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**INFLUENCE OF HEALTH INFORMATION SYSTEMS ON MONITORING AND  
EVALUATION OF HIV/AIDS PROGRAMMES IN KENYA: A CASE OF NANDI  
HILLS DISTRICT HOSPITAL.**

**BY**

**ALBINA NJERU - MASWAI**

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**2014**

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**DECLARATION**

This research project is my original work and has not been presented to any other institution of higher learning for the award of an academic certificate.

Sign \_\_\_\_\_

Date \_\_\_\_\_

**L50/60261/2013**

**ALBINA NJERU MASWAI**

This research project has been submitted with my approval as the supervisor.

Sign \_\_\_\_\_

Date \_\_\_\_\_

**MR. JULIUS KORINGURA**

**SENIOR LECTURER**

**UNIVERSITY OF NAIROBI.**

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## **DEDICATION**

I dedicate this work to my husband, Dr. Jonah Maswai for his support and my children Lisa Cherop and Will Kigen, as motivation to them that with dedication achievement is possible.

I also dedicate this work to my late dad, Joseph Njeru for encouragement and for constantly reminding me that the sky is no limit when you are determined.

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## **ACRONYMS**

**AIDS-** Acquired Immunodeficiency Syndrome

**ART-**Antiretroviral Therapy

**CQI-**Continuous Quality Improvement

**HCW** – Health Care Worker

**HIS-** Health Information Systems

**HIV-** Human Immunodeficiency Virus

**M&E-** Monitoring and Evaluation

**MDGs-** Millennium Development Goals

**PEPFAR** – President’s Emergency Program For AIDS Relief

**SRV** – South Rift Valley

**US-** United States

**USAID-** United States Agency for International Development

**USG-** United States Government

## ABSTRACT

Information gathered from Health Information Systems (HIS) is essential for monitoring health, and for evaluating and improving the delivery of health-care services and programmes. Yet health information systems in most countries and especially in developing countries are inadequately utilized for monitoring and evaluation of health programmes, particularly HIV/AIDS programmes. The purpose of this study was to determine influence of health information systems on monitoring and evaluation of HIV/AIDS programmes. Effective monitoring and evaluation of HIV/AIDS program allows the project team to make appropriate decisions on a day-to-day basis and ensures that the program is carried out as planned and modified when necessary. The purpose of monitoring and evaluation is to improve the HIV and AIDS programmes and the infrastructure for delivering them and to guide the allocation of resources in current and future programmes. It is in this context that the study sought to determine the influence health information systems on monitoring and evaluation of HIV/AIDS programmes. The study was guided by the following research objectives: to determine the influence of physical resource (hardware) on monitoring and evaluation of HIV/AIDS program, to establish the influence of stakeholder support (people) on monitoring and evaluation of HIV/AIDS program, to evaluate the influence of data on monitoring and evaluation of HIV/AIDS program, and to establish the influence of system support (software) on monitoring and evaluation of HIV/AIDS program. This study will be of help to the Ministry of Health especially the HIV/AIDS sector through a situational analysis of Health Information Systems on monitoring and evaluation of HIV/AIDS programmes. The study employed descriptive survey research design. The total target population consists of 193 respondents which include 16 HIV committee members and 177 health care workers of Nandi Hills District Hospital. The study used stratified sampling technique on the target population and selected a sample size of 137 respondents. The data was collected through questionnaires. Information collected from the respondents was coded for analysis. The raw data was analyzed using, Statistical Package for Social Sciences (S.P.S.S) and MS-Excel and the researcher used graphic presentation such as tables to present the data. The findings showed that 88.9% were of the opinion that acquisition of ICT resources facilitates access to the world's medical knowledge that has locally-relevant content resources; 89.3% believed that building ICT infrastructure and systems in implementation of HIV/AIDS program will enable employees get the required skills and knowledge; 93.1% Data leads to autonomy of the monitoring and evaluation process; and 91.8% were of the opinion that System support provides the required operations support of the Health Information System. It was concluded that the availability of ICT resources enables health systems to be alert, monitor and control the spread of HIV/AIDS, through the improvement of common information systems. The study also recommended that the management should facilitate availability and easy acquisition of resources to facilitate monitoring and evaluation.

## **CHAPTER ONE**

### **INTRODUCTION**

#### **1.1 Background of the study**

Globally, organizations working in the HIV/AIDS sector today are incredibly busy, forced to respond to a growing demand for programs and activities that respond effectively to the pandemic (Abba, 2007). It is for this reason that HIV/AIDS programs need monitoring and evaluation to ensure they can more efficiently track and utilize their resources for enhanced effectiveness. These organizations tend to find monitoring and evaluation to be time-consuming, expensive, and sometimes externally rather than internally important. In developed countries HIV/AIDS programs have health information systems that is straightforward, affordable, efficient, and most importantly, useful to the management and operations of the programs. The basic principles of monitoring and evaluation beyond the minimum required, which includes maintaining an institutional memory and ensuring reliable and valid data collection and evaluation (Lerner, 2007). In the past few years, the HIV/AIDS programs in the Caribbean designed and implemented successful HIV/AIDS response programs and ignited community-led responses to HIV/AIDS. Improved monitoring and evaluation systems for HIV/AIDS are a product of the use of Health Information Systems.

HIV/AIDS is the largest health crisis facing Africa today. To combat the pandemic, international agencies and governments have devoted large sums of money over the past two decades to HIV treatment programs, so as to monitor the quality of care that patients receive and their clinical outcomes. Each year more than \$300 billion is

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spent by developing countries, international agencies, and developed nations on these programs. Some researchers have stated that there is an evaluation gap (Birdsall, 2006). While these programs have clear goals, evidence documenting their progress, impact, and outcomes is lacking. Monitoring and Evaluation (M&E) of HIV and AIDS programmes is critical in today's environment of heavily donor-funded projects and other reporting requirements. This compendium of health information systems (HIS) seeks to inform the utilization of Health Information Systems to facilitate continuous quality improvement (CQI) of antiretroviral therapy (ART) programs and improved patient outcomes in low and middle income countries. Health information systems includes a broad array of tools that provide a means to effectively manage and share healthcare systems data and patient health information. CQI is a team effort that involves repetitive cycles of performance measurement, quality improvement activities, and re-measurement to determine if the activities resulted in a change (Wray 2010).

The Kenya HIV/AIDS Program Monitoring and evaluation System (KPMS) uses a Microsoft Access based indicator monitoring database in the management, monitoring and evaluation of HIV/AIDS treatment and prevention programs (Randall, 2000). It is designed to operate at the level of in-country implementing partners who manage program specific data and forward it to national level where it is aggregated automatically by USG program managers. The system can reduce the burden of reporting and improve the quality of data by standardizing the collection of data. The system allows partners to monitor their own performance and make decisions informed by the data. United States Agency for International Development (USAID) and other donors supported a groundbreaking effort to improve data quality and use through the

development of district and community health information systems. USAID has aligned its own reporting needs to Kenya's performance management efforts, and continues to support the Kenyan Government's District Health Information System (DHIS) (Wray, 2010). Reporting rates in the DHIS are currently high but lack completeness and accuracy. USAID has supported the development of national training materials for the District Health Information Systems entry and use, which are being rolled out in partnership with the Government of Kenya. This will enable the Government of Kenya and all other key stakeholders to access complete and accurate health information concerning HIV/AIDS program. In the Ministry of Health the Monitoring and Evaluation (M&E) unit oversees the implementation of a Management Information Systems that provides high-quality data that is utilized for informing programmatic decisions and timely reporting (John 2004).

### **1.2 Statement of the problem**

As international efforts to increase access to health care, pharmaceuticals and supportive services for people living with HIV/AIDS and their families are strengthened; the need for monitoring and evaluation also grows. The use of health information systems is a pre-requisite for monitoring and evaluation of the HIV/AIDS programme. A Health Information System provides a solid basis for monitoring and evaluation of large-scale HIV/AIDS programme, ultimately leading to improved planning and decision-making. The use of Health Information Systems in monitoring and evaluation activities allows country health authorities and their partners to assess the extent to which programmes are being implemented and are achieving the intended objectives.

