✓ | X |
| **7** | Ndagoni Dispensary | ✓ | X |
| **8** | Chunguruma Dispensary | ✓ | X |
| **9** | Baleni Dispensary | ✓ | ✓ |

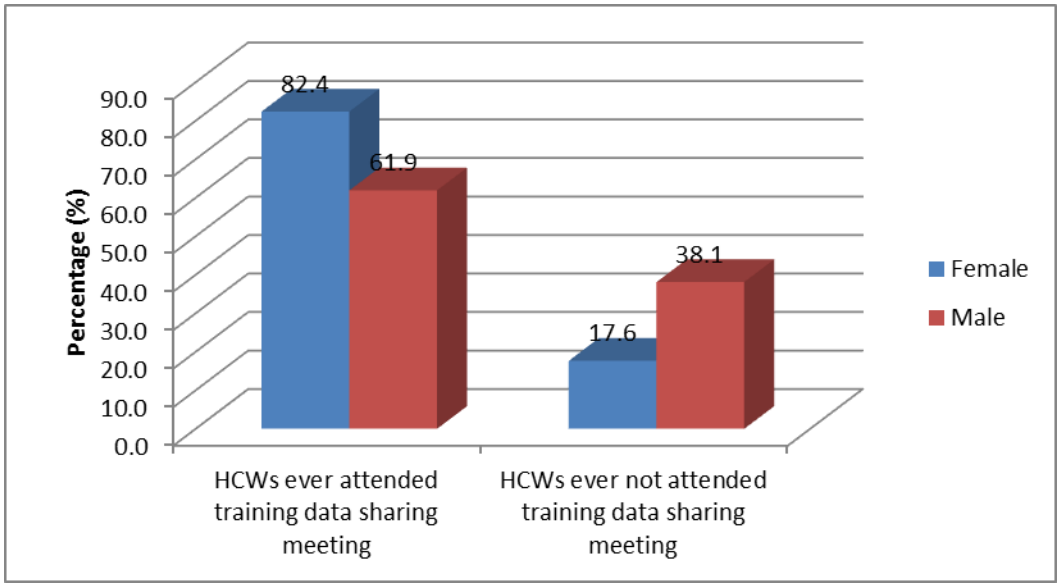
| | | | |
|---|---|---|---|
| **10** | Kungwi Dispensary | ✓ | X |
| **11** | Kirongwe Dispensary | ✓ | ✓ |
| **12** | Jimbo Dispensary | ✓ | ✓ |
| **13** | Banja Dispensary | ✓ | ✓ |
| **14** | Jojo Dispensary | ✓ | ✓ |
| **15** | Bweni Dispensary | ✓ | X |
| **16** | Kanga Dispensary | ✓ | ✓ |

**Source:** Data from the field (2019)

### 4.4 Data sharing meeting on data quality improvement in HIMS

**From 4.6 Figure** below the evaluator aimed to assess if the health workers had ever attended the data sharing meeting. The finding revealed that there is high percentage of female health staff who ever attended data sharing meeting by 28 (82.4%) followed by male health staff who ever attended by 14 (61.9%) among all respondents participated in this study however the 7 (38.1%) of male health staff not ever attended this data sharing meeting while only 6 (17.6%) of female workers not ever attended this meeting**.**

**Figure 4.6: Percentage of HCWs who are ever attended data sharing meeting HMIS by Sex**




**Source:** Data from the field (2019)

The finding above figure 4.4 table shows the frequency of HCWs by Carder who attended ever attended data sharing meeting for the year 2017/2018 at facility level.

The finding shows that the highest number of Carders that attended this meeting in one time was Medical attendants who attended 8 (44.4%) Staff followed by Nurses who were 7 (38.9%) staff. For the highest number of Carders that attended two times were Medical attendants that were attended 14 (43.8%) followed by Nurses that attended 10 (31.3%). However, for the Carders that attended this training for 3 times were Nurses 3(60%) and Clinical Officers that were 2(40%) attended this meeting.

