

**INTEGRATED DATABASE SYSTEM FOR HIV/AIDS
MANAGEMENT: A CASE OF KICOSHEP-KENYA**

CELINA KAGENDO MUTEKI

W82/90077/2016

**A DISSERTATION SUBMITTED IN PARTIAL FULFILMENT FOR
THE AWARD OF FELLOWSHIP IN CAPACITY BUILDING FOR
SUSTAINABLE DEVELOPMENT (MONITORING AND
EVALUATION) OF THE UNIVERSITY OF NAIROBI**

©2019

DECLARATION

This project report is my original work and has not been submitted to another university or college for examination or an academic award. All the sources have been properly cited and referenced.

Signature: _____

Date: _____

CELINA KAGENDO MUTEGI

REG NO; W82/90077/2016

DECLARATION BY SUPERVISORS

This project report has been submitted for examination with our approval as university supervisors

Signature: _____

Date: _____

DR ANGELEINE MULWA

University of Nairobi, ODEL Campus

Senior Lecturer

Signature: _____

Date: _____

DR. Lydia Wambugu

University of Nairobi, ODEL Campus

Senior Lecturer

DEDICATION

I dedicate this project report to my parents: Late Dad, Josephat Mutegi and Mom, Chrisinzia Mutegi.

ACKNOWLEDGEMENTS

I wish to give special thanks to my University supervisors Dr. Angeline Mulwa and Dr. Lydia Wambugu for their whole hearted support, guidance, encouragement, professional advice and inspiration at all the stages of my project implementation at Kicoshep. I equally acknowledge and appreciate the useful suggestions and professional advice of Rev. Dr. Anne Owiti at implementation place as my Mentor. I thank the lecturers who took me through course work before proceeding to my experiential learning for implementation. I sincerely thank Kicoshep staff for uniting with me and working as a team during my experiential learning at Kicoshep. I am grateful to all UNITID secretariats for support and advise when I needed them. I thank my colleagues for helping me when I needed them, Caroline, Vivian, Milka, Mwiti to mention but a few. I cannot forget the noble efforts and support of my parents, Josephat Mutegi (Late) and Chrisinzia Mutegi for being good parents and always being there for me. I sincerely acknowledge and appreciate my husband John Nyabwari for his tireless support during my school work. I am grateful to all my sisters and brothers.

TABLE CONTENTS

DECLARATION	II
DEDICATION	III
ACKNOWLEDGEMENTS	IV
LIST OF TABLES	VII
LIST OF FIGURES	VIII
LIST OF ABBREVIATION AND DEFINITION OF TERMS	IX
ABSTRACT	X
CHAPTER ONE	1
1.1 Introduction	1
1.1.1 Kicoshep Strategic Area of Focus includes;	1
1.1.2 An Overview of integrated system for HIV/AIDS Project	2
1.2 Statement of the Problem	3
1.3 Purpose of the Study	4
1.4 Project Goal.....	4
1.4.1 Specific objectives.....	4
1.5 Justification/ Significance	4
1.6. Limitation and Delimitation of the study	5
1.7 Assumptions of the study	7
1.8 Definitions of Significant Terms.....	7
1.9 Summary	7
1.10 Organization of the Report.....	8
1.11 Plans on how fellow was to deal with the Problem	8
1.11 Solution/Suggestion/Intervention.....	9
1.12 The Outcomes were as follows;	9
CHAPTER TWO: LITERATURE REVIEW	10
2.1 Introduction	10
2.2 Current thinking, findings and approaches on data governance	11
2.3 How literature review motivate data governance.....	13
2.4 The way forward of data governance.....	14
2.5 Communication Strategies/Plans/Processes.....	14
2.6 Figure 2.1: A conceptual framework for integrated HIV/AIDS data system	15
2.7 Documentation Process.....	16

CHAPTER THREE: RESEARCH METHODOLOGY	17
3.1 Introduction	17
3.2 The scope	17
3.3 Implementation Methods and Management Plan.....	17
3.4 Key Institutional Issues addressed	21
3.5 What Was Done and How	22
3.6 Other Activities Fellow Participated in during Experiential Learning as described below	24
3.7 Roles and Responsibilities of the Staffs.....	25
3.8 Implementers, Partners and Beneficiaries (Stakeholders)	26
3.9 Communication Strategies/Plans/Processes.....	26
3.10 Figure 3.1: A conceptual framework for integrated HIV/AIDS data system	27
3.11 Documentation Process	27
3.12 Risks/Assumptions.....	28
3.13 Sustainability Plan.....	28
3.14 Ethical Consideration and Confidentiality	29
CHAPTER FOUR: DATA ANALYSIS AND PRESENTATION OF RESULTS.....	31
4.1 Introduction	31
4.2 Deliverables or Outputs	31
CHAPTER FIVE: SUMMARY OF FINDINGS, DISCUSSION AND CONCLUDE	34
5.1 Introduction	34
5.2 Project Monitoring and Evaluation	34
5.3 Impact of the Project	34
5.3.1 The importance of database in the organization.....	35
5.3.2 Use of the Results, E.G., Cascading to other staff	35
5.4 Conclusion	36
5.5 Recommendations for Kicoshep	36
5.6 Lessons Learnt from the Project	38
SELECTED REFERENCES	39
APPENDICES	42
Appendix 1	42

LIST OF TABLES

Table 3.1: Logical Framework.....18
Table 3.2: Roles and responsibilities of the staff25

LIST OF FIGURES

Figure 2.1: A conceptual framework for integrated HIV/AIDS data system	15
Figure 3.1: A conceptual framework for integrated HIV/AIDS data system	27

LIST OF ABBREVIATION AND DEFINITION OF TERMS

DHIS	District Health Information Software
HBC	Home Based Care
HIV	Human Immunodeficiency Virus
HTC	HIV Testing and Counseling
MSH	Management Sciences for Health
NGO	Non- Governmental Organization
OCA	Organization Capacity Assessment
OVC	Orphans and Vulnerable Children
PLHIV	People Living With HIV
PLP	Participating Local Partners
UNITID	University of Nairobi Institute of Tropical and Infectious Diseases
USAID	United States Agency International Development

ABSTRACT

Kicoshep is a national NGO founded in 1990 in Kibera slums with the aim of supporting communities to cope with the impact of HIV/AIDS and provide home-based care services to the people living with HIV (PLHIV) and their families. The organization has grown from a small clinic providing home based care services and palliative care to a national NGO currently operating in the following counties: Nairobi, Kisumu, Machakos, Busia and Migori. According to organization capacity assessment (OCA), Kicoshep had various gaps that needed to be addressed for it to be able to run effectively and efficiently. Some of the main gaps were on: (i) HIV/AIDS data collection tool; (ii) HIV/AIDS data management; and (iii) a dashboard for all interventions. The HIV/AIDS data for Kicoshep was scattered in various programmes because the organization has many activities related to HIV/AIDS. The main objective was to enhance HIV/AIDS data management for effective and efficient delivery of health care services to vulnerable communities in areas of operation. Other specific objectives were to develop data collection tools for all programme, to integrate HIV/AIDS data through development of a good quality database system, to train staff on management of database system, to integrate HIV data into database system for planning and decision making. The data collection for the database were from home based care, palliative care, orphans and vulnerable children, referrals, counseling, voluntary counseling testing (**vct**) voluntary medical male circumcision (**vmmc**), people living with HIV/AIDS (PLHIV) and any other health diseases. The project was implemented through reviewing of the previous data collection tool that was in use, finding out how the data was captured, stored, analyzed and utilized. The results were as follows; improved data collection tool and currently being used for data collection and reporting each week during programme meetings, developed database system using Microsoft Access which is in use by the organization and after the development, integrated all the data from various programmes into one central point for easier retrieval of data when needed urgently, planning and decision making. The database system is being used currently by the organization to capture, store, analyze and disseminate as well as use the data for planning and decision making on matters related to their clients towards service delivery, improved patients follow ups through the use of database system, improved data accuracy and built the capacity of 10 Kicoshep staff through training on monitoring and evaluation and database system management. Therefore, since the monitoring and evaluation is an important tool for identifying and documenting successful projects and programme in any given organization, Kicoshep need to adopt M/E in their programme in tracking the implementation, resources and outputs of the projects and programmes. Based on the results Kicoshep need to consider putting more emphases on capacity building of the staff to strengthen monitoring and evaluation and for sustainability of the project, the organization to consider equipping the health centre with necessary materials to avoid much referrals to other facilities, Kicoshep ought to invest resource mobilization to support M/E for quality data in order to have proper decisions depending on the patterns of the data and Kicoshep need to have M/E policy for all programme to be monitored to ensure efficiency, effectiveness and sustainability of the programmes.