However, health experts worldwide agree that health information systems in most countries and especially in developing countries are inadequately utilized for monitoring and evaluation of HIV programmes, due to lack of physical resources, inadequate employee preparedness, lack of quality data and inadequate systems support. In fact, poor use of Health Information Systems is implicated as one of the main causes for poor monitoring and evaluation of HIV programmes. It is against this background that the study sought to investigate the influence of health information systems on monitoring and evaluation of HIV/AIDS programmes.

### **1.3 Purpose of the Study**

The aim of the study was to examine the influence of Health Information Systems on monitoring and evaluation of HIV/AIDS program.

### **1.4 Research Objectives**

The study was guided by the following objectives;

1. To determine the influence of physical resource (hardware) on monitoring and evaluation of HIV/AIDS program.
2. To establish the influence of stakeholder support (people) on monitoring and evaluation of HIV/AIDS program.
3. To evaluate the influence of data on monitoring and evaluation of HIV/AIDS program.
4. To establish the influence of system support (software) on monitoring and evaluation of HIV/AIDS program.

### **1.5 Research Questions**

The study was guided by the following questions

1. What is the influence of physical resource (hardware) on monitoring and evaluation of HIV/AIDS program?
2. What is the influence of stakeholder support (people) on monitoring and evaluation of HIV/AIDS program?
3. What is the influence of data on monitoring and evaluation of HIV/AIDS program?
4. What is the influence of system support (software) on monitoring and evaluation of HIV/AIDS program?

### **1.6 Significance of the Study**

This study provided a significant understanding to the Ministry of Health especially the HIV/AIDS sector through a situational analysis of the influence of Health Information Systems on monitoring and evaluation of HIV/AIDS programmes. As a result of the study, the ministry officials were exposed to the problems facing the use of health information systems and its influence on monitoring and evaluation of the program. This ensured that they improved in their level of service delivery in program monitoring and evaluation by using an effective Health Information Systems. To the HIV/AIDS program managers and coordinators, project leaders, donor agencies, NGO, technical and implementing agencies, the study aimed to provide an analysis of the use of Health Information Systems for monitoring and evaluation to better harmonize information demands. Finally, the result of the study provided a foundation for future research in the same field if the problem persists.

### **1.7 Delimitation of the Study**

The study was carried out between the months of April to June of 2014 at Nandi Hills District Hospital, which is located in Nandi East sub-county, Nandi County of Rift



Valley Province, Kenya. The study targeted all the health care workers in the Ministry of Health facilities within Nandi East sub-county, all of which are under Nandi Hills District Hospital. The Nandi Hills District Hospital HIV/AIDS programme is funded by the United States President's Emergency Programme For AIDS Relief (PEPFAR), under Walter Reed Project South Rift Valley (WRP-SRV) HIV/AIDS program. The study involved the use of questionnaires to collect primary data. Secondary sources of data (e.g. the internet and Ministry of Health documents) were also used to gain more information for the purpose of this study.

### **1.8 Limitation of the Study**

The study was limited to only Nandi Hills District Hospital HIV/AIDS program, Nandi East Sub-county. Thus, there was a limitation in the number of respondents. The researcher was aware of this limitation and therefore took adequate steps to avoid any hasty generalizations of the conclusions that may come out of this research. Another limitation was that some respondents were not willing to give out information that was important for the study. The researcher however explained to the respondents that the research was only carried out for educational purpose and thus the information collected would be confidential. Time was also another constraint in which some respondents were busy during the days of the data collection and as a result there was difficulty in data collection. Therefore the researcher employed the use of appointments, free times and lunch time of the respondents to enhance effective and complete data collection on the days of the data collection. Few materials were also available because the work is relatively new. Financial constraints also posed another challenge.

### **1.9 Assumptions of the Study**

The assumptions of this study were that all the respondents would be knowledgeable enough to give credible information on the influence of Health Information Systems on monitoring and evaluation of HIV/AIDS program. The researcher overcame this by being available in person or on phone to clarify the various questions. The study also assumed that the respondents would give honest opinions without fear of intimidation. The researcher overcame this by using an introductory letter provided by the University of Nairobi explaining to the respondents that the information they give would only be used for the purpose of this research.

### **1.10 Definition of significant terms**

**Consumer awareness-** is the practice where consumers are aware of what they are acquiring

**Employee preparedness** – is the readiness of the employees in the program.

**Evaluation-** is a collection of activities designed to determine a program's effect or value.

**Facilities** – dispensaries and health centers in Nandi East sub-county under the Nandi Hills District Hospital HIV/AIDS program.

**Monitoring-** is the routine tracking of priority information about a programme (at national or project level) and its intended outcomes.

**Physical acquisition resource-** This unit covers the competency to acquire and manage physical resources to achieve the jurisdiction's objectives

### **1.11 Organization of the study**

The study comprises of five chapters namely chapter; one, two, three, four and five. Chapter one deals with the background of the study, problem study, research objectives, significance of the study, delimitation of the study and the possible limitations that were encountered by the researcher. Chapter two basically deals with reviewing of theories and the past studies. The past studies offer insights and are beneficial in guiding and providing information to the researcher. Chapter three, Research methodology, encompasses: the research design which the researcher used; the study area where the researcher undertook the study, the target population and the sample size that the researcher used to obtain the information from, researcher instruments which the study employed in collecting the information, validity and the reliability of the research instruments, data collection procedures, data analysis procedures, operational definition of variables and ethical consideration. Chapter four comprises of presentation, discussion and interpretation of findings for each of the four study objectives. Chapter five encompasses summary of the findings, conclusion of the study and recommendations for further research.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 INTRODUCTION**

This chapter presents information on discussing the literature review of the objective of this study and the conceptual framework applied to this study .It contains information from what other researchers and scholars have already done in order to be able to facilitate the study.

#### **2.2 Concept of Health Information Systems on Monitoring and Evaluation**

According to Eladio (2009) Monitoring and Evaluation is a tool used in the routine tracking of priority information about a programme and its intended outcomes. It focuses on whether the programme has had the intended effect on specified outcomes. Effective monitoring and evaluation of HIV/AIDS program allows the project team to make appropriate decisions on a day-to-day basis and ensures that the program is carried out as planned and modified when necessary (Febrero, 2009) states that for successful implementation of the HIV/AIDS program it will begin from a pre-planned series of activities and events. However, things rarely work out exactly as planned (Eladio, 2009). Managers must therefore periodically monitor and evaluate selected indicators and measure performance during implementation so they can make timely adjustments where necessary, as well as subsequently determine the extent to which the program or project achieved its objectives (Febrero, 2009).

At a HIV/AIDS program level Health Information Systems supports user-definable data sets and data elements, allowing for a standard method of identifying raw data, while the organization unit pinpoints the data's origin. Bill (2009) states that health information

systems allows for the collection of routine health data and meta-data in a structured manner across technology platforms using an organizational hierarchy structure down to point-of-service level or below. Data is entered into structured forms, and can be validated using a user-definable rules-based system designed to monitor historic trends and can cater for statistical outliers or anomalies, in order to reduce erroneous capture. Consequently, health information systems in a user-definable construct, allows for creation of usable information for reporting purposes, giving users, healthcare workers, program managers or development partners the data they need to make informed decisions (Lerner 2007).

### **2.3 Physical resource (hardware) acquisition and monitoring and evaluation of HIV programme.**

Burroughs (2000) conducted a research on the collaborative efforts of governments and health professionals for creating a reliable, timely, high quality and affordable health care and health information systems. The study main objective was to assess the impact promoting continuous medical training, education, and research through the use of ICT resources, while respecting and protecting citizens' right to privacy. The study employed the use of descriptive survey study design to obtain data from the employees of health sectors. The study target population was 1500 respondents. The study employed the use of a simple random sampling technique and purposive sampling technique. Simple random sampling was used to select employees of various health sectors. Purposive sampling technique was used by the researcher to select the managers of the health institutions. The study therefore used a sample size of 500 respondents to generalize the information of the entire target population. Both questionnaires and

interview schedule was employed by the researcher to collect data. Based on the data collection instruments, data was analyzed both quantitatively and qualitatively. The study findings were that: Acquisition of ICT resources to facilitate access to the world's medical knowledge, that has locally-relevant content resources for strengthening public health research and prevention programmes, and promoting women's and men's health, such as content on sexually transmitted infections, and for diseases that attract full attention of the world including HIV/AIDS, is considered as important for effective monitoring and evaluation.