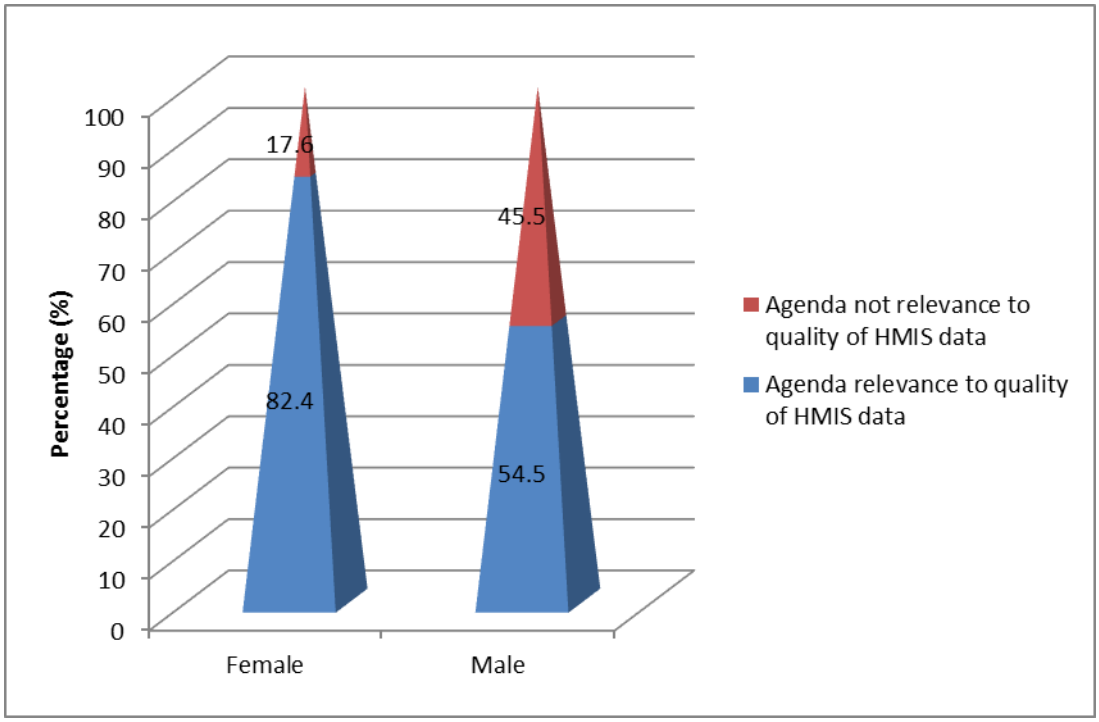
**Table 4.4: Frequencies of HCWs attended data sharing meeting in quality of HMIS data by Cadres**

| | **Number of data sharing meeting attended by Carder** | | | | | | |
|---|---|---|---|---|---|---|---|
| **Occupation** | 1 time | % | 2 times | % | 3 times | % | Total |
| Clinical Officers | 2 | 11.1 | 4 | 12.5 | 2 | 40 | 8 |
| Clinical Assistants | 0 | 0 | 2 | 6.25 | 0 | 0 | 2 |
| Asst. Nursing Officer | 0 | 0 | 1 | 3.13 | 0 | 0 | 1 |
| Nurses | 7 | 38.9 | 10 | 31.3 | 3 | 60 | 20 |
| Asst. Lab tech | 1 | 5.6 | 1 | 3.13 | 0 | 0 | 2 |
| Medical Attendants | 8 | 44.4 | 14 | 43.8 | 0 | 0 | 22 |
| **Total** | **18** | **100** | **32** | **100** | **5** | **100** | **55** |

**Source: Data from the field (2019)**

The finding from above figure 4.7 revealed that there is higher percentage of female workers by 28 (82.4%) indicated that the data sharing meeting agenda has a great contribution to quality of HMIS data while 6 (17.6%) of female workers they seemed that the agenda of this meeting didn't relevance to quality of HMIS data. Nevertheless, in a perspective of Male heath staff indicated that the data sharing meeting agenda had relevance to quality of HMIS data by 12 (57.14%) while other male workers indicated that the data sharing meeting had no relevance to quality of HMIS data by 9 (42.86%).

**Figure 4.7: Percentage of HCWs who viewed relevance of data sharing meeting agenda on HMIS data by Sex**




**Source:** Data from the field (2019)

### 4.5.1 Data verification scores for the year 2017/2018

From above **table 4.5** the finding revealed that at fifteen (15) dispensaries has improved quality of HMIS data based on the data verification scores. The table above shows that there is increase in percentage of data verification scores from year to year expect one facility namely Juani dispensary.

**Table 4.5: Average of data verification scores in (%) for the financial year 2017/2018**

| Health facility (Dispensary) | Data verification Scores 2017 | Data verification Scores 2018 |
|---|---|---|
| Jibondo | 81.03 | 90.66 |
| Chole | 82.23 | 92.17 |
| Juani | 84.94 | 84.64 |
| Utende | 86.75 | 93.98 |
| Marimbani | 68.68 | 93.68 |
| Chemchem | 85.6 | 86.15 |
| Ndagoni | 80.72 | 96.06 |
| Chunguruma | 81.63 | 89.16 |
| Baleni | 83.44 | 91.87 |
| Kungwi | 83.44 | 93.08 |
| Kirongwe | 88.86 | 87.95 |
| Jimbo | 84.94 | 92.78 |
| Banja | 74.1 | 86.75 |
| Jojo | 81.93 | 97.59 |
| Kanga | 61.93 | 84.34 |
| Bweni | 84.34 | 87.35 |

**Source: Data from the field (2019)**

### 4.6. Description of the Evaluation Participants

Understanding the implementation of RBF program and the quality provision of HMIS data in health facilities it involves the participants from health care facilities which has staff trained on quality of HMIS data and provides health services. Each participant was selected based on the responsibility and experience in HMIS data. These participants were distributed as follows. Health facility in charges and staff concerns for HMIS data activity at facility level. These participants were involved in all three objectives.