CHAPTER ONE

1.1 Introduction

KICOSHEP is a national Non-Governmental Organization (NGO) that was founded in 1990 in Kibera Slums with an aim of supporting communities cope with the impact of HIV and AIDS and provide home based care services to PLHIV and their families. The organization was registered in 1993 with the NGO Board. Kicoshep has grown from a small clinic providing home based care and palliative care to a national NGO currently operating in the following Counties: Nairobi, Kisumu, Machakos, Busia and Migori.

Vision

An empowered, Happy, Healthy and Secure Nation

Mission

To improve the lives of marginalized and vulnerable people in Kenya, particularly those affected by HIV, Emerging and Re-emerging diseases through HIV, TB, Malaria Prevention, Treatment Care & Support, Sexual Reproductive Health & Family planning, Community Investments, Gender Equity, Training and Capacity Building by working through groups, communities and other organizations.

1.1.1 Kicoshep Strategic Area of Focus includes;

Integrated HIV, Malaria, TB and Sexual Reproductive Health, Treatment Care and support for People living with HIV, Maternal Child Health and family Planning, Community Investments and secure livelihood, Education, Training and Capacity Development, Gender Equity and Prevention of gender Based Violence and Strengthening Capacity of Kicoshep.

1.1.2 An Overview of integrated system for HIV/AIDS Project

Integrated database is a harmonized data from different data sources for consistency and for more understanding without losing integrity or meaning of the data. A major factor of any organization's day-to-day operations is the data that is used to keep the operations going. In cases where data is not available, outdated, or incorrect the organization's operations /activities can suffer delays or financial losses. Poor quality data has implications that are negative to the organization, such as increased running costs, inefficient decision making, poor processes, and lower performance due to poor data management (Haug A, Zacharissen F, Van Liempd D, 2011).

Data in an organization needs to be controlled and managed. Without good data management, data collection can be data redundant (i.e., data that is already available in different systems across the organization can be collected, entailing wastage of resources and time). Data governance or management systems provide the basis for the right decisions in an organization; they enforce accountability and encourage desirable behavior and outcomes in an organization (Otto. B. 2009).

Kicoshep needed an integrated data system for capturing, analyzing, storing, retrieving, packaging and disseminating of data to the public. It also needed an HIV/AIDS dashboard that highlights key aspects of all the interventions it carry out. As mentioned earlier, Kicoshep offers various services to the various population groups, and these include: home-based care services, palliative care, HTC, distribution of condoms to the communities, OVCs services, PMTCT services, and VMMC services. All the HIV/AIDS and related information data from mentioned activities or services were stored separately depending on the programmes. For effectiveness and efficiency in decision making, planning, budgeting and information

purposes, all HIV/AIDS data should be integrated into one central system, where any information about HIV/AIDS can be found.

The need for such an integrated system was one of the gaps identified through organizational capacity assessment (OCA) that was conducted on 18th to 19th April 2016 through participatory process facilitated by Management Sciences for Health (MSH) with University of Nairobi HIV Capacity Building (UHIV) staff and other stakeholders.

1.2 Statement of the Problem

Data informs the organization, sub-county, county and nation on the trends or patterns of HIV/AIDS related issues especially in areas of decision making, planning or procuring of HIV/AIDS related items and services. Depending on the data that is generated after an intervention has taken place. Lack of integrated HIV/AIDS data in an organization will cause difficulties in decision making especially in planning, activity schedules, and procurements of materials to control diseases or improve livelihoods of the people it serves in the community. With an integrated and clear data management, Kicoshep was able to know; the number of patients receiving their services, the patients that are linked to other facilities, patients on treatment, number of patients screened for different diseases, the activities to carry on or that has been implemented in response to results from screening, the target groups to be reached to address the issues identified, the inputs needed their costs, and the activities that should be initiated using the inputs.

The project responded to the above gaps by developing a well thought out HIV/AIDS database system that informed the direction and management of Kicoshep programmes and helped them achieve the desired goals.

1.3 Purpose of the Study

The action research tend to enhance HIV/AIDS data management in Kicoshep for efficient and effectiveness of health care services to the community Kicoshep operates. For the study to be successful, the researcher has to develop a data collection tool that is adequate in capturing all the necessary data, come up with a well thought database system to ensure that the data collected from various programme are accurate and timely and finally train the staff in various programme on monitoring and evaluation, database system management for sustainability.

1.4 Project Goal

Goal: To enhance HIV/AIDSs data management for effective and efficient delivery of services to vulnerable communities in areas where Kicoshep operates.

1.4.1 Specific objectives

1. To develop data collection tool for all the programme
2. To integrate HIV/AIDSs data through development of good quality database
3. To integrate HIV data into database system
4. To train the staff on management of the database system
5. To use the integrated data system to develop HIV/AIDS dashboards for all the interventions for decision making.

1.5 Justification/ Significance

HIV/AIDS data in Kicoshep were not integrated into a central point. In relation to these kinds of non-centralized data, Kicoshep takes time in retrieving those data quickly when needed, or even in making use of them to decide on HIV/AIDS activities. Kicoshep finds it hard to tell the number of people it serves because each programme has its own HIV/AIDS data that is

stored separately in different department. Therefore, there was a need to integrate HIV/AIDs data into centralized database system for easier analysis, decision making and easier retrieving of data when needed urgently. Through summarized and analyzed data, Kicoshep is able to make decisions that will improve the lives of marginalized and vulnerable particularly those affected by HIV/AIDs in its areas of service. Through those services that they will get, the community will be empowered, happy and secure from diseases.

On the other hand, this project was aligned to UNAIDS intervention of 90; 90; 90; treatment target of 2020 and 95; 95; 95; treatment target of 2021 to 2030 vision. The project is able to track all the linked HIV patients to various facilities thus the assessment of adherence cases in terms of medication, nutrition and uptake of the clinic dates for check- ups. This way, the project is covering the first and second 95 of UNAIDS target. While on the last 95 the database has all the data on the patients who are on care in different facilities.

1.6. Limitation and Delimitation of the study

The study has some limitations because the organization was not ready to receive me to be part of their team in the organization. This is because the university had not written a memorandum of understanding to the organization. Therefore, the University wrote the memorandum of understanding to the organization explaining the partnership collaboration and the length of experiential learning of the student. The student was accompanied by some of the University secretariat who had to introduction me to the organization management.

During experiential learning at the PLP, the researcher was involved in so many other activities that delayed the project initiation. On the same, the researcher kept on insisting how important data management was to the organization management and advised to develop the

database which was to capture all the data into a central point for easier retrieval, better planning and decision making.

Since the organization has various Programs it was a bit difficult to incorporate all the staff into my project because they were involved in other activities in different projects. Since the project needed team work for better results and sustainability purposes. The researcher had to communicate to the Programme coordinator to come up with a common work plan for all so that the staff could be incorporated in different activities that took place within the organization and outside. so that the student could have some time to implement the project together with the staff. This helped the researcher to have a chance to incorporate other staff into the project.

Delayed funds for project implementation also disadvantaged the researcher in terms of implementation process. The researcher had to use her own funds to ensure that the project was well implemented as per the University expectation.

IT expert who was to be consulted in areas of information technology during development of database system since the researcher is not so much conversant with the Information Technology. Therefore, through the organization management, the researcher had to be linked with an IT expert who was available for consultancy.