The study showed also that availability of ICT resources enable health systems to be alert, monitor and control the spread of HIV/AIDS, through the improvement of common information systems, and promote the development of international standards for the exchange of health data, taking due account of privacy concerns (Burroughs, 2000). He recommended the adoption of ICTs to improve and extend health care and health information systems to remote and underserved areas and vulnerable populations, recognizing women's roles as health providers in their families and communities, and strengthening and expanding ICT-based initiatives for providing medical and humanitarian assistance in disasters and emergencies.

Health Information Systems can only be useful when run on computer hardware. Monitoring and Evaluation can be conducted using a wide array of tools, methods and approaches. These include, for example: performance monitoring indicators; the logical framework; theory-based evaluation; formal surveys such as service delivery surveys, citizen report cards, living standards measurement surveys (LSMS) and core welfare indicators questionnaires (CWIQ); rapid appraisal methods such as key informant

interviews, focus group discussions and facilitated brainstorming by staff and officials; participatory methods such as participatory Monitoring and Evaluation; public expenditure tracking surveys; rigorous impact evaluation; and cost-benefit and cost-effectiveness analysis which will be a reality by use of computers and internet.

#### **2.4 Stakeholder Support (people) and monitoring and evaluation of HIV programme.**

Olney (2005) conducted a research on the topic 'impact of Information and communication technology (ICT) on monitoring and evaluation of HIV programme'. The study by Olney (2005) was based on the following main objective, to establish the effectiveness of ICT in monitoring and evaluation of HIV programmes. The study employed a descriptive survey design method targeting the Donor multi-agency institutions in developing countries, a study case of Kenya. The researcher's targeted a population size of 500 respondents of various donor agencies established in Kenya. The study used a sample size of 300 respondents to generalize the conclusion of the study. A stratified sampling design was used by the researcher where the respondents were classified into clusters and simple random sampling was then used to pick select the respondents into the sample size. Both descriptive and inferential statistics were used in data analysis. The study findings were; Information and communication technology (ICT) has been recognized by health workers as an important factor in monitoring and evaluation of HIV/AIDS initiatives in Kenya. Donor multi-agency presence in the country has influenced the strengthening of HIV/AIDS monitoring and evaluation as set in international policies. Poor donor-aid coordination has been recognized as one of the major sources of discrepancies between restructuring plans and their enactments. This has caused virtualization and centralization of monitoring systems and poor local ownership

of HIV/AIDS information, hampering improved design and implementation of HIV/AIDS programs (Olney 2005).

Also the study found out that the employees in health sector need to be in the technology and influencing how it gets developed and created and become very literate so that our concerns are in the development of it further upstream rather than us being just passive recipients of it. ICT solutions are facilitating access to information and education for patients, health workers and policy makers. The use of information technology is breaking down barriers, enabling health service providers to work together more closely and reach out to local clients as well as communities far beyond their geographic borders Green (2005). At the same time, governments and donor agencies worldwide are trying to come to terms with the complexity of current ICT opportunities, the multitude of new ICTs coming on line, and the realities of the global digital divide. They are doing so at the same time that they are attempting to harness the power of cutting edge digital technology within their own organizations. In some cases, already overburdened health workers and program managers are being asked to embrace new technologies even while standards and policies for their use are not yet in place (Green, 2005).

Therefore, Olney (2005) concluded based on his study findings that Monitoring and Evaluation is critically important in determining whether the investment in ICT use is worthwhile, particularly in gauging the benefits to the health initiative the ICT is supporting (Baker, 2005). Evaluation can measure impact and allows corrective measures to be taken where necessary and provides opportunities to share lessons learned for new or ongoing efforts. However, organizations frequently do not formally evaluate their ICT



systems and may not fully understand how best to negotiate or address limitations in existing evaluation techniques that are still grappling with knowledge management evaluation models (Wolf 2005).

## **2.5 Influence of Data on monitoring and evaluation of HIV programme**

Rosenstock (2000) in his study on the topic the impact of Health Information System (HIS) on strategic management of a health sector observed that the use of Health Information Systems (HIS) to support strategic and management decisions of the entire health sector ultimately affect the evaluation and monitoring of any health program. Rosenstock (2000) based his study on the following main objective; to assess the impact of health information system on monitoring and evaluation of health sector programmes. The study employed a cross sectional survey design method targeting the world aids programmes organizations in rural areas of Kenya. The study targeted a population size of 1000 respondents of various organizations dealing with aids programmes. The study used a sample size of 465 respondents. Simple random sampling technique was employed in the study to select the respondents into the sample size. The researcher obtained the sample size using the Mugenda and Mugenda (2003) formulae for a target population of less than 10,000. Based on the data collection instruments, data was analyzed both quantitatively and qualitatively. According the study it was clear that it is the responsibility of multiple stakeholders including various units of the Ministry of Health (e.g., the unit coordinating routine reporting by health facilities, the National Statistics Office which is also responsible for the national population census and most national household surveys) to use Health Information Systems for effective monitoring and evaluation of programmes.

However, the study found out that: The national HIV monitoring and evaluation system needs to draw on existing data from the Health Information Systems. As such, the performance of the HIV monitoring and evaluation system is directly linked to the capacity of the Health Information Systems. For example, primary health workers who report HIV-specific data and district staff who manage the data are often also responsible for collecting and managing data about other health services. Efforts to strengthen the national HIV monitoring and evaluation system should contribute to the overall performance of the health information systems and vice versa. To accomplish this, the national HIV program should invest in building the monitoring and evaluation capacity of front-line health staff and district-level data managers Mitchell (2003).

Equally important, HIV monitoring and evaluation data requirements should be designed in such a way that they do not overwhelm the capacity of the health staff. Efforts to coordinate HIV M&E data within the overall Health Information Systems are therefore essential. In many cases, it is both desirable and feasible to integrate data collection forms and data management systems Wang (2002). During a national HIV monitoring and evaluation, it is therefore important to engage key stakeholders responsible for the data management in the Health Information Systems, including data collection, data processing, data storage and distribution. A national HIV monitoring and evaluation is a diagnostic exercise that enables stakeholders in HIV monitoring and evaluation to identify strengths and weaknesses in the current system and recommend actions to maintain its strengths and improve its weaknesses. With this information in hand, the parties responsible for coordinating national HIV monitoring and evaluation

should then lead a participatory process to develop/revise the national, multi-year HIV M&E plan and/or the annual HIV monitoring and evaluation work plan (Innes 2003).

According to Schillinger (2002), Monitoring and evaluation planning should aim to provide those working at the country level on monitoring and evaluation systems linked to expand HIV/AIDS programmes with rapid access to key resources and standard guidelines. Users include national disease programme managers and project leaders, donor agencies, technical and implementing agencies and NGOs to better harmonize information demands. Schedules should be made as soon as possible after an evaluation to ensure timely implementation of recommended actions (Grumbach, 2002). An evaluation that is not followed by appropriate monitoring and evaluation planning and implementation serves little or no purpose. Monitoring and evaluation system evaluation and monitoring is ideally incorporated in the national strategic evaluation cycle. When the national HIV response is reviewed, it is important to evaluate also the status of the national HIV Monitoring and evaluation system. An evaluation of the overall monitoring and evaluation system should be done at least every two to three years. An in-depth evaluation of a specific component of the monitoring and evaluation system is done as needed. For example, when the evaluation of the overall monitoring and evaluation system flags a problem with a specific system component and further analysis is needed before action can be determined. Routine monitoring of the expected outputs (i.e., the performance results) from the national HIV monitoring and evaluation system can also help to identify where and when a more in-depth evaluation may be needed (Piette 2002).