#### 4.6.1 Experiences and views of HCWs of RBF program on training of data quality improvement in HMIS

After RBF program delivered training in HMIS data, it follows with the compliance of data quality dimensions to the health facility were these activities are being implemented. This evaluation revealed that the responsive staff that usually used to emphasize the staff in their working place is Heath facility in charges. However sometimes the health facility in charges have to be very busy and comes to be very

difficult to perform all duties alone hence he/she select for another staff to perform this HMIS data issues

> *"As Health facility in charge I have many tasks to execute in the facility therefore in order to comply with quality of HMIS data I had selected one staff that will be responsible for HMIS data matter in my facility. In addition, when I had decided to select a staff who will be responsible for data activity firstly I guaranteed for one who had ever attended training in HMIS data"* ***(IDI Participant # 1, 2019)****.*

Another participant pointed out that the training in quality of HMIS data conducted had a great role to change health staff about proper documentation of data. This knowledge acquired had improved their health facility performance.

> *"I had attended two times training in data collects, analysis and data use on HMIS hence after this training me in charge allocated me to deals with all data issues in my facility. Before I had never attended any training in data I thought our core responsibility in our facility is just to collects data and submit to CHMT but when I attended a realize that there is need to analysis and use data for further performance of our facility"* ***(IDI Participant # 4, 2019)****.*

> *" It is true that this training enabled me to establish systems of analysis data and then displayed in the notices board example we used to display the top ten diseases quarterly and used data during the annual health facility operation plans. In addition, this system accepted by all heath staff that working in this facility as well as RBF team because this is one of indicator in which RBF verified quarterly and provides score"* ***(IDI Participant # 2, 2019)****.*

More over another participant from Dispensary pointed out that after this training in quality of HMIS data enabled their facility to perform better in the RBF verification.

> *"This training intended to provide knowledge to heath staff in implementation of RBF program in perspective of data quality. This training had several changes in my facility from previous to recent the score of RBF increased from quarter to quarter and we as health staff in our facility we have regular monthly review of our data and conduct analysis then we identified errors in data collection and then we fixed all errors before to submit our data to higher authority that is CHMT"* ***(IDI Participant # 3, 2019)****.*

However, some of in charges and data collectors identified some of challenges that intended to face during implementation of data activity in their facility.

> *"Health staffs in the facility are very few numbers and you have many clients/patients to attend at same time. Therefore, a lot of clients and patients are waiting at the same time there are so many other things to handle so you don't even see why you should fill MTUHA registers. Sometimes we remain only 1 health staff in the facility with more than 150 clients. My friend daah! You won't even bother to fill MTUHA register so in the end you don't have record of these patients on time"* ***(IDI participant # 7, 2019)***

Participants recommended that trainings should be regularly prepared and it should concentrate on the area of data use. All data training should also integrate data use component and data use for decision making.

> *"I think trainings should be regular done on the area of HMIS but this training should focus on the data use. I have seen that a lot of efforts is dedicated on the data collection and quality of data, but I ask myself how we can use this data if we are not trained properly in this area. If you ask me I think it's a high time that we also focus on using the generated data. To be able to accomplish that health services provider will require extensive training on HMIS and data use for decision making generally." (**IDI Participant # 6, 2019**).*

Generally training in quality of HMIS data was recommended as one of the key intervention that can be done to improve HMIS data

### 4.6.2 Experiences and views of HCWs on RBF program for supportive supervision on data quality improvement in HMIS

As we have seen the perception of HCWs in training of HMIS data in working places, this part presents the perception of HCWs on supportive supervision in HMIS data which used to consider the quality of HMIS data respectively place. The supportive supervision is important to be conducted after a period of training delivered to oversee if that knowledge acquired from HMIS training is performing as planned.