1.7 Assumptions of the study

The study had assumption such as the uptake of the organization towards the project implementation; support from the organization during implementation, the involvement of staff toward the project implementation for sustainability purposes finally the completion of the project within time frame

1.8 Definitions of Significant Terms

Data are facts collected for analysis or references

Data management is the process of gathering the data, ensuring that the data is valid, storing it, protecting it from unauthorized persons, processing and ensuring that it is accessible and available

Database it is data that is organized and can be accessed electronically

Data Dashboard is an information management tool that visually tracks, analyzes and displays key performance indicators

1.9 Summary

This chapter is highlighting the effects of not integrating data into one central point in an organization showing the importance of integrated data in an organization especially in health care system which need accurate data for planning, and decision making for efficient and effective delivery of services given in the organization and at national level. The chapter has also explained how the project has been aligned with the UNAID treatment intervention of vision 2030 through development of database system which enables the organization to track the patients who are put on care, whose viral load has been suppressed and also the patients who have been tested. On the other hand it indicates how Kicoshep is able to plan, rate the

performance of the staff and the programme, scheduling the activities and also make sound decision using the database information.

1.10 Organization of the Report

The report is organized into five chapters. Chapter one discusses the background of the organization, research problem, objectives of the study, justification of the study and the purpose of the study. While chapter two reviews literature according to themes such as the current findings and approaches of the problem, how literature motivate the research problem and way forward on the same. Chapter three present the implementation methods and management plan and logical framework. Chapter four presents the results through narrative manner while chapter five contains summary of the study, conclusions and recommendations based on the project.

1.11 Plans on how fellow was to deal with the Problem

The fellow was first to start by doing baseline survey on data management from the organization staff in terms of organization having appropriate data collection tools for all programmes, to have knowledge on how they store data, how they analyze and use analyzed data. After the information of all the mentioned areas in terms of data management, the fellow had the following plans on how to deal with the problem; To develop data collection tool for weekly reporting and feeding the database. To integrate HIV/AIDS data through development of a good quality database. To train staff on management of database

1.11 Solution/Suggestion/Intervention

At the end of the project the UHIV Fellow was expecting to have done the following activities:

- 1 To develop data collection tool for all the programmes
- 2 To develop HIV/AIDs database system
- 3 To integrated all the HIV/AIDS data into one database.
- 4 To have trained 10 staff on database system management

1.12 The Outcomes were as follows;

Built the capacity of Kicoshep staff by training them on how to use the database or operate it, improved the accuracy in data collection and reports, improved efficiency and effectiveness of health care service delivery, Improved patients follow up by proving weekly and monthly reports, **Improved HIV/AIDs data management-** This was achieved through the development of the data collection tools to capture the information that is required for inputting into the HIV/AIDS management database system. The system informs decision making about Kicoshep programmes. The contribution was an integrated system with accurate data about Kicoshep activities, programmes and supporters, **Integrated HIV/AIDS data into central database-** This happened because all HIV/AIDs data from various programmes were integrated into one database, **Provision of white board** – This is used for summaries made from integrated database containing information about all Kicoshep interventions that relate to HIV/AIDS.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

Data is a set of characters, which have no meaning unless seen in the context of usage. The context and the usage provide a meaning to the data that constitute information (Al-Khoury, 2012). Most scientific sources use the terms “information” and “data” interchangeably. The term, “data” is often distinguished from “information” by referring to data as simple facts and to information as data put in a context or data that has been processed (Huang, K.-T. et al, 1999)

In the contemporary societies, we live in the environment where everything we do have to have data records. Data is collected from various sources such as online sales, emails, images and videos which are due to advancement of technology. The advancement of technology has enabled people to easily share and store the data in a cheaper way in day to today activities. Gathering and analysis of data help the organizations to make sound decisions and enhance proper management.

Borne (2014) agrees that it is not the amount of data that is important, but what organizations do with the data. Data can be analyzed for insights that lead to better decisions and strategic business moves. According to Otto (2011), important formal goals of data governance for public organizations are to enable better decision making, to ensure compliance, to increase business efficiency and effectiveness, to support business integration.

Data governance provides both direct and indirect benefits (Ladley, J. 2012). Direct benefits of data governance for business processes can be linked to efficiency improvements

(Hripcsak, G. et al 2014). There is an increase in revenue and market share (Coleman, D.W. et al, 2009) other researchers argue that with good data governance there is a reduced risk of violating into data which is meant to be private and confidential thus high increase of data security and a reduction in costs incurred especially while implementing without knowing the exact data that is being planned for. This is because when planning one has to have an accurate data that is being planned for rather than guessing the data. On the other hand, data that is well-governed helps in improving the management of the information also enhances the trust of the products emanating from the information.

The literature helps the implementer to understand the importance of data governance in an organization. These motivate the implementer to have a proper management of the data that is integrated into one central database which should be private and confidential from non- staff who can disclose the information to others about the data. Good data governance will enhance the efficiency and effectiveness of service delivery to the clients.

An organization that poor data governance has experiences a lot of problems in term of planning, purchasing, budgeting, implementation and incurs a lot of costs during implementation due to lack of accurate data. To avoid unnecessary cost in an organization, there is a need to integrate the data into one database where it is safe and readily for use any time it is required by the organization.

2.2 Current thinking, findings and approaches on data governance

According to Tork and Schwarz (1997) Data cleaning, also called data cleansing or scrubbing, deals with detecting and removing errors and inconsistencies from data in order to improve the quality of data. Data quality problems are present in single data collections, such

as files and databases, for example, due to misspellings during data entry, missing information or other invalid data. When multiple data sources need to be integrated in data warehouses, federated database systems or global web-based information systems, the need for data cleaning increases significantly. This is because the sources often contain redundant data in different representations. In order to provide access to accurate and consistent data, consolidation of different data representations and elimination of duplicate information become necessary.

Galhardas, et al (2000) state that data is not preintegrated as for data warehouses but needs to be extracted from multiple sources, transformed and combined during query runtime. The corresponding communication and processing delays can be significant, making it difficult to achieve acceptable response times. The effort needed for data cleaning during extraction and integration will further increase response times but is mandatory to achieve useful query results.

A number of authors focussed on the problem of duplicate identification and elimination, More recently, several research efforts propose and investigate a more comprehensive and uniform treatment of data cleaning covering several transformation phases, specific operators and their implementation (Raman, Hellerstein and Potter's Wheel,1999.)

Quass (1999) assert that the data quality of a source largely depends on the degree to which it is governed by schema and integrity constraints controlling permissible data values. For sources without schema, such as files, there are few restrictions on what data can be entered and stored, giving rise to a high probability of errors and inconsistencies. Database systems, on the other hand, enforce restrictions of a specific data model (e.g., the relational approach

requires simple attribute values, referential integrity, etc.) as well as application-specific integrity constraints. Schema-related data quality problems thus occur because of the lack of appropriate model-specific or application-specific integrity constraints, e.g., due to data model limitations or poor schema design, or because only a few integrity constraints were defined to limit the overhead for integrity control. Instance-specific problems relate to errors and inconsistencies that cannot be prevented at the schema level (e.g., misspellings).

In a 2006 survey of 359 North American organizations that had deployed business intelligence and analytic systems, a program for the governance of data was reported to be one of the five success “practices” for deriving business value from data assets (Khatri, V. & C.V. Brown 2010). In the last century, still some organizations do not know what data they have, how critical that data is, the sources that exist for critical data, or the degree of redundancy of their data assets (Levitin, A.V. & Redman 1998). In recent days based on argument of Levitin and Redman (1998) most of the organizations have realized how important data are in terms of improving their performance at the organizational level and in matters of competing with other organization in desire for creating organizational values and reducing cost.