## **2.6 System Support (software) and monitoring and evaluation of HIV programme**

Menon (2009) conducted a research on the topic “National capacity for monitoring and evaluating HIV/AIDS care and support”. The study objective was an assessment of systems for monitoring and evaluating HIV/AIDS care and support in order to address national and international resources and the related systems for supporting these programmes. The study employed a descriptive survey design method. The study target population was 200 respondents. Census sampling technique was employed in the study to select the respondents into the sample size. Therefore the study used a sample size of 200 respondents. Both closed questionnaires and interview schedule was employed by the researcher to collect data. Based on the data collection instruments, data was analyzed both quantitatively and qualitatively. The study findings were; Indicators should be made as simple and as complementary as possible to direct the most resources to achieving the ultimate objectives of these programmes. However, even collecting simple monitoring information requires resources and a skilled workforce at the national level. Pragmatic, well coordinated and strategic monitoring and evaluation systems are essential to minimize the burden of data collection on country partners while maximizing the usefulness of monitoring and evaluation data for decision-making. National AIDS programmes, ministries of health and other sectors can jointly contribute to enhancing monitoring and evaluation systems and must commit to identifying sustainable resources if monitoring and evaluation is to be a routine programme function.

Through the study findings, lessons learned to date on building sustainable national monitoring and evaluation systems include the following: Monitoring and evaluation systems should be proportional to programme resources (about 10% of the programmatic budget), Monitoring and evaluation are needed at all levels and are most

useful if performed in a logical sequence: first assessing data on input, process and output; then examining behavioral or immediate outcome; and finally assessing disease and social effects. Existing indicators and instruments for data collection and analysis should be built upon but should always be locally adapted. Monitoring and evaluation indicators should measure population-based, biological, behavioral, facility-based and programme data to determine the collective effectiveness of the systems, and these efforts should be supplemented with good contextual data. To minimize the data collection burden and maximize limited resources, monitoring and evaluation activities need to be well coordinated and utilize ongoing systems that collect and analyze data. To increase the utilization of monitoring and evaluation systems and their results thereof, key stakeholders, such as district and national programme managers, policy-makers, community members and programme participants should be involved in the planning, design, development and revising of the monitoring and evaluation systems.

Maximizing resources for developing and implementing a high-quality monitoring and evaluation framework, thus avoiding unnecessary duplication of efforts, requires that international partners work together. Bilateral donors, United Nation HIV/AIDS division (UNAIDS), World Health Organization (WHO), the Global Fund for AIDS, Tuberculosis and Malaria, the World Bank and all their partners and cooperating agencies must work together to develop and evolve care and support indicators, standards and methods of monitoring and evaluation. Thus, the Care and Support Monitoring and Evaluation Technical Working Group started with indicators from WHO, UNAIDS and the United Nations General Assembly Special Session on HIV/AIDS in developing the

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systems framework presented in the following chapter and pilot-tested them for feasibility and reliability in different settings.

Furthermore, health centers can improve the coordination and quality of their services through the inclusion of HIV/AIDS-related performance measures in Bureau for Primary Health Care (BPHC)'s, Clinical Performance Measures Forms and HIV/AIDS-related protocols in their health information systems. These and related activities will support the HIV/AIDS Program's efforts to improve access to care, ensure the provision of care in accordance with evidence-based clinical guidelines, and reduce disparities in health outcomes for vulnerable and underserved communities impacted by HIV/AIDS. Early detection and treatment of HIV/AIDS integrated with culturally-appropriate support services, increases longevity and quality of life for people living with and affected by HIV/AIDS. In close collaboration with the Health Resources and Services Administration (HRSA) HIV/AIDS Bureau, BPHC is striving to increase the availability and quality of resources available to support health centers in this important work (Schulz 2004)

Health Centers can access a broad array of guidelines and protocols regarding the provision of care and treatment to People Living With HIV/AIDS (PLWHA) and the prevention of new infections among those at risk for HIV infection. The AIDS info website is a primary vehicle for disseminating current information about treatment regimens and clinical trials for HIV infection and AIDS-related illnesses. AIDS info is entirely federally-funded and does not allow any company or product advertising or endorsements Israel (2004). The HRSA HIV/AIDS Bureau (HAB) and the Centers for Disease Control and Prevention (CDC) are other key and reliable sources of HIV/AIDS

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care and treatment information. BPHC encourages health centers to comply with federally-approved, evidence-based, and/or consensus-driven guidelines and protocols found on their websites for HIV/AIDS care and treatment.

The provision of Antiretroviral Therapy (ART) to HIV-infected persons substantially reduces the risk of HIV transmission. Recent federal guidelines support initiation of ART for all patients with CD4 lymphocyte counts less than 500 cells/ml. In addition, the National HIV/AIDS Strategy highlights the use of ART for HIV prevention. Adherence to ART among PLWHA is critical for treatment success and is highly associated with beneficial health outcomes, including reduced mortality. Sub-optimal adherence may lead to viral resistance and fewer and more complex treatment options for patients. Efficacious adherence strategies should be incorporated into HIV clinical care.

Research statistics Gann (2003), demonstrates that early initiation of HIV treatment optimizes health outcomes for PLWHA. In addition, assessing the immediate needs of PLWHA and identifying appropriate referrals for psychosocial and support services is essential to the adequate treatment of HIV infection. Both clinical guidelines and the National HIV/AIDS Strategy (NHAS) highlight that PLWHA must both receive needed services and are retained in care to ensure optimal health outcomes. Nearly all HIV infections in children are acquired from their HIV-infected mothers. HIV treatment guidelines support the following interventions: prenatal and postnatal HIV testing, antiretroviral treatment and prophylaxis, scheduled caesarean delivery, and avoidance of breastfeeding. ART should be initiated for HIV-infected women who are planning on becoming or are already pregnant regardless of CD4 count.

The CDC has launched a national campaign to inform health care providers of the importance of providing prevention services to PLWHA as a new “standard of care.” The guidelines, protocols, and other resources listed below can support health center efforts to integrate HIV prevention into the care and treatment services they provide to PLWHA.

Menon (2009) concluded that the recent advances in pharmacologic therapies for HIV have improved the safety, tolerability, and efficacy of treatments, leading to adherence and improved health outcomes. These same advances enable more primary care practices, including health centers, to actively manage the care and treatment needs of PLWHA. To reduce AIDS-related mortality, guidelines recommend routine HIV testing and the provision of antiretroviral treatments soon after infection. This recommendation requires substantial increases in the availability, accessibility, and quality of HIV/AIDS services. Health centers are well positioned to help meet this demand. In this case the management has set a comprehensive treatment, care and support programme in order to mitigate the effects of the HIV and AIDS pandemic. The treatment, care and support programme focus on provision of comprehensive services that address the medical, social and emotional needs of PLWHA. The objectives of the programme are to: Reduce HIV related morbidity and mortality; Improve the survival of PLWHA; Improve the quality of life of PLWHA. Patient access to HIV/AIDS health and social support services can be achieved through on-site service delivery and the establishment of formal referral networks.

## **2.7 Theoretical Framework**

This study was guided by the theory of change and technology acceptance model.



### **2.7.1 Health information systems and Technology Acceptance Model (TAM)**

This study was guided by the theory of change and technology acceptance model. The Technology Acceptance Model (TAM) was advanced by Davis (2009) who came up with the theoretical model aiming to predict and explain ICT usage behavior. According to Davis TAM is an information systems theory that models how users come to accept and use a technology. The model suggests that when users are presented with a new technology, a number of factors influence their decision about how and when they will use it, notably: Perceived usefulness (PU), this is the degree to which a person believes that using a particular system would enhance his or her job performance and Perceived Ease-Of-Use (PEOU) which Davis defines as the degree to which a person believes that using a particular system would be free from effort (Davis 2009).

In relation to the study the theory confirms the importance of understanding the effective use of HIS in conducting quality monitoring and evaluation of HIV/AIDS on the context of perceived usefulness and perceived ease-of-use. From the HIV/AIDS program managers and coordinators, project leaders, donor agencies, NGO, technical and implementing agencies' point of view, in order to foster individual intention to use a technology; positive perception of the technology's usefulness is crucial. Hence the training and information sessions on the use of health information systems should focus primarily on how the technology can help improve the efficiency and effectiveness and quality of monitoring and evaluation of the HIV/AIDS program rather than on the procedures of actual use of the technology.