> *"The RBF team had conducted supportive supervision on quarterly basis which enabled the team collecting information, problem-solving and feedback, on-the-job training and recording the results of supervision hence this supervision is so useful in implementation of this program. The program changed health staff mind sets in delivering of health services in our facility" **(IDI participant # 10, 2019).***

> *"However the CHMT team also had conducted supportive supervision quarterly in which HMIS data is one of agenda in this visits as well as has a tendency to provide rewards for those who are performing well and punishment for those not performed well this led to boost the performance in quality of HMIS data" **(IDI participant # 11, 2019).***

The facility tends to provide suggestion to supervisors to provide early feedback for the supportive supervision conducted in the facility. The situation to get earlier supervision this will enable the health facility to developed action plan.

> *" Yes, it is very bored sometimes the team conducted supportive supervision but didn't return reports on times in order to get your report it must take initiative to follow up to respective Health secretary this tends in delays to take action"* ***(IDI participant # 9, 2019)****.*

Action plan is important to develop soon after the supportive supervision conducted. The action plan tends to address all gaps that rose during this implementation of this activity. As well as not just to develop action but also this plan should be regular followed up to enhance implementation of these activities timely.

> *"We usually develop the action plan to identify the gaps in the previous implementation supportive supervision this plan we have reviewed every month to see the success and failures from implementation of identified challenges .In addition most of activities being implemented especially for those activities that requires few amount of resources but for those activities that required huge amount of resources these tend to be forwarded to next quarter or planned in the annual health facility plan. Sometimes tend to collaborates with DMO's Office to see how we are going to implement these activities"* **(*IDI participant # 8, 2019*)***.*

Generally, supportive supervision on quality of HMIS data, depend on a need of that staff in health facilities or places together with the commitment at work have been observed as the factors that promotes quality of HMIS data.

### 4.6.3 Experiences and views of HCWs of RBF program on data sharing meeting for data quality improvement in HMIS

Quarterly implementation plan had reflected that data was not collected as per guidelines this was discovered by supportive supervision. Some of the data activities was not addressed that there some areas that needed improvement even though it was not reflected in the data. It was noted that during supportive supervision there are some of the interventions that might be formulated at that particular time but during implementation situation might have changed.

> *"Previous we didn't have traditional to discuss data issues it is not our thing at all most of the time we don't think that data can help us in decision making we just decide. For example, we might be allocating*

> *the certain resources and we will allocate equally without being guided by the data. Therefore, the data sharing meeting increase awareness of data collects analysis and use in our facility"* ***(IDI participant # 1, 2019)****.*

Participants recommended that this meeting improving quality of HMIS data. This meeting tends to explores many challenges that found during implementation of supportive supervision at facility level.

> *"Data quality has to be good, it is very hard for us to make decision and depend on the data we don't have trust with. At times when you see HMIS data from a certain health facility and you want to use it, but deep down there is something telling you that this data is not of good quality. You know the nature of our health facilities and suddenly they have a certain data so you don't understand. Hence this meeting has very useful to promoted data quality in our facility"* ***(IDI participant # 3, 2019)****.*

However, the participant argued that at the end of this meeting each facility required to develop action report and being committed that all errors that appeared in last visits not happen again.

> *"The data sharing meeting is one which promotes data quality in HMIS data in my facility in which 1-2 member(s) from my facility attending and being displayed all their errors that discovered by supervisors and should show to others members the strategies that you expect to deals with those areas. This meeting enables me to be commitment in implementations of data activity in my facility* ***(IDI participant # 6, 2019)****.*

Generally, implementation data sharing meeting is seen as a way towards improving the quality of HMIS data.

# CHAPTER FIVE
# DISCUSSION OF THE FINDINGS

## 5.1: Introduction

This chapter discusses the findings of the study in line with the literatures and the objectives of the study. The responses by respondents being discussed based on the results of the findings provided in chapter four (4). The main responses of evaluation to be discussed in this part covers the Demographic information, training in data quality improvement in HMIS, supportive supervision in data quality improvement in HMIS and data sharing meetings in HMIS in Mafia DC.

## 5.2: Demographic characteristics

The researcher decided to include both gender because this program involves health staff regardless of their gender status for the variables which were intended to be assessed which included training in HMIS data, supportive supervision and data sharing meeting in reflection to quality of HMIS data. This is similar to other studies which involved both gender which have equally in implementation of data activity and if at all there is an intervention to capacitate in data issues both should equally be involved (Wekesa, 2014)

The education level in terms of an individual's power, capacity, potency, or ability to perform a task and as well as an indicator of a person's skill levels or productivity (NG & Feldman, 2009), therefore the performing of HMIS data requires some of knowledge to perfume this activity in good manner.

## 5.3 Training in data quality improvement in HMIS

Training in data quality improvement in HMIS is an important part of capacity development. If the intended training approach is not undertaken there will be a lack of understanding of changes needed to accompany the innovation. HMIS data collection, processing and information use assumes a certain level of general education and specialist training amongst health workers, which is often not available, especially in smaller health units in developing countries. Too few HMIS training for health unit personnel to grasp new skills, such as data processing, compiling graphs and statistics will then lead to unsuccessful skills and a lack of the right capacity. This is why workers' skills should always be aligned with the HMIS (Archangel, 2007).