2.3 How literature review motivate data governance

Reviewing literature on data governance gives the researcher insight on highlighting the importance of data governance in the organization. This is because the research is able to come up with importance aspects on how the organizations need to understand the process and control of information in that it is captured in the right manner and by ensuring that true and accurate data is entered into database and it is not redundant. This way the organization will not incur cost by guessing the data during planning and decision making time. The focus

of data governance is the quality of information from the root. Legal, compliance and regulatory requirements necessitate that data which forms the basis of information is relevant, correct and trustworthy. Data governance is at the most rudimentary level of information governance as it seeks to ensure that formal management controls are in place to govern critical data assets (Steinhart, 2010). The consequence of poor data is false, outdated or inaccurate information which ultimately results in inaccurate and erroneous plans and decisions (Eckerson, 2014).

2.4 The way forward of data governance

In relation to data governance especially on health care system, the following factors need to be considered. There is need to have good data communication methods, standard guidelines and procedures in health care to enhance trust and working collaborations that lead to conformity of the data policies. On the other hand, organizations need to have consistent framework to support data, track and monitor the delivery of data management services in a complex environment as well as resolve problems related to data. The organization ought to have accurate and consistent data system across multiple forums. Another factor to consider is the standard reporting and protection of the data to ensure that there is transparency and accountability thus enhancing the organization to have data value sets and sound decision making towards their patients.

2.5 Communication Strategies/Plans/Processes

Communication process is the exchange of information between two people or more. Below is the data flow diagram. The diagram shows where the data collection begins to be collected. Once collected, the data goes to the monitoring and evaluation officer, and then it is taken for entry into database system, which is later used to prepare the dashboard. The information

from the dashboard is given back to the staff or stakeholders and the feedback information is given back to monitoring and evaluation officer for adjusting or improving activities and the cycle continues (see Figure 1).

2.6 Figure 2.1: A conceptual framework for integrated HIV/AIDS data system

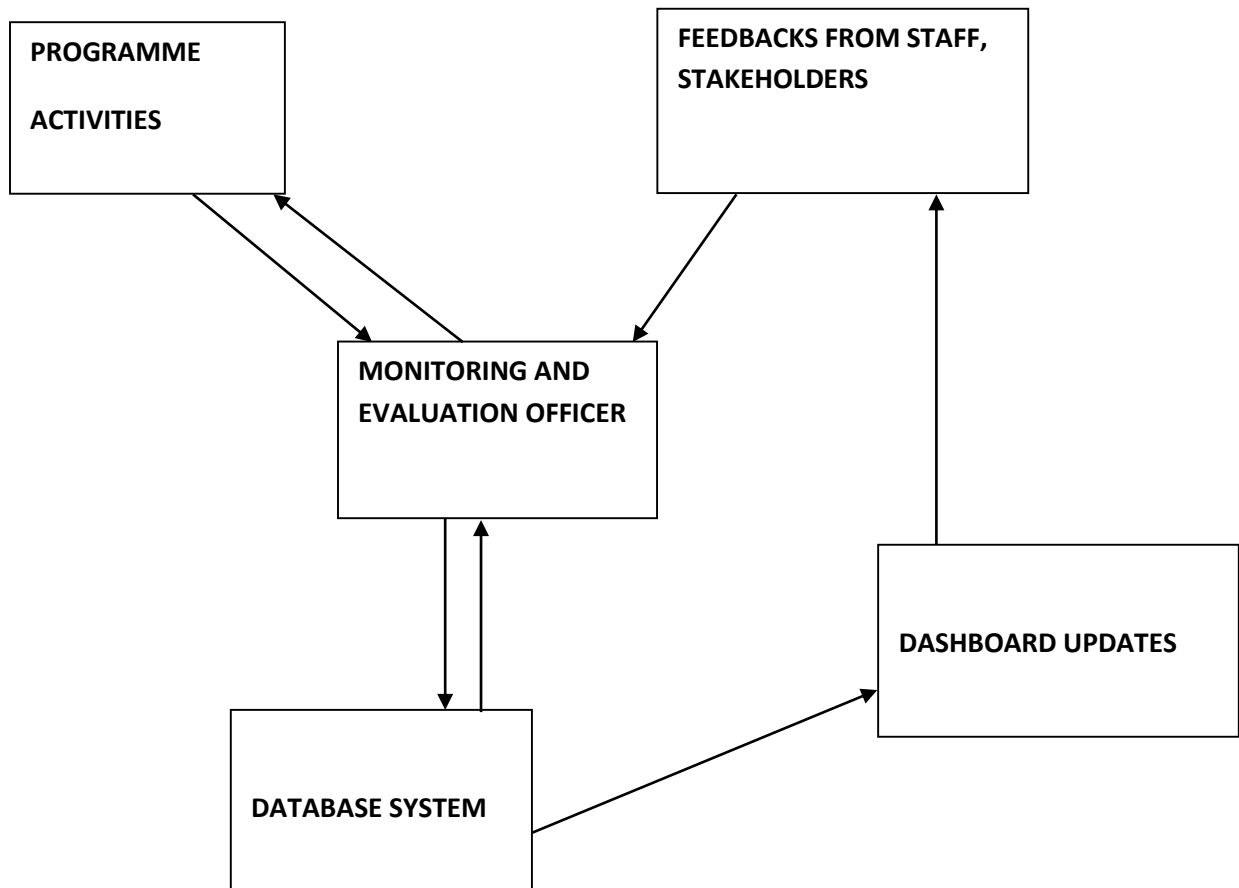


Figure 2.1: A conceptual framework for integrated HIV/AIDS data system

Source: (UHIV Fellow)

2.7 Documentation Process

Process documentation includes various activities: planning documentation collecting information, analyzing and consolidating information for different audiences, disseminating documentation outputs and facilitating the learning process enriched by documentation. The following is the flow of how the documentation was done at the PLP;

Identifying the theory of change and operational assumptions behind the initiative, Capturing systematically information related to the theory of change and operational assumptions, Organizing information in such a way that stakeholders can reflect and learn about the process. Analyzing information by looking at common themes, trends and patterns, placing findings in the context of the project and the project's theory of change, and Disseminating information in a format that is useful and comprehensible, Using the findings to improve the approach, strategy and adjust theory/assumptions about change

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter highlights how the data was collected and how the implementation of the project was carried out.

3.2 The scope

The project targeted the HIV/AIDs data scattered within the different departments including OVCs data, HBC data, PMTCT data, and VMMC data stored in different departments into one database.

3.3 Implementation Methods and Management Plan

For the implementation to be successful, the researcher first started by doing baseline survey on data management from the organization staff, in terms of organization having the appropriate data collection tools, data storage, analyses and the usage of the data. The researcher having known the state of the organization in terms of data management, the researcher began by developing a data collection tools for weekly reporting and also this is the tool that feeds the database.

Table 3.1: Logical Framework

Project Description		Indicators	Means of Verification	Risks/Assumptions
GOAL	To enhance HIV/AIDS data management for effective and efficient delivery of services to vulnerable communities in areas of operation	# of staff using database system	Program report, Weekly report , Monthly report	Uptake of the database system by the organization
OBJECTIVE	To develop data collection tool for the entire program. To develop good quality database system. To integrate HIV data into database system. To train staff on management of the database system	Data collection tool in place Operational database system working # of different data SET integrated into the database by august 2019 No of staff trained on data management by 2019	The data collection tool developed Operational database The Programme report, Photos taken during training Participant list	Utilization of data collection tool by staff in all program Availability of IT Expert for consultancy on database development Willingness of the staff to participant in the project Willingness of the staff to be trained on data management

OUTCOME	Increased efficiency of the patient served Trained Kicoshep staff operating database system	# of the patient served at kicoshep the clinic by aungust2019 Number of staff trained by august 2019	Monthly reports weekly reports Monthly reports Annual reports	Support from the organization
OUTPUT	Developed Database system data collection tool Trained staff on database management	# of number of trained staff number of staff trained on database management	data collection tool in place operational database in place program report	Utilization of the database by the organization Utilization of data collection tool for reporting willingness of staff to be trained on database management
ACTIVITIES	Conducted 2 Meetings for consensus on the data collection tool for all programme with other staff. Developing data collection tool for programme	INPUTS Laptops, IT personnel assistance, suppliers, printing materials, transport cost, Extension cable,		There will be available resources and funds to support implementation process