### **2.7.2 Monitoring and evaluation and the Theory of change**

Theory of change was first published in 1995 by Carol Weiss. Theory of Change is a specific type of methodology for planning, participation, and evaluation that is used in the philanthropy, not-for-profit and government sectors to promote effective implementation of projects and programs. According to Rogers' (2011) theory of change defines long-term goals and then maps backward to identify necessary preconditions. Theory of Change explains the process of change by outlining causal linkages in an initiative, that is, its shorter-term, intermediate, and longer-term outcomes. The identified changes are mapped –as the “outcomes pathway” – showing each outcome in logical relationship to all the others, as well as chronological flow. The links between outcomes are explained by “rationales” or statements of why one outcome is thought to be a prerequisite for another. The innovation of Theory of Change lies (1) in making the distinction between desired and actual outcomes, and (2) in requiring stakeholders to model their desired outcomes before they decide on forms of intervention to achieve those outcomes (Rogers' 2011).

Theory of Change can begin at any stage of an initiative, depending on the intended use. A theory developed at the outset is best at informing the planning of an initiative. Having worked out a change model, practitioners can make more informed decisions about strategy and tactics. As monitoring and evaluation data become available, stakeholders can periodically refine the Theory of Change as the evidence indicates. A Theory of Change can be developed retrospectively by reading program documents, talking to stakeholders and using monitoring and evaluation data Rogers' (2011). This is often done during evaluations reflecting what has worked or not in order to understand the past and plan for the future. A common error in describing Theory of Change is the

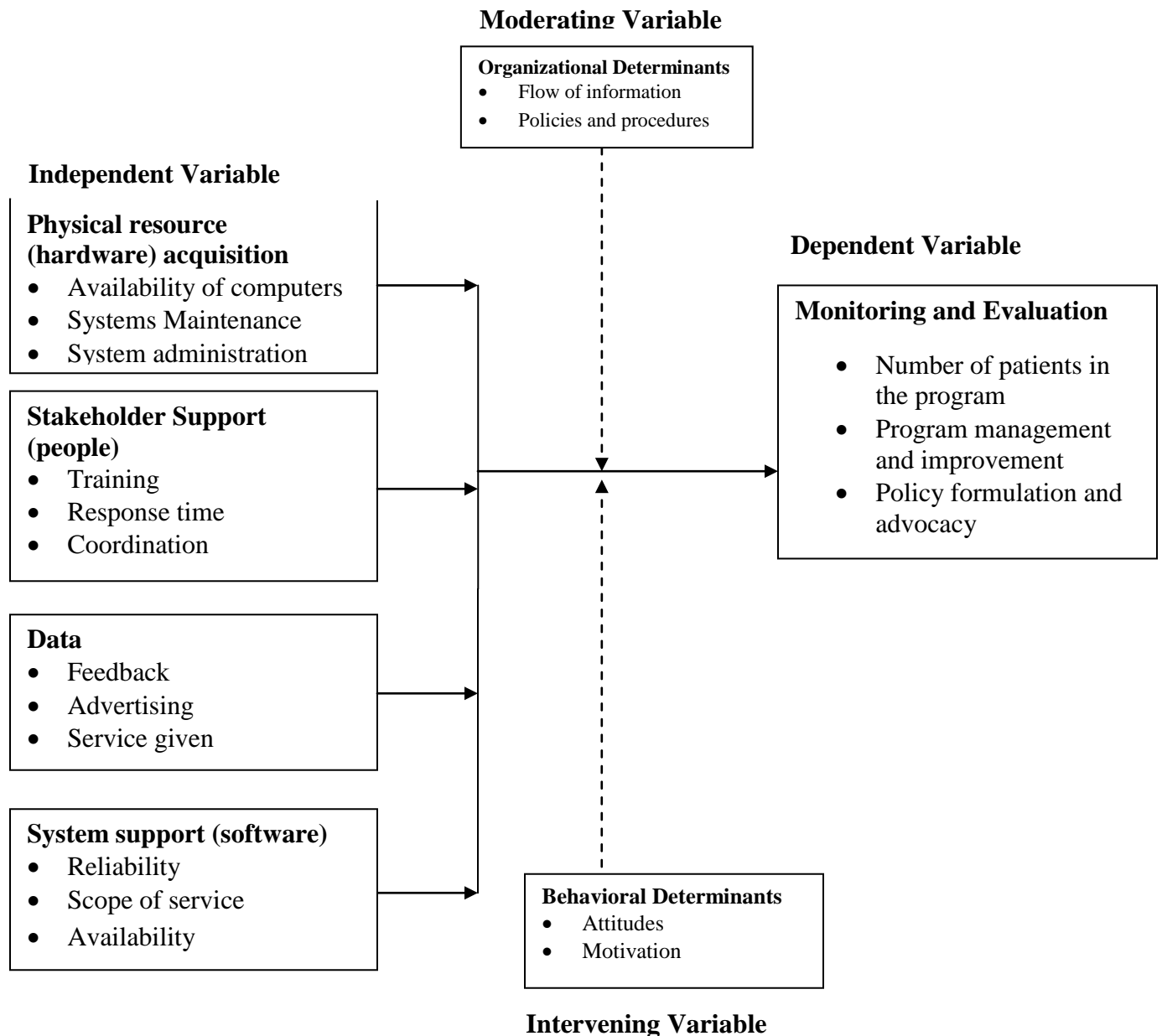
belief that it is simply a methodology for planning and evaluation. Theory of Change is a form of critical theory that ensures a transparent distribution of power dynamics. Further, the process is necessarily inclusive of many perspectives and participants in achieving solutions Rogers' (2011).

In relation to the study, developing the theory of change underpinning programme design and planning helped to design and focus the monitoring and evaluation framework in an early stage of the design process and not in the early implementation phase as is often the case. The main actors, critical assumptions, intended outcomes and some key indicators would be available as a basis for the monitoring and evaluation framework. The sharper focus of the programme would facilitate the decision which result information is a key to collect and who should be involved. As the theory of change process enhances the understanding of stakes and stakeholders, this assists in thinking through the utilization of the monitoring and evaluation data and lessons and increase the consequence awareness. Theory of change is helpful not only to measure outcomes but also to understand the role of the programme and other factors in contributing to outcomes.

Consequently evaluation usually takes place either as a mid-term review, towards the end of a programme or some time afterwards. A main objective of a mid-term review is checking if the programme is contributing to the intended change in line with the underlying theory of change and if the theory of change needs to be revised. Formative (or process) evaluations would typically also have an open eye to revise the theory of change, whereas summative evaluations would study if lessons learned can be up-scaled

or transferred to other domains of practice. Theory of change can help design evaluations of programmes that have complicated or complex aspects.

## 2.8 Conceptual framework



**Figure 1.1 Conceptual Framework**

**Source: Research Data, (2014)**

Acquisition of ICT resources to facilitate access to the world's medical knowledge and locally-relevant content resources for strengthening public health research and prevention programmes and promoting women's and men's health, such as content on sexually transmitted infections, and for diseases that attract full attention of the world including HIV/AIDS (Burroughs 2000). The employees in health sector need to be in the technology and influencing how it gets developed and created and become very literate so that our concerns are in the development of it further upstream rather than us being just passive recipients of it (Needham 2003). HIV monitoring and evaluation requirements should be designed in such a way that they do not overwhelm the capacity of the health staff. Efforts to coordinate HIV monitoring and evaluation with the overall health information systems are therefore essential. In many cases, it is both desirable and feasible to integrate data collection forms and data management systems Wang (2002).

## **2.9 Knowledge Gap**

Most studies like Jimes, (2005) studied the process present in all living things and fundamentals in communication, Tompkins, (2001) established that effective communication is gained through training while Bouty, (2000) studied that communication motivates and establishes better relationships in interaction. However not many studies have focused on the influence of health information systems on monitoring and evaluation of HIV/AIDS program. It is for that reason that the study sought to fill the gaps.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.0 Introduction**

This chapter contains the research design that was used, target population of the study, the sampling design and sample size, data collection instrument, validity and reliability of the study, and data collection procedure.