Furthermore, availability of data trainings, the frequency of trainings, and offering the trainings to the appropriate employees are key to successful data collection, analysis, and use. Data analysis training for health workers both at the facility and district levels ought to be prominent to inform planning and decision making. It is through data analysis that health personnel will know whether they are on track to achieve their goals. When health personnel are capacitated to analyze their data, it can also help with improving data collection and data quality in the health facilities.

Health staff who attended these training provided feedbacks to those staff who not attend in the meeting this reveals health staff have equipped with knowledge of data collects, analysis, uses and reporting they were able to portray this activity in good manner which finally promotes data quality in HMIS data. However, the HMIS data analysis at health facility level particularly at Dispensary was conducted only in terms of generating monthly summary reports and conduct data analysis in terms of carrying out comparison of HMIS data over quarter.

This study argues, in line with Anasel et al (2019), limited skills to analyze and use data, the study identified factors that hamper health providers' ability to analyze and use data in planning. Limited training results from the tendency to focus more on building the capacity of staff in managerial positions, especially at the district level, at the expense of frontline workers serving at the facility level. This may have contributed significantly to health providers not using the data they collect to make decisions, which calls for more capacity building programs for data creation, analysis, and use.

The in HMIS data should be conducted on regular basis to respective health facilities on data collects, analysis, interpretation and use of data. The respondents recommended that training has to be done to the health services provider on importance of data but mostly to build capacity on how to use data and tools used for data analysis and presentation. General health data trainings should include all components of data and they should be practical oriented trainings. Emphasizing on data collection and data quality only without using these collected data will not improve services delivery as it was expected. The training in quality of HMIS data conducted had a great role to change health staff attitude, knowledge and skills about

proper documentation of data. This knowledge acquired had improved their health facility performance.

Investing in capacity development and training in HMIS content development of skills will ensure more successful implementation of an HMIS. Making opportunities available to see the HMIS in practice or a clearly reported trial should accompany innovation introduction (training). Teaching skills should also be an integral part of supervisor's training to be able to help them teach and manage others. Strategies to overcome lack of skills amongst less well-educated health workers need to be developed during the planning and strategy (Archangel, 2007).

The findings of this report revealed that it is important to conduct regular training on HMIS data to health care providers, though training conducted by RBF program the health workers have acquired knowledge on data collects, data analysis and use data for health services performance. This study indicated that health workers were being motivating on data.

### 5.4 Supportive supervision in data quality improvement in HMIS

Traditionally, many countries have used an authoritarian, inspection or control approach to supervision. This approach is based on the thinking that health workers are unmotivated and need strong outside control to perform correctly. However, it has been shown that supportive supervision, where supervisor teams and health staff work together to solve challenges and improve performance, delivers improved results for the project. As the supervisors will be providing on-the-job training to health staff, it is important that the supervisors are themselves well informed and trained (WHO, 2008).

Moreover, when respondents asked of supportive supervision, the finding of this study revealed that all heath facility it's about sixteen (16) of health facility visited by RBF supervisor in which conducted supervision as well as its about 47 (85.45%) of total respondents seen that RBF had supervision checklist in which was a tool that guided them during supportive supervision and all sixteen facilities received feedbacks and reports.

The supportive supervision contribute change to health professionals' attitudes is important for improving data quality. Health providers feel that working with data

adds extra work. When data are reported simply to meet a directive from higher authorities, service providers tend to have a negative attitude towards data collection because they don't see its value to them. Health providers and other health facility staff could be motivated to collect and use data if they were provided with various incentive packages. This suggests the need for CHMTs to educate facility in-charges on the importance of performing facility-level analyses and share performance results. In addition, providing timely, honest, and transparent feedback about a facility's performance immediately after data have been submitted to the higher authorities can positively affect the attitude of health care providers in that facility.

The findings of the study showed that supportive supervision improved quality of HMIS data in the facilities, which RBF program led to produce better quality data and continuous information use are sufficient and frequently both at a health facility. About 16 (100%) of health facility had received supervisory visits during the last three months. Those health facilities that received supervisory visits reported that HMIS data quality and information use were not investigated during the supportive supervisory visits. Another dimension of supportive supervision quality that was assessed was action-oriented feedback provided after a supervisory visit to motivate health professionals to improve and/or maintain HMIS data quality and information use (Dufera, Lamene, Guda, 2018).