	<p>Developing database system using Microsoft Access</p> <p>Gathering all the information necessary for database</p> <p>Entering all the clients information into system</p> <p>Preparing training materials</p> <p>Conducting calls and messages informing the staff to be trained about training</p> <p>Conducting 10 sessions of trainings for the database system and monitoring and evaluation</p> <p>Contacting service providers on lunch, tea for the staff who were being trained</p>	<p>White board'</p> <p>training materials</p> <p>marker pens,</p>		
--	--	---	--	--

	<p>Contacting the IT experts for invitation for training the database from initial stage of development and analysis of the data</p> <p>Carrying out monitoring and evaluation of the projects activities</p>			
--	---	--	--	--

3.4 Key Institutional Issues addressed

Kicoshep organization had various issues to be addressed such as ensuring data is used for decision making and reporting regularly, lack of HIV/AIDS database, programme data and the dashboard for all interventions carried out or the activities. The project improved the programme areas of Kicoshep through development of an integrated HIV/AIDS data system and showing how the data system is used to create HIV/AIDS dashboards for Kicoshep interventions. The gaps were identified through organization capacity assessment which was carried out by University of Nairobi organizational capacity assessment tool and MSH staff. The organization used to spend a lot of time while retrieving the scattered data from various departments and programme. This made the whole exercise to be so tedious and wasting time that would have been used in planning, scheduling of activities and procuring of HIV related materials for support as well as for decision making. As a result of this, consensus on data

management project was arrived at through the consultation and discussion between the mentor, the fellow, the staff, participants and local partners.

Due to lack of money by the organization to adopt other hospital database system, the PLP Mentor advised on developing a local database that was used by the organization. It is also applicable in other Kicoshep branches.

3.5 What Was Done and How

Mapping of the program to understand programme more – Mapping was done through dialogue between the fellow and the staffs who carry out the project activities in order to understand the programme activities and what has been achieved and what more needs to be done to achieve stated goals in the organization. Developed a data collection tool for all the programme- The fellow together with other staff evaluated the data collection tool that was in use by then which used to collect data. After the evaluation we realized that the tool was not adequate enough to gather/capture all the information needed, the fellow had an agreement with other programme staff and senior staff improve the tool or develop a new one in order to capture the right data that is needed. Trained the staff on how to operate the database for management purposes the fellow trained 10 staff on how to feed information to database, retrieve, analyze the necessary information from it and update the whiteboard with current information for all the staff to see during programme meeting which is every Mondays. The researcher had to prepare the training materials on the following topics comparison between monitoring and evaluation, definition of a project, where do projects emanate from, understanding the concept of monitoring, understanding the concept of evaluation, m & e in the context of a project life cycle, the 5ws of monitoring, tools used in M/E. on the same note of training based on database development the following areas were trained; Introduction to

Access database, creating of database fundamentals, development of database, Navigation of the database, filtering of data on the database, exporting of data from excel to Access, database testing and debugging and database designing and mapping.

Presenting draft reports to team and stakeholders for review and feedback.-Later, after development of the database, the fellow shared the results with Kicoshep team and stakeholders for feedback on how the project can be adjusted or improved. Monitoring database update all the trained staff were given a chance to fill in the details of the clients to see if they are able to do that by themselves so that this activity can continue later after the phase-out of the fellow. Capacity building -In order to strengthen monitoring and evaluation at Kicoshep, the fellow did several capacity building to the staff and senior manager. This was to train them on monitoring and evaluation, tools used in monitoring and evaluation, why projects go wrong, reasons why the community does not participant in projects, project life cycle, case management, writing of reports. Developed database system using Microsoft Access for HIV/AIDS data integration and for continuous programme updates-The fellow used Access software when developing database.

The database has the following components which include; tables, queries, forms and reports.

Tables In tables we find all the details of the clients which include name, age, sex, contacts, diagnoses, services offered, facility, photo of the client if necessary and the place of residence. Once you type in the names of the clients it populate itself to report into a summary form **Queries**-This section displays all the details of the clients and one do query when you are asking a question or you want some certain kind of information from the database. For example, if you want to know the number of the clients tested for HIV in a certain year or month. Therefore, you click on the query table, the table display the details then you click on

view a certain table comes up displaying other details then you fill in what you want to know then after that you run the question and you get the number you want. **Forms** – The form gives the user a chance of entering new clients into the system with all their details as one fill in the form the details populate themselves to a report automatically. **Report-** Here is where all the details of the patients are seen into a summary form each patients or clients in a table are displayed here with all his/her details at the end of it.

3.6 Other Activities Fellow Participated in during Experiential Learning as described below

A part from all the mentioned activities pertaining project, the organization had different departmental activities where the fellow was fully engaged in the various activities such as development of staff retention policy, the fellow realized there were high rate of staff turnover the fellow and administrator discussed about that and realized there was a need to come up with staff retention policy that can guide the organization in terms of retention. Development of staff training needs since there was capacity building the fellow and administration took a chance of, coming areas which were necessary in the organization for all the staff, but before these action took place we had to call for a programme meeting where we gave all the staff a chance of indicating the areas they were weak in and we come up with training areas. The organization was in need of knowing and documenting a well thought sustainability plan of the organization from the administrator and fellow, whereby we come up with a sustainability plan. Reports writing was necessary for all the staff to have skills on how to write a report since they were all needed to write a report in their area of work monthly, therefore, the fellow took that chance of taking through a report writing. Summarizing of programme monthly activities that have been implemented in that month, there was a need for compiling

of all the reports monthly and since the fellow was in the monitoring department, she was assigned that duty of compiling and submitting it to the administrator for documentation. Training of the staff during capacity building on monitoring and evaluation the fellow had to take staffs through M/E aspect for them to understand all about M/E. Training of staff on database. The fellow had to train the staff on database in terms of how to manage the database, how to update it, look for information, analyze and have data that can be used for decision making and among other activities and gaps that were identified by management sciences for health (MSH) and University of Nairobi HIV capacity building during the assessment of the organization.

3.7 Roles and Responsibilities of the Staffs

Table 3.2: Roles and responsibilities of the staff

Who	Responsibilities
UHIV Fellow	Developing of data collection tools Development of database Integration of HIV/AIDs data into one database Training of staff on database, data management, analysis and disseminating of results Work closely to data manager Quick monitoring and evaluating of the project using the database and whiteboard Disseminating of the results
Monitoring and Evaluation officer	Getting inputs on purpose and objectives of programme from the team and the stakeholders Developed practical recommendations Draft (jointly with Fellow) project report and disseminated it to the staff Prepared plan for data collection that was used to update whiteboard
Programme Administrator and the organization Director	Provide feedback on the status of indicators and objectives achievements providing guidance during the implementation
Stakeholders	Provided critical feedback on reports Feedback on the project impacts
Programme Coordinator	Supported the project implementation Guide on the project progress

Who	Responsibilities
Kicoshep staff	Give feedback on the project inputs, processes, outputs, outcomes, and impacts
Expertise(UHIV Supervisors and PLP Mentor)	Gave advice on the project implementation and development of database facilitated on decision making of the analyzed data and gave the directives of other strategies to be used in order to effectively deliver health care services to the community

3.8 Implementers, Partners and Beneficiaries (Stakeholders)

The project was implemented by the following;

- I. UHIV Fellow (1)
- II. Experts (UHIV Supervisors and PLP Mentor) (two university supervisors and 1 PLP supervisor (3)
- III. Monitoring and evaluation officer (1)
- IV. The Programme Administrator (1)
- V. The Programme Coordinator (1)
- VI. Stakeholders (5)
- VII. Kicoshep staff (10)

A total of 22 staff were involved in project implementation

3.9 Communication Strategies/Plans/Processes

Communication process is the exchange of information between two people or more. Below is the data flow diagram. The diagram shows where the data collection begins to be collected. Once collected, the data goes to the monitoring and evaluation officer, and then it is taken for entry into database system, which is later used to prepare the dashboard. The information from the dashboard is given back to the staff or stakeholders and the feedback information is

given back to monitoring and evaluation officer for adjusting or improving activities and the cycle continues (see Figure 1)