#### **3.1 Research Design**

The study employed descriptive survey research design. According to Godwin (2006) descriptive survey design involves either identifying the characteristics of an observed phenomenon or exploring possible correlations among two or more phenomena. Descriptive survey design also allows the researcher to define clearly what he wants to measure and find adequate methods for measuring it along with a clear cut definition of the population he wants to study. The research design was used because it allowed for the study of the issue at hand in details as well as finding correlations between them. It enabled the researcher to gain deep insight of the health information systems and its influence on monitoring and evaluation of HIV/AIDs programs.

#### **3.2 Targeted Population**

The target population refers to the group of people or study subjects who are similar in one or more ways and which forms the subject of the study in a particular survey, Orodho (2003). The total target population consisted of 193 respondents which included 177 health care workers and 16 HIV committee members. The HIV committees are in a better position due to their experience to give rich and insightful information on

health information systems and how it influences monitoring and evaluation of HIV/AIDS program hence they are very resourceful for the study.

**Table 3.1: Target population**

Category	Targeted population
HIV committee	16
Health Care Workers	177
Total	193

**Source: Ministry of Health records (2014)**

### **3.3 Sampling Procedures**

#### **3.3.1 Sampling Process**

Sampling is a procedure of selecting a part of population on which research can be conducted, which ensures that conclusions from the study can be generalized to the entire population. While sample in a research study refers to any group on which information is obtained, population refers to all the objects of the study from which the sample is picked. To obtain a sample size there are factors to be put into consideration such as type of research design, method of data analysis and the size of the accessible population. The research study used stratified sampling technique on the target population to select the sample. Stratified sampling technique is a technique used when representatives from each subgroup within the population need to be represented in the sample.

### 3.3.2 Sample Size

The study used a sample size of 137 determined using the Sloven's formula (Altares Et al. 2003).

$$n = \frac{N}{1 + N (e^2)}$$

Where,

n = Sample Size

N= Total population

e= margin of error (5% or 0.05)

**Table 3.2: Sampling Matrix**

Description	Population	Sample Size
HIV committee	16	15
Health Care Workers	177	122
<b>Total</b>	<b>193</b>	<b>137</b>

### 3.4 Research Instruments

The data for this study were collected through questionnaires which were summarized and analyzed.. Questionnaires are written instruments that present respondents with a number of questions to react to by writing their answers and selecting from the ones which are already existing (Brown, 2001). Questionnaires were easy to administer and they upheld confidentiality. Questionnaires were used to gain a general view of the influence of health information systems on monitoring and evaluation of HIV/AIDs program. Target questions were used in the questionnaires which were based on ordinal scale for measurement purpose (where data is ranked in the sense that higher



numbers represent higher values) with summated scale as its scaling technique which were administered to the control managers. The questionnaires were preferred because of their ability to reach a large number of respondents within a short time and would elicit personal ideas from the respondents due to openness of some questions. Also, questionnaires compared with other data collection techniques are less costly to administer as supervision or follow up of respondents may not be required. Pre-testing of questionnaires in the field was used as a means of improving the quality of questions before the main study (Schindler, 2004).

### **3.5 Validity of the research instruments**

Validity submits to the degree which a test measures what we actually wish to measure. In this study, the question on influence of health information systems on monitoring and evaluation of HIV/AIDs program were tested. Yin's (1994) solution for assuring construct validity that is: the use of multiple sources of information, a chain of evidence, and key informants review of reports were to be applied to the study. For the validity of these instruments the researcher consulted experts, specialists and supervisor. The study employed the use of pilot study to test the validity of the research instruments.

### **3.6 The Reliability of the research instruments**

The reliability of an instrument is the measure of the degree to which a research instrument yields consistent results or data after repeated trials (Kothari, 2004). The pilot test was used to test the reliability of the questionnaires and was computed for each instrument in Likert scale. A reliability coefficient of 0.7 or over is assumed to reflect the reliability of the instrument.

### **3.7 Data Collection Procedures**

The study used data generated from both primary and secondary sources. Primary data were obtained using questionnaires that were self-administered to the HIV committee and the health care workers. Data for this study were collected between the months of April and June 2014. The researcher visited the facilities and the respective offices in the process of administering questionnaires. A prior pilot survey was done by the researcher to ascertain the scope of the coverage which would help in the preparation of questionnaires for the study. This helped the researcher to familiarize with the population enabling the researcher to test on questionnaire effectiveness, ascertain various levels of responses and study the characteristics of the target population units. Secondary sources included: the internet, textbooks, journals, libraries, and archives among others and government departments. This provided a better understanding of the research problem and findings. Therefore, the study used both quantitative (Questionnaire) and qualitative (document analysis) to collect the data.

### **3.8 Data analysis**

Tromp and Kombo (2006) described data analysis as the process through which the data that has been collected is examined. It involves uncovering underlying structures, extracting important variables, detecting any anomalies and testing any underlying assumptions. It involves scrutinizing the acquired information and making inferences. Information collected from the respondents was coded for analysis. The raw data was then analyzed using, Statistical Package for Social Sciences (S.P.S.S) and MS-Excel. The researcher used descriptive statistics to analyze the data into meaningful information that was used to make conclusions and recommendations. The descriptive statistics uses

measures of central tendency such as mean, median and mode to describe a group of subjects. The researcher used graphic presentation such as the tables to present the data.

Then coding followed thereafter to help in transforming categories of data into symbols that were to be tabulated and counted. Tabulation procedure, which is a technical application, was used to put classified data into tables

### 3.9 Operational Definition of Variables

To achieve the objectives of the study the researcher investigated the role of ministerial staff in the Ministry of Health in Nandi East sub-county; the objectives of the study included the influence physical resource acquisition, employee preparedness, consumer awareness and management support on monitoring and evaluation of HIV/AIDS programme.

To achieve these objectives questionnaires were used each with specific questions for each objective.

Objective	Variables	Indicators	Measurement scale	Tools of analysis	Types of tools
To determine the influence of physical resource acquisition as a factor affecting Health Information Systems on monitoring and evaluation of HIV/AIDS program.	<p><b>Dependent</b> Quality of monitoring and evaluation</p> <p><b>Independent</b> Physical resource acquisition</p>	<p>Availability of computers</p> <p>Systems Maintenance</p> <p>System administration</p>	<p>Nominal</p> <p>Ordinal</p>	<p>Descriptive statistics.</p> <p>Tables and charts</p>	<p>Frequency distribution tables</p>



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program.					
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**Table 3.3 Operational Definition of Variables**

## **CHAPTER FOUR**

### **DATA PRESENTATION, ANALYSIS AND DISCUSSION**

#### **4.0 Introduction**

This chapter discusses how the data was presented, analyzed and discussed. Data was presented using tables and charts. Descriptive analysis using Statistical Package for Social Sciences (SPSS) was also used to analyze the data. Findings were also discussed in details. The researcher assessed the background information of the respondents in an effort to make sure that sampling was efficiently done. The responses were as presented below.

#### **4.1 Questionnaire Response Rate**

The researcher sought to find out the extent to which health information systems influence monitoring and evaluation of HIV/AIDS programmes. The researcher issued a total of one hundred and forty (140) questionnaires by self administration. The study had a sample size of one hundred and thirty seven (137), and the extra three were to cater for any that were not returned. The response rate was 100% with two questionnaires not being returned and one questionnaire returned long after analysis was complete. All questions were answered satisfactorily, since the researcher took her time to explain or clarify any issue that was not clear. This was possible especially because the questionnaires were self-administered.

#### **4.2 Demographic information of the respondents**

Prior to embarking on the main objectives of the study, the researcher found it necessary to find the background information of the respondents. This was done by analyzing the gender of the respondents, their age brackets, their level of education and work experience in years.

#### **4.2.1 Gender of the respondents**

The researcher classified the respondents into two groups based on gender in mandate to obtain responses from both male and female respondents. The findings were as presented on table 4.1 below.

**Table 4.1 Gender of the respondents**

	Frequency	Percent
MALE	82	59.9
FEMALE	55	40.1
Total	137	100.0

Source: Research Data (2014)

According to the study 59.9% of the respondents were male and 40.1% were female employees. The majority of the respondents were male. The findings showed that the researcher was able to obtain information from all genders.