This study showed the supportive supervision in quality of HMIS data enabled the team collecting information, problem-solving and feedback, on-the-job training and recording the results of supervision hence this supervision was so useful in the implementation of data activity this tended to change health staff mindsets in delivering of health services. The supportive supervision identified challenges and success in the implementation of data in the health facility this led to provide the opportunity of health staff and supervisors to find out and make way forwards to address those errors/challenges that appeared in the supervision in essence that next visits not appear.

The finding of study found that the project was less successful at promoting data use for decision making. While the participants had theoretical knowledge, there was little actual use of information at health facilities (Marshall, 2014). However, findings of this study found that the RBF program was successful through promoting supportive

supervision which improved data quality at the facility level. The participants of this study attributed the successes to collaboration, supervision tools, and feedback and training provided to staff by supervisors

### 5.5 Data sharing meeting on data quality improvement in HMIS

It is important to involve health facility providers (the very people who collect and report facility-level data) in the process of improving data collection (e.g., updating data collection forms or tools; attending data sharing meeting on data collection, analysis, and use; and engaging them in decision making). Through this data meeting health provider will improve their knowledge, skills and attitudes toward high-quality data and build the culture of data use in decision making.

This study argues, in line with Anasel et al. (2019), that data quality can be improved when data are used frequently. Poor quality data often goes unnoticed when the data is not used. Thus, data quality and information use are closely linked in that data quality improves data use, and data use is improved when the data quality is good because data are used more when users trust the quality of data.

The finding of this study revealed that about data sharing meeting, have to play a great role to produce quality data that is useful for decision making in the facility this regards as one of factor that promotes the quality of HMIS data. Health Managers had a little trust in the quality of data especially on the data collects of this data and as to whether this data reflected the actual situation of the health in their health facilities. It was observed that having data is crucial however having a quality data is critical as producing data that is just seating on the shelves or the system without being used will not bring the results we are looking for. Therefore, this meeting played as catalysts to change mindsets of health staff and all relevant topics discussed in this meeting and adapted to the implementation of the data activity at their facilities.

Developing a data sharing meeting is about relationship building, trust-building, good communication, compromise, long term planning and finding ways to openly and safely share and maximizes the use of the hard-earned data from a research partnership. It is about determining culturally and ethically appropriate ways to disseminate the data, meeting funding requirements, improving health outcomes, and adding to the body of scientific knowledge (Brack & Castillo, 2015).

However, the data sharing meeting has to elicit immediate action, promote behavior change, share new information or insights, solicit support or participation, educate about recent findings or accomplishments, document magnitude of health problem, justify program activities, and prepare for an upcoming intervention or program. Meanwhile, the data sharing meeting led to the cooperation and support of health services providers and managers, incentives and preparing environment whereby each individual within an organization feels the importance of participation in data collects collect, analysis, use, and reporting. Process and procedures for data use should be in place, precisely, concise, clear documentation of what is expected in using data should be on place.

# CHAPTER SIX
# CONCLUSION AND RECOMMENDATIONS

## 6.1 Introduction

This chapter presents summary of all the discussion on the findings and its conclusion. Furthermore, providing suggestion and recommendation by which different evaluators, actors and stakeholders should work up on it.

### 6.1.1 Summary

This study assessed the Result based financing (RBF) program on data quality improvement in HMIS at primary healthcare facilities. The quality of HMIS data was assessed on basing data verification scores of facilities. The RBF team conducting data verification scores in quarterly at primary healthcare facilities that are implementing RBF program in Mafia DC which the facility provided financial rewards for their achievement of performance targets. The study used a cross-sectional evaluation design to evaluate this program. The sample consisted of participants from the health facility particularly Dispensary in Mafia DC

Finding shows that in perspective of training in data quality improvement, this indicated that the training has improved data quality in HMIS in the facility on data collects, analysis, reporting, and data use. This training enhanced health staff to have awareness and equipped with knowledge in the implementation of data activity. Hence the facility improved its data verification scores from quarter to quarter which usually conducted by the RBF program quarterly. The training made health staff to identify errors in the data collection exercises, to prognosis the trend of performances as well as to use data for the planning process.

Moreover, the supportive supervision on HMIS data has been well recognized by health staff. The respondents agreed that the supportive supervision had to make cooperation and relationship between supervisors and health staff and if the health staff had little knowledge with issues of data the supervision used to provide on the job training. Therefore, the supportive supervision is crucial to facilitate the data quality improvement in HMIS.

Findings identified that data sharing meetings promoted a culture of collects, analyses, reporting and use of data for facility improvement. This made health staff see data is crucial and critical for data quality of HMIS data based on data verification

scores. However, this study revealed that respondents had ever attended this meeting. As well as respondents said that the meeting agenda of this meeting directly address the data quality of HMIS data.