3.10 Figure 3.1: A conceptual framework for integrated HIV/AIDS data system

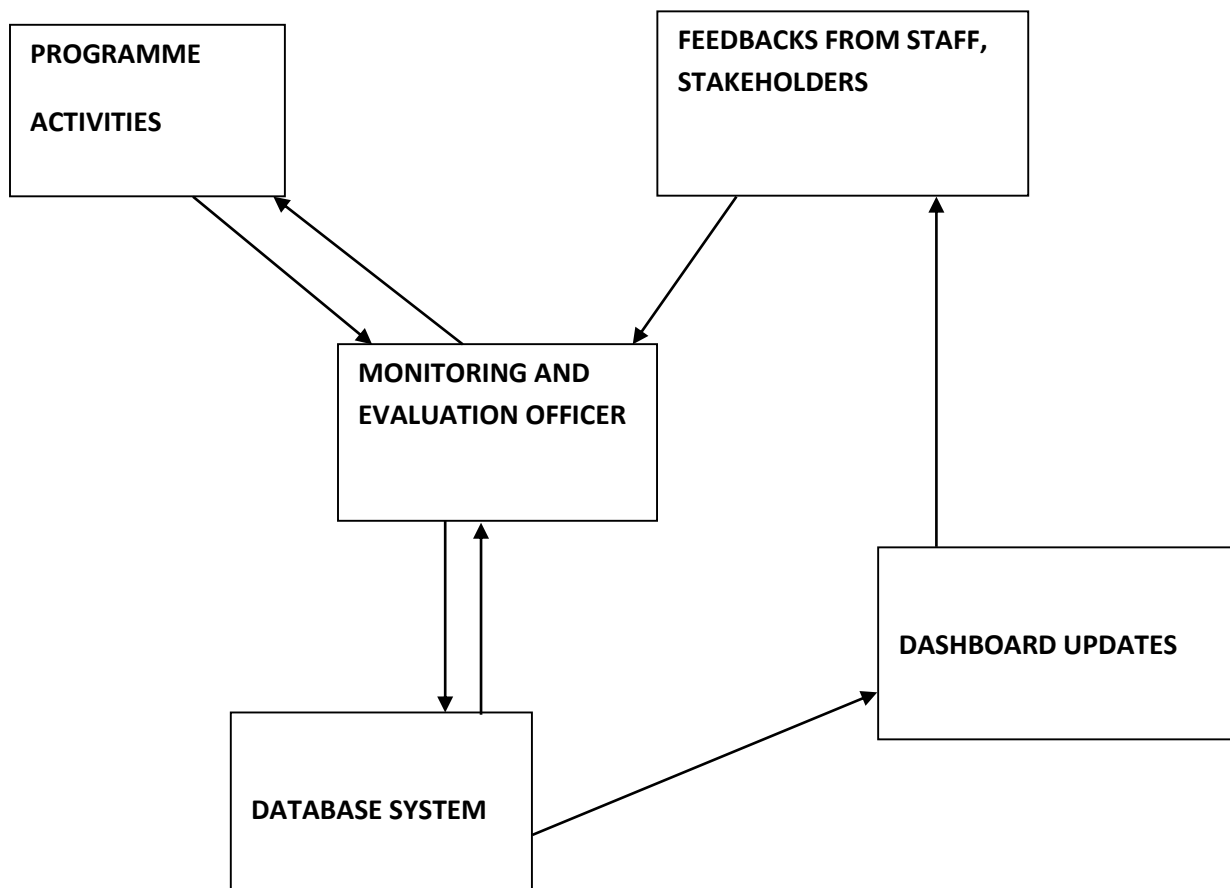


Figure 3.1: A conceptual framework for integrated HIV/AIDS data system
Source: (UHIV Fellow)

3.11 Documentation Process

Process documentation includes various activities: planning documentation collecting information, analyzing and consolidating information for different audiences, disseminating documentation outputs and facilitating the learning process enriched by documentation. The following is the flow of how the documentation was done at the PLP;

Identifying the theory of change and operational assumptions behind the initiative, Capturing systematically information related to the theory of change and operational assumptions, Organizing information in such a way that stakeholders can reflect and learn about the process. Analyzing information by looking at common themes, trends and patterns, placing findings in the context of the project and the project's theory of change, and Disseminating information in a format that is useful and comprehensible, Using the findings to improve the approach, strategy and adjust theory/assumptions about change

3.12 Risks/Assumptions

The assumptions were that the organization incorporated the fellow into the organization activities and work as a team and that the organization staff embraced the project implementation, Support by stakeholders in implantation period, Team work from other staffs, Available resources for implementation, Cooperation and support from the implementers

3.13 Sustainability Plan

For the sustainability plan, the fellow incorporated the medium term fellows and senior staff to implement the project and manage the data for the continuity of the project. The medium term were trained on the data, uses of data, types of data, database, database management system, how to capture data, coding data, analyze data, develop database, disseminate and how to utilized data as an organization for decision making. The fellow worked closely to data manager and the monitoring and evaluation officer to ensure that the project will continue after the phase out of the fellow.

The fellow ensured that the database is well embraced by all the staff of Kicoshep even to Kicoshep School where the database captures all the pupils' details in case there is need of any information required since some of the pupils are living with HIV. Kicoshep staffs are now able to operate on database and use the data for decision making. Although, the health Centre has been transitioned to another person which may contradict the data later as they operate due to a different way of management.

3.14 Ethical Consideration and Confidentiality

Ethics is what is morally good or bad in terms of behavior or conducting an activity. Burns, 2012 postulate that code of ethics is an attempt to define basic rules, or principles for determining what constitutes 'good' or 'right' behavior. It can also be a set of moral principles or values. Therefore, the database captured all the clients' data which is very critical. Therefore, the data was valid to a state of integrity, and was stored into a private and confidential state to avoid disclosure of the client's information.

Since the project is based on sensitive information about human being in (health care) the fellow was careful on ethical issues especially on data that was integrated into the system from various departments. To ensure that no personal information is leaked out the fellow generated password for the database. This is to avoid unauthorized persons into database hence confidentiality. Confidentiality was upheld to avoid misuse of the information gathered. The data was handled by appropriate people, especially the staffs in the M/E department with a password before opening it. All the information gathered were approved by staff and management in the organization in order to facilitate effective decision making thus enhancement of the services being delivered to the community members. This way, the

monitoring and evaluation department is able to track all the clients served by the organization. The database was developed through use of Microsoft Access.

CHAPTER FOUR

DATA ANALYSIS AND PRESENTATION OF RESULTS

4.1 INTRODUCTION

This chapter reveals the findings or the results of the project implementation according the project objectives

4.2 DELIVERABLES OR OUTPUTS

Objective. 1. To develop data collection tool for the entire programme

This objective was achieved by the fellow through developing HIV/AIDS data collection tool for the entire programme. Currently the tool is being used to collect all the data in all programmes. This has helped the organization to be capturing all the data needed to report every week. This tool has also helped the organization to realize their weak part in terms of staff performance because it indicate the target, variance of the target, challenges and the way forward on reaching the target set by each staff or programme. Through this the organization is able to collect quality data that can be used for decision making.

Objective. 2. To integrate HIV/AIDS data through development of good quality database

The fellow developed and integrated HIV/AIDS data into database. This database contains name of the patients, age, contact, services given, diagnosis, nonreactive, reactive patients, referrals and the resident of the patients. The database also has tables, queries, forms and reports. Currently Kicoshep is using the database as a continuing project for all Kicoshep Programmes. Through the help of integrated database the fellow developed, the organization was able to identify 1129 clients who were given services of HTC since 2017- to May 2019.

24 people out of 1129 were reactive and were referred to various hospitals such as Mbagathi, Nairobi west prison, AMREF, Uhuru Camp, MSF Belgium in Kibera, Lumumba hospital and Kijabe for treatment care and support. Those who were nonreactive were given health talk on prevention of HIV and AIDS through counseling and condom distribution.