#### **4.2.2 Age of the respondents**

The researcher sought to establish the age of the respondents. The findings were presented as below.

**Table 4.2 Age of respondents**

Age	Frequency	Percent
20-30 YRS	60	43.8
31-40YRS	39	28.5
41-50 YRS	28	20.4
Over 51 YRS	10	7.3
Total	137	100.0

Source: Research Data (2014)

According to the study 43.8% of the respondents were aged between 20-30 years, 28.5% were aged between 31-40 years, 20.4% were aged between 41-50years, and 7.3% were aged over 51 years. The majority of the respondents were aged between 20-30 years, which shows that most of the respondents were young people.

#### **4.2.3 Level of education of the respondents**

The researcher sought to establish the level of education of the respondents. The findings were as presented on the table below.



**Table 4.3 Level of education of the respondents**

	Frequency	Percent
P1 level	0	0
Certificate	22	16.1
Diploma	80	58.4
Degree	34	24.8
PhD	1	0.7
Total	137	100.0

Source: Research Data (2014)

From table 4.3 above, it shows that there were no respondents of P1 level, 16.1% of the respondents had certificate qualification, 0.7% had PhD qualification, and 58.4 % had diploma qualification. This therefore shows that majority of employees were of undergraduate diploma qualification.

#### **4.2.4 Work experience of the respondents**

The researcher pursued to establish the level experience of the respondents at Nandi hills district hospital in order to determine their work experience. The findings were as presented on table 4.4

**Table 4.4 Level of work experience of the respondents**

	Frequency	Percent
Less than 5 years	53	38.7
Between 5-10 years	32	23.4
Between 10-15 years	6	4.4
Over 15 years	46	33.6
Total	137	100.0

Source: Research Data (2014)

From the study, it was established that 38.7% of the employees were less than 5 years of experience. 23.4% were between 5-10 years, 4.4% were between 10-15 years,

and 33.6% were over 15 years. This could be interpreted to mean that most of the respondents were employees with less than 5 years of experience, also owing to the fact that most of them are aged between 20 and 30 years.

### 4.3 Specific Information

The findings for each research question (objective) were tabulated as shown below.

#### 4.3.1 Physical resource (hardware) acquisition and monitoring and evaluation of HIV/AIDs program

The researcher sought to analyze the extent to which physical resource acquisition influence monitoring and evaluation of HIV/AIDS programmes. The findings were as presented on table 4.5

**Table 4.5 Influence of Physical resource (hardware) acquisition**

**Key: F: Frequency, %: Percentage, SA: Strongly Agree, A: Agree, UD: Undecided, D: Disagree, SD: Strongly Disagree, T: Total, M: Mean**

Physical resource (hardware) acquisition		SA	A	UD	D	SD	T	%
Acquisition of ICT resources facilitates access to the world's medical knowledge that has locally-relevant content resources	F	74	55	5	1	2	137	
	%	54.0	40.1	3.6	0.7	1.5	100	88.9%
Availability of ICT resources enable health systems to monitor and evaluate the spread of HIV/AIDS	F	73	55	5	3	1	137	
	%	53.3	40.1	3.6	2.2	0.7	100	88.6%
The adoption of ICTs improves and extend health care and health information systems to remote and underserved areas and vulnerable populations	F	70	53	8	3	3	137	
	%	51.1	38.7	5.8	2.2	2.2	100	86.9%
Monitoring and evaluation can be conducted using a wide array of ICT resources, systems and approaches.	F	78	48	2	2	7	137	
	%	56.9	35.0	1.5	1.5	5.1	100	87.4%

According to the study the majority of the respondents 88.9% were of the opinion that acquisition of ICT resources facilitates access to the world's medical knowledge that is locally-relevant content resources, 88.6% of the respondents were of the opinion that the availability of ICT resources enables health systems to monitor and evaluate the spread of HIV/AIDS. The study also established that 87.4% of the respondents agreed with the fact that monitoring and evaluation can be conducted using a wide array of ICT resources, systems and approaches. However, the study as well revealed that 86.9% of the respondents were of the opinion that the adoption of ICTs improves and extends health care and health information systems to remote and underserved areas and vulnerable populations.

These findings are in agreement with Burroughs (2000) who notes that the acquisition of ICT resources facilitate access to the world's medical knowledge that has locally-relevant content resources for strengthening public health research and prevention programmes and promoting women's and men's health, such as content on sexually transmitted infections, and for diseases that attract full attention of the world including HIV/AIDS. This is considered as important for monitoring and evaluation. He also notes that the availability of ICT resources enables health systems to be alert, monitor and control the spread of HIV/AIDS, through the improvement of common information systems. ICT promotes the development of international standards for the exchange of health data, taking due account of privacy concerns.

This could be because the acquisition of ICT resource by employees would make them access teachings on medical care from health information system which are relevant to monitoring and evaluation. Technological systems are first information systems that

would help in monitoring and evaluation of HIV/AIDs programmes. ICT solutions are facilitating access to information and education for patients, health workers and policy makers.. The implementation of ICTs would improve and extend health care and health information systems to remote and underserved areas and vulnerable populations, recognizing women’s roles as health providers in their families and communities, thus strengthen and expand ICT-based initiatives for providing medical and humanitarian assistance in disasters and emergencies.

#### **4.3.2 Stakeholder Support (people) and monitoring and evaluation of HIV/AIDs program**

The researcher sought to analyze the extent to which employee preparedness influence monitoring and evaluation of HIV/AIDS programmes. The findings were as presented on table 4.6

**Table 4.6 Influence of Stakeholder Support (people)**  
**Key: F: Frequency, %: Percentage, SA: Strongly Agree, A: Agree, UD: Undecided, D: Disagree, SD: Strongly Disagree, T: Total, %: Percentage**

<b>Stakeholder Support (people)</b>		<b>SA</b>	<b>A</b>	<b>UD</b>	<b>D</b>	<b>SD</b>	<b>T</b>	<b>%</b>
<b>Health workers have recognized health information systems as an important factor in monitoring and evaluation of HIV/AIDS initiatives</b>	<b>F</b>	77	46	6	7	1	137	
	<b>%</b>	56.2	33.6	4.4	5.1	0.7	100	87.9%
<b>Building ICT infrastructure and systems in implementation of HIV/AIDS program will enable employees get the required skills and knowledge</b>	<b>F</b>	77	49	10	0	1	137	
	<b>%</b>	56.2	35.8	7.3	0	0.7	100	89.3%
<b>The program implementers should invest in building the monitoring and evaluation capacity of front-line health staff and district-level data managers</b>	<b>F</b>	65	61	5	5	1	137	
	<b>%</b>	47.4	44.5	3.6	3.6	0.7	100	86.9%
<b>Employees frequently do not evaluate their ICT systems and may not address limitations in existing monitoring and evaluation techniques</b>	<b>F</b>	42	56	24	9	6	137	
	<b>%</b>	30.1	40.9	17.5	6.6	4.4	100	80.3%

The study showed that the majority of the respondents (89.3%) thought that building ICT infrastructure and systems in implementation of HIV/AIDS program will enable employees get the required skills and knowledge, 87.9% of the respondents were of the opinion that health workers have recognized health information systems as an important factor in monitoring and evaluation of HIV/AIDS initiatives, 86.9% of the respondents were of the opinion that the program implementers should invest in building the monitoring and evaluation capacity of front-line health staff and district-level data managers. The study also established that 80.3% of the respondents were of the opinion that employees frequently do not evaluate their ICT systems and may not address limitations in existing monitoring and evaluation techniques.

These findings are in agreement with Green (2005) that for effective monitoring and evaluation the employees in health sector need ICT infrastructure to assist them in computing and processing data which is used in monitoring and evaluation process. He notes that the use of information technology is breaking down barriers, enabling health service providers to work together more closely and reach out to local clients as well as communities far beyond their geographic borders.

The findings are also in agreement with (Olney 2005) who notes that the success of health information systems depends on the organizational ability to mobilize sufficient resources with the ICT department to support the operations of health information systems.