### 6.1.2 Conclusions

The ultimate success of any RBF program towards data quality improvement in HMIS is measured by the level of demand and use of its produced data by the targeted audience for informed decision making. This is to say that RBF program is producing data that are potential but not used for evidence-based decision making. The intervention that was made by RBF program include training on HMIS data is a key factor for the quality of HMIS data; basically, one of the objective of the Result based financing (RBF) program which deals with strengthening the health management information systems therefore to achieve this, RBF introduced training to health providers to offer a quality of HMIS data. To achieve this objective, it is the expectation of the program to see those staff trained on HMIS data are available and are working in the respective places.

The supportive supervision and data sharing meeting on data quality improvement in health management information systems is very important to boost the implementation of data activity at the facility level as well as Council which used, to identify the errors of data, to see the trend over quarter and to use data for program improvement**.**

## 6.2 Recommendations

The health sector is drastically changing with increasing demand for improving the quality of HMIS data in the Primary healthcare facilities. Therefore, the intervention made by RBF program as one of the strategies in objectively to contribute of health quality of HMIS data in Primary healthcare facilities. The implementation of RBF Program has shown some improvement of quality of HMIS data

Therefore:

i. RBF program in collaboration with MoHCDGEC should strengthen the data quality improvement of HMIS data in terms of building capacity of healthcare providers through training.

ii. RBF program should strengthen and follow up by ensuring that a quarterly supportive supervision is compressive enough to accommodate gap identified during RBF data verification

iii. The data quality improvement in HMIS should be strengthened, as they are the key success in implementation of RBF program at facility level.

### 6.3 Policy Implication

Results from this study will provide MoHCDGE with relevant information that will be used during the preparation of health sector strategic plan not only that but also will act as the baseline information for the MoHCDGE to expand the coverage area for project implementation so that many other stakeholders should benefit from the project in the country. Moreover, the government will use information from this evaluation study to facilitate health facilities to be able to accommodate and scale up the data quality improvement in HMIS**.**

### 6.4 Limitation of the Evaluation

This evaluation study has some challenges which are presented as; the use of a self-administered questionnaire to collect data for this study. As participants of this study would not be given a chance to explain or clarify their views/opinions or ambiguous questions hence the information obtained might not be a true reflection of their views. Secondly; this study was not involved health centre due to not available of health center in Mafia.

These challenges were addressed as follows as; the questionnaire used had several answers for each question to provide a wide range of alternatives which respondents could choose, also the questionnaire used was piloted to people with similar characteristics as those of the study participants this is to ensure it captures necessary information as intended for the study

However, the information is only generalizable for areas that implemented the primary healthcare facility that are implementing RBF program.

### 6.5 Area for Further Evaluation

This evaluation study has evaluated Result based financing program on data quality improvement in health management information systems to primary healthcare

facilities in Mafia District Council. The scope that left aside some other important aspects of quality health management information systems data unevaluated. Therefore, the evaluator recommends the following areas for further evaluation;

i. Assessing the data quality improvement in HMIS for planning of health interventions
ii. To evaluate the knowledge of health staff on performing HMIS data tasks.
iii. The sustainability of the RBF program on data quality improvement in HMIS data in Mafia District Council.
iv. To evaluates the impacts of quality HMIS data on the improvement of health services delivery.

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# APPENDICES

## APPENDIX 1

## STUDY's QUESTIONNAIRE

Dear participant, I am Hassan Nahoda, a student at Mzumbe University pursuing Master of Science in Health Monitoring and Evaluation (MSc.HME). I am conducting an evaluation study on "The contribution of RBF program to quality of HMIS data at Public health facilities in Mafia DC". I kindly ask for your cooperation to make this study successful. I assure you that the information provides will be treated with strict confidentiality and will only be used for academic purpose.

**PART 1: Demographic Information**

***Select your response by circling your appropriate choice***

1.1 Gender of the respondent.

a) Male b) Female

a. What is your age**? .....**
b. What is your level of education?
    a) Certificate
    b) Diploma
    c) Advanced diploma
    d) Degree
    e) Others, specify _____
c. What is your occupation?
    a) MO
    b) CO
    c) Nurse
    d) Lab technologist
    e) Others, specify _____

d. For how long have you been working in this facility? ……

e. What is your marital status?