The database development has helped the organization to have quality and accurate data that has improved the effectiveness, efficiency in service delivery.

The database has also helped the organization to track down the patients who are referred to other facilities for care and support, to monitor viral suppression and also to be able to plan on how to reach more community members for HIV testing thus aligning the database to 95;95;95 HIV&AIDS intervention.

It has accurate and readily available data that can be used for planning, budgeting and decision making for the projects or programmes.

The database development has also reduced the paper work and duplication of information in different papers since all is in system. Therefore, the organization has changed the way of storing and documentation of the data

Objective 3. To train staff on management of database system for sustainability of the project

This was attained by training 10 staff on data, database and data management. Currently the staffs are able to run the database. This is, in terms of entering the details of the patients and able to do analyses of the data in the database. Training was a way of sustainability plan for continuity of the project. This is because the staffs have the knowledge on database and

monitoring and evaluation. This is because the fellow worked hand in hand with other staffs in developing data collection tool and database thus ownership of the project and the tool. The training of the staff has reduced the cost of looking for external person for evaluation because the staffs were taken through on how to do evaluation. This has improved the efficiency of the programme because less amount of money is required to get quality data thus not requiring external evaluators to do evaluation. Purchased white board that is used to display information from database by staff in a summary form. Despite the data being populated in summary form in database there is white board which is used to display the data from database to all staff in board room where they meet every Monday for programme meetings. This has helped the staff to evaluate their performance and work towards their achievement of their set goals. Purchased computer which is used in monitoring and evaluation department to capture, store, analyze and disseminate the results. This has changed the way of storing, capturing, analysis and dissemination of data because all the data is into system avoiding a lot of paper work that sometimes can be misplaced and end up missing some data. Bought flip charts, marker pens for training during training

CHAPTER FIVE

SUMMARY OF FINDINGS, DISCUSSION AND CONCLUDE

5.1 Introduction

This chapter reveals how the monitoring and evaluation of the project was carried out and well as indicating the impact of the project

5.2 Project Monitoring and Evaluation

Monitoring is very vital in a project and for an organization to realize the impact of the project that is being implemented. There should be monitoring in every stage of any action taken. Midterm or final evaluations are done to check if the project had achieved what it intended to achieve during initial planning. The fellow tracked all HIV/AIDS related data across organization's programmes in order to gather all the information about the data management. The UHIV Fellow undertook results from monitoring activity in terms of collecting and analyzing data on services provided to determine how much an intervention achieved. An assessment was done to find out if there was any change that has occurred since the implementation of the project. In terms of evaluation, the fellow started by doing formative evaluation, involving the assessment of ongoing activities as well as verifying the information reported about the project to ensure that good evidence is being used for decision making.

5.3 Impact of the Project

The implementation of the project impacted the organization in the following ways: **Improved data integrity** (this is ensuring that there is data maintenance and assurance of accurate and consistent of data throughout), **completeness** (this means that the organization is at a state of having appropriate data) , **accuracy for effective decision making**- the data

integrated into database was accurate and timely and this informed the decision making and planning for HIV/AIDS services

5.3.1 The importance of database in the organization

It helped the staff and the senior managers to save time when need of data quickly instead of going back to search for data and the time wasted retrieving data can be used for production. This is because the data in the database system can be retrieved within a very short time as compared to retrieving data from files where they can be misplaced unlike in the database. It also helped the organization to measure their performance and improve where there might be gaps. This is because the analyzed data from the database will indicate or help the staff to rate their performance. For example if the staff was targeting 30 support groups and at the end of the activities the staff reached out to 10 they she/he will be able to evaluate her/his work and rate it for improvement. Finally it helped the organization be able to judge their planned activities using the database to know the number of the patients the organization is able to plan well about the activities to be carried out rather than when doing guess work because one is not able to exactly know the number of clients being planned for.

5.3.2 Use of the Results, E.G., Cascading to other staff

The final result is used by health records information in the organization. The health records department is able to have the accurate data for reporting to District health information software (DHIS) each time they are required to report. The stakeholders who support HIV and AIDS program for planning and decision-making purposes. Having the right data, accurate ready all the time, the HIV/AIDS supporters are be able to analyze the data in terms of patterns and trends for planning and decision making on either the activities related to HIV/AIDS on either coming up with new interventions for more effectiveness and efficiency.

The organization uses the results for improvement; planning and decision making for example, this helped the staff to improve on their area of performance if the activity is rated low.

5.4 Conclusion

Monitoring and evaluation is very vital to all organizations that needs to prosper and looking forward to high productivity of their organization. Monitoring and evaluation is an important tool for identifying and documenting successful projects and programmes around the world. The organization need to adopt monitoring and evaluation in their programme and project since M/E is used in projects to track the implementation, resources and outputs of the programmes. Monitoring and evaluation will help the organization to measure the effectiveness and efficiency of the services delivered in all projects being carried out. Therefore, the organization need to embrace and put emphases on monitoring and evaluation in order to help the organization to measure their programmes and project.

5.5 Recommendations for Kicoshep

Having been worked with Kicoshep for 2years now in monitoring and evaluation as a fellow student, I would like to recommend the following;

Kicoshep ought to develop a partnership policy or memorandum of understanding with organizations that they collaborate with. This is to ease follow ups that Kicoshep do to various facilities especially to those referred for care and support, so that when the clinicians follow up their patients in those facilities will be easy and effective. For example, we realized when a referred patients is sent for care and support some do not report back to our facilities that they

have been treated and put on care and it becomes so hard for the follow up because the organization does not know if the patient has been put on care or not.

The organization needs to review the formulated staff retention policy that the fellow developed. This will help in improving the staff retention at work place as well as staff welfare because there is a high rate of staff turnover. This is because high rate of staff turnover affects the organization's productivity, effectiveness and efficiency of service delivery in the organization.

The organization need to consider putting more emphases on capacity building of the staff. This is through passing learnt knowledge to other staff from other staff that has been trained on certain skills. This is because most of the staff that has been empowered through training on different skills just leaves the organization without returning the skills to the organization (staff). By doing this the organization is forced to recruit other new staff and before they catch up with organizations activities again it takes some time thus reduction of productivity. On the same, most of the staff that is taken through capacity building does not take the capacity building seriously as expected.

The organization to consider equipping the health Centre in terms of materials, medication and laboratory setting in order to give the best services to the community and avoid referring most of the cases presented at Kicoshep health Centre. By doing this the health Centre will attract many people and also will deliver the services effectively to the community.

The organization to have a monitoring and evaluation policy for all projects and programmes to be monitored to ensure efficiency, effectiveness and the sustainability of the programmes. This is because when projects and programmes are not monitored, the organization is not able

to tell the status of the project activities without being monitored and evaluated for either improvement or termination of the projects, by doing this the organization will save the money for organization.

If the M/E policy is accepted, adopted, owned by the stakeholders and allocation of resources set aside for M/E then the projects will be achieving their objectives.

There is a need to invest in resource mobilization to support M/E for quality data in order to make proper decisions depending on the patterns of the data.

The organization to put emphases on continuous updating of database, analysis of data, consistency on data collection and ensure accurate data that will be feed to database for decision making, efficiency, effectiveness and quality services.

5.6 Lessons learnt from the project

The following are the lessons learnt that one can learn from the implemented project: Database reduces paper work and scattered information, Database can make work easy and enable the organization to retrieve all the information, Monitoring and evaluation can be interesting making the trainee desire to have more sessions and a dashboard is a useful tool in an organization.

SELECTED REFERENCES

- Al-Khouri, A.M. (2012) Data ownership: who owns “my data.” *Int J Manag Inf Technol.* 2, 1–8 .
- Borne, K. (2014), “Top 10 Big Data challenges – A serious look at 10 Big Data V’s.”, Available at: <https://www.mapr.com/blog/top-10-big-data-challenges-%E2%80%93-serious-look-10-big-datav%E2%80%99s#.VLk8Iy6mRYo> (Accessed on: November 17, 2015)
- Burns, S .A .(2012).Evolutionary pragmatism, a discourse on a modern philosophy for the 21st century. The purpose of ethics, Retrieved October 2012 from: <http://www3.sympatoco/saburns/index.htm>.
- Coleman, D.W. et al. (2009) The Role of Data Governance to Relieve Information Sharing Impairments in the Federal Government. In: 2009 WRI World Congress on Computer Science and Information Engineering. pp. 267–271
- Eckerson , W., 2014. Data Governance for the Enterprise: Trends in the use of Data Quality, Master Data Management and Metadata Management. [Online] Available at: <http://www.techtarget.com>
- Field reports done on (Mondays)
- Galhardas, H.; Florescu, D.; Shasha, D and Simon, E.: (2000) declaratively cleaning your data using AJAX. In Journees Bases de Donnees, <http://caravel.inria.fr/~galharda/BDA.ps>
- Haug A, zachariassen F and Van Liempd D (2011), the costs of poor data quality, journal of industrial engineering and management.
- Home based care book
- Hripcsak, G. et al. (2014) Health data use, stewardship, and governance: ongoing gaps and challenges: a report from AMIA’s 2012 Health Policy Meeting. *J. Am. Med. Inform. Assoc.* 21, 2, 204–211

Huang, K.-T. et al. (1999) Quality Information and Knowledge. Prentice Hall PTR, Upper Saddle River, NJ, USA.

Khatri, V. & Brown, C.V.(2010). Designing data governance. Communications of the ACM, 53(1), 148–152

Ladley, J. (2012). Data Governance: How to Design, Deploy and Sustain an Effective Data Governance Program. Newnes

MOH book

Organization's reports

Other Sources of data

Otto Schmidt A, (2015) Enterprise master data architecture: design decisions and options available at [http://; www.researchgate.net/profile/boris_otto/ publication/50222231_Enterprise_ Master Data_ Architecture_ design_ decisions_ and option/ links/0a85e205fc23566a00000](http://www.researchgate.net/profile/boris_otto/publication/50222231_Enterprise_Master_Data_Architecture_design_decisions_and_option/links/0a85e205fc23566a00000). PDF

Otto, B. (2011) A morphology of the organisation of data governance. In: ECIS. Palliative care book

Quass,(1999) Framework for Research in Data Cleaning. Unpublished Manuscript. Brigham Young University.

Raman, V.; Hellerstein, J.M and Potter's Wheel (1 999) An Interactive Framework for Data Cleaning. Working Paper. <http://www.cs.berkeley.edu/~rshankar/papers/pwheel.pdf>.

Steinhart, G., 2010. DataStaR: A Data staging repository to support the sharing and publication of research data. USA, 31st Annual Conference of the International Association of Scientific and Technological University Libraries, pp. 1-11.

The data information was obtained from various sources such as

Wiederhold, G.: (1992) Mediators in the Architecture of Future Information Systems.
Computer 25(3): 38-49,

APPENDICES

In the section of appendices, there are table of work plan with time lines, the modified photos due to staff confidentiality, even though those who had participated in the training had given consent of being taken photos during training in order to avoid identification of the individuals and project budget with justification of the funds

Appendix 1. The photos the fellow took for verification during the implantation of the project



These are some of the staff who were trained on database having lunch which was provided the fellow during training



The photo above shows the fellow facilitating in capacity building of staff on monitoring and evaluation and database development.



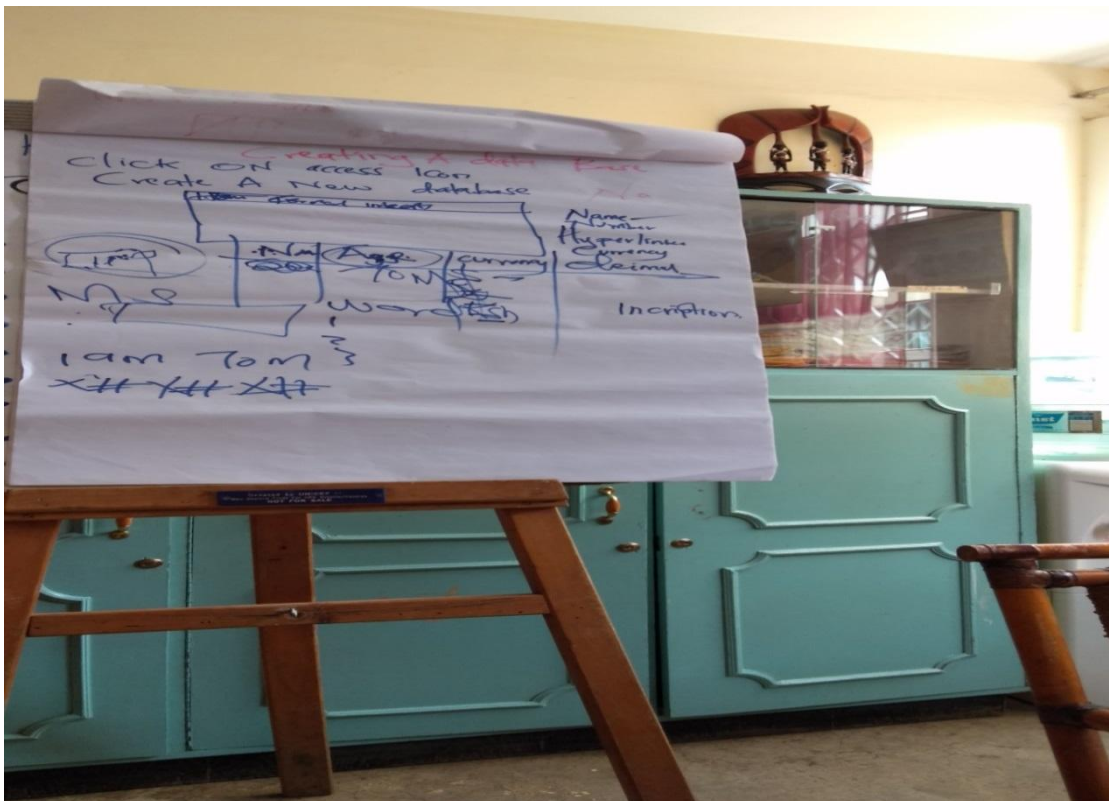
The above photo shows some of the staff having tea and snacks after the training on database usage, components of database, database development, data analysis and how to disseminate the results after analysis the training was facilitated by fellow student.



The above photo shows the fellow facilitating capacity building to staff on monitoring and evaluation based on home visits, palliative care, home based care, how to handle referrals, case management and distribution of HIV preventive commodities such as condom to the community and how to approach the community members due to issues of stigma and discrimination



A facilitator who was invited to come and facilitate to staff on database development, how to specify different variables into different access sheet, the importance of using Microsoft Access software as compared to other software such as excel, below is a demonstration of how to develop a database step by step.



The above photo shows the flip charts which was being used by the facilitator during the demonstration of micro soft access database from the initiation stage to the last stage of computing the data into the system

Below is the fellow demonstrating to staff how the database looks like after development and inputting all the details of clients into it.



Below is the fellow facilitating to staff on monitoring and evaluation in the community and how to collect data in the field for database. This was based on palliative care patients who are positive and have opportunistic diseases such as TB, cancer, diabetic, pneumonia among other diseases. Follow ups of the defaulters who come to Kicoshep for management through home visits and case management was also talked about in this capacity building. The facilitator demonstrated on what is expected of staff when going to field and how to handle patients in the community due to stigma and discrimination.



The whiteboard is also part of the items that fellow bought to facilitate training and also later used for data display from the database for all the staff to view the progress in each project or programme and make decision towards the results displayed.



Training of staff going on above



Above is a photo showing an IT facilitator who was invited to take staff through database development, fundamentals of database, navigation of the data from database and introduction to access database



Above photo shows the facilitator demonstrating to Kicoshep staff on how to filter data on the database



Facilitator demonstrating to staff on how to export data from excels to access, testing the database functionality and debugging.