**a.** Single

b. Married

c. Divorced

d. Separated

**PART 2: Training in quality of HMIS data**

***Select your response by circling your appropriate choice***

2.1. Have you ever attended training in recording (collect) the data for data quality improvement in HMIS conducted by RBF program?

a. Yes

b. No

c. I don't remember

2.2 Have you ever attended training in data analysis of data quality improvement in HMIS conducted by RBF program?

a. Yes

b. No

c. I don't remember

2.3 Have you ever attended training in data use for decision making in data quality improvement of HMIS conducted by RBF program?

a. Yes

b. No

c. I don't remember

2.4 Have you ever attended training in data reporting of data quality improvement in HMIS conducted by RBF program?

a. Yes

b. No

c. I don't remember

2.5 Have you ever attended training in data management of data quality improvement in HMIS conducted by RBF program?

a. Yes

b. No

**c**. I don't remember

2.6. How many training of data quality improvement in HMIS was attended that conducted by RBF program?

a. 1

b. 2

c. 3 and above

2.7 Did HMIS guidelines in training of data quality improvement in HMIS distributed to participant conducted by RBF program?

a. Yes

b. No (If No Skip Qn 2.8)

2.8 Is the written guidance of HMIS is understandable/clear?

i. Very clear

ii. Clear

iii. Moderate

iv. Not clear at all

**PART 3: Supportive Supervision in HMIS on data quality**

***Select your response by circling your appropriate choice***

3.1: Did RBF team conduct supportive supervision of data quality improvement in HMIS?

a. Yes

b. No

3.2 How many supportive supervision in data quality improvement on HMIS conducted for the financial year 2017/2018 in your facility by RBF program?

a. 4

b. 3

c. 2

d. Others Specify ……..

3.3. Did you observe a RBF supervisor having a checklist to assess the data quality improvement in HMIS?

a. Yes

b. No

c. don't observe

3.4. Did the RBF supervisor discuss performance of data quality improvement in HMIS when they visited your facility?

a. Yes
b. No
c. I don't remember

3.5. Did the RBF supervisor send a report/feedback/note on the last two supervisory visits?

a. Yes
b. No

3.6. Did your facility developed action plan to address RBF supportive supervision gaps of data quality improvement in HMIS?

a. Yes
b. No

**PART 4: Data sharing meeting in quality of HMIS data**

***Select your response by circling your appropriate choice***

4.1 Have you ever attended data sharing meeting of data quality improvement in HMIS for the year 2017/2018 conducted by RBF program?

a. Yes
b. No

4.2 How many data sharing meeting of data quality improvement in HMIS you had ever attended for the year 2018/2019 conducted by RBF program?

a. 4
b. 3
c. 2
d. Others Specify ……..

4.3. Did agenda of data sharing meeting were relevant to HMIS in your facility?

a. Yes
b. No

4.4. Has your facility made any decisions based on the report of data sharing meeting of HMIS data?

a. Yes
b. No

**PART 5: Data verification score in HMIS**

5. 1: What is average of data verification score for the year 2017/2018 in your facility that was conducted by RBF program? .....

**Thank you for your participation in this study. Do you have any question about the study or any comment?**

## APPENDIX II

## INTERVIEW GUIDE

Participant No……

INFORMED CONSENT

Hello……. how are you today?

Thank you for agreeing to talk with me today, my name is Hassan Nahoda, MSc Health Monitoring and Evaluation student from Mzumbe University.

My study requires me to undertake an evaluation of RBF program/project which will ultimately allow me to write a report as requirement for the partial fulfillment of the award of the master degree.

In this regard, I am conducting on" The Contribution of RBF program to quality of HMIS data at Public health facilities in Mafia DC". I want to assure you that any information acquired in the course of this session will only be used for the purposes of the study and not otherwise. No information given will be disclosed to unintended audiences but only to Mzumbe University, Mafia DC, RBF program and other relevant national authorities responsible for HMIS. The information obtained will be treated in high anonymity and will be stored carefully. It is entirely voluntary to participate in this study and you're free to decline any time.

You are free to ask me questions during our discussion for clarification and you can tell me to stop at any time when you feel tired. Our discussion will take hardly 30 to 45 minutes.

Please can we start?

1. What do you understand by the RBF programs?
2. What is rationale of RBF program towards quality of HMIS data in your facility levels?
3. How do RBF program promote awareness of rationale of quality of HMIS data in your facility? Explain

4. What are the areas that you think RBF program should include in the training of quality HMIS data? And how would be relevant to quality of HMIS data. Explain

5. Can you please tell me; how do RBF program promote to utilize sharing data meeting reports in quality of HMIS data in your facility?

6. Please tell me, what are you going to discuss with RBF program supervisor in performance of quality of HMIS data and the RBF program supervisor has a tendency to help you in addressing the gaps encountered during the supportive supervision in your facility?

7. In your own view, do you think supportive supervision and data sharing meetings conducted by RBF program has any changes towards quality of HMIS data in your facility? Please can you explain what are changes encountered through this supportive supervision?

8. What can RBF program together with Council health management team in Mafia DC should do to address challenges discussed in data sharing meeting?