This could be because the employees in health sector might not be able to perform their monitoring and evaluation duties using the health and information systems if they do not have it influenced and operating in their computers. The ICT infrastructure which

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includes computers, laptops and other electronic devices is perceived important because it enables the capture and process of data by employees. Consequently the employees feel that the ICT infrastructure is the best way to be prepared if the monitoring and evaluation process is to be successful.

#### **4.3.3 Influence of Data on monitoring and evaluation of HIV/AIDs program**

The researcher sought to analyze the extent to which data from health information systems influence monitoring and evaluation of HIV/AIDS programmes. The findings were as presented on table 4.7

**Table 4.7 Influence of Data on monitoring and evaluation of HIV/AIDS programme**  
**Key: F: Frequency, %: Percentage, SA: Strongly Agree, A: Agree, UD: Undecided, D: Disagree, SD: Strongly Disagree, T: Total, %: Percentage**

<b>Influence of Data</b>		<b>SA</b>	<b>A</b>	<b>U</b>	<b>D</b>	<b>SD</b>	<b>T</b>	<b>%</b>
Availability of data influences efficient feedback mechanisms to support monitoring and evaluation	F	96	31	7	0	3	137	
	%	70.1	22.6	5.1	0	2.2	100	91.7%
Data leads to autonomy of the monitoring and evaluation process	F	94	41	1	0	1	137	
	%	68.6	29.9	0.7	0	0.7	100	93.1%
Data assists in long-term planning to enhance efficiency of the monitoring and evaluation process	F	90	36	10	1	0	137	
	%	65.7	26.3	7.3	0.7	0	100	91.4%
Data is a key indicator of the progress of the monitoring and evaluation process	F	77	52	4	4	0	137	
	%	56.2	38.0	2.9	2.9	0	100	89.5%

According to the study, the majority of the respondents 93.1% indicated availability of data leads to autonomy of the monitoring and evaluation process, 91.7% of the respondents were of the opinion that Availability of data influences efficient feedback mechanisms to support monitoring and evaluation. The study also established that 91.4% of the respondents were of the opinion that Data assists in long-term planning to enhance efficiency of the monitoring and evaluation process. However, the study as well revealed that only 89.5% of the respondents agreed with the fact that Data is a key indicator of the progress of the monitoring and evaluation process.

It is evident from the findings that during monitoring and evaluation procedure it is important to engage key stakeholders responsible for the generation of data for health information systems. These findings are in agreement with the study by Mitchell (2003)

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which indicates that the responsibility of multiple stakeholders including various units of the Ministry of Health (such as the unit coordinating routine reporting by health facilities, the National Statistics Office which is also responsible for the national population census and most national household surveys) to collect, process and store data in the Health Information System for effective monitoring and evaluation of HIV/AIDS programmes.

The findings also concur with Schillinger (2002)'s research findings which concluded that when planning for monitoring and evaluation of health program, priority should be given to providing all the stakeholders working at all levels with the necessary skills and knowledge on effective implementation of Health Information System which is linked to rapid access to key resources and standard guidelines. Consumers of Health Information Systems include national disease programme managers and project leaders, donor agencies, technical and implementing agencies and NGOs to better harmonize information demands.

The findings can be interpreted to mean that stakeholders have detailed information and are aware of the significance of the health information systems in implementation of the HIV/AIDS program. In essence the awareness of the key stakeholders influences effective monitoring and evaluation of the HIV/AIDS programs. Consequently the performance of the HIV/AIDS monitoring and evaluation system is directly linked to the capacity, knowledge and skills of the users of Health Information Systems. Efforts to strengthen the national HIV/AIDS program monitoring and evaluation system should contribute to the overall performance of the Health Information Systems and vice versa. To accomplish this, the national HIV program should invest in building the monitoring and evaluation capacity of front-line health staff and all the



stakeholders and data managers at national, county, sub county, location and sub location levels.

#### 4.3.4 System Support (systems) on monitoring and evaluation of HIV/AIDS programme

The researcher sought to analyze the extent to which systems support influence monitoring and evaluation of HIV/AIDS programmes. The findings were as presented on table 4.8

**Table 4.8 System Support (software)**

System Support (software)		SA	A	U	D	SD	T	%
System support provides the required operations support of the Health Information Systems.	F	83	52	2	0	0	137	91.8%
	%	60.6	38.0	1.5	0	0	100	
Systems support is key ensuring the scope of monitoring and evaluation is comprehensive	F	84	48	5	0	0	137	91.5%
	%	61.3	35.0	3.6	0	0	100	
Systems support ensures availability of the service for monitoring and evaluation	F	96	34	2	0	5	137	91.5%
	%	70.1	24.8	1.5	0	3.6	100	
Systems support provides a platform for other applications that can aid in monitoring and evaluation	F	85	43	5	2	2	137	90.5%
	%	62.0	31.4	3.6	1.5	1.5	100	

The findings showed that majority of the respondents 91.8% were of the opinion that System support (software) provides the required operations support of the Health Information Systems, 91.5% of the respondents were of the opinion that Systems support is key to ensuring the scope of monitoring and evaluation is comprehensive and Systems

support ensures availability of the service for monitoring and evaluation. However, the study as well revealed that 90.5% of the respondents agreed with the fact that Systems support is provides a platform for other applications that can aid in monitoring and evaluation.

The findings point out the significance effective management of System Support (software) in monitoring and evaluation of HIV/AIDS program. The System Support (software) at different levels is responsible for proper use of Health Information Systems in collecting data, processing and disseminating information. A pragmatic, well coordinated and strategic system development by the management is essential to minimize the burden of data collection on country partners while maximizing the usefulness of monitoring and evaluation data for decision-making. The management of National HIV/AIDS programmes, ministries of health and other sectors can jointly contribute to enhancing health information systems and must commit to identifying sustainable resources if monitoring and evaluation is to be a routine programme function.

#### 4.3.5 Indicators for monitoring and evaluation

The researcher sought to analyze the Indictors for monitoring and evaluation of HIV/AIDS programmes. The findings were as presented on table 4.9

**Table 4.9 Indicators for monitoring and evaluation**

**Key: F: Frequency, %: Percentage, SA: Strongly Agree, A: Agree, UD: Undecided, D: Disagree, SD: Strongly Disagree, T: Total, %: Percentage**

Statement		SA	A	U	D	SD	T	%
There is a significant use of specialized health services by HIV/AIDS victims	F %	62	65	7	1	2	137	86.9%
		45.3	47.4	5.1	0.7	1.5	100	

<b>There is adequate knowledge on HIV/AIDS prevention methods among the people in Nandi hills</b>	F	72	55	4	4	2	137	87.9%
	%	52.6	40.1	2.9	2.9	1.5	100	
<b>There is provision of life-skilled based HIV/AIDS education in schools</b>	F	37	52	39	7	2	137	76.8%
	%	27.0	38.0	28.5	5.1	1.5	100	
<b>There is a positive HIV/AIDS testing behavior among the people in Nandi hills district hospital</b>	F	54	59	22	2	0	137	84.1%
	%	39.4	43.1	16.1	1.5	0	100	

The majority of the respondents 87.9% indicated that there is adequate knowledge on HIV/AIDS prevention methods among the people in Nandi hills district, 86.9% of the respondents were of the opinion that there is a significant use of specialized health services by HIV/AIDS victims. The study also established that 84.1% of the respondents were of the opinion that there is a positive HIV/AIDS testing behavior among the people in Nandi hills district hospital. However, the study as well revealed that 76.8% of the respondents agreed with the fact that there is provision of life-skilled based HIV/AIDS education in schools.

This could be because the use of health information systems in their Health Centers is able to access a broad array of guidelines and protocols regarding the provision of care and treatment to People Living with HIV/AIDS (PLWHA) and the prevention of new infections among those at risk for HIV infection. The management of their health centers may have implemented the use of AIDS info website as a primary vehicle for disseminating current information about treatment regimens and clinical trials for HIV infection and AIDS-related illnesses.

## CHAPTER FIVE

### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

#### 5.0 Introduction

This chapter deals with the summary of the findings based on the study objectives. It also gives the conclusion of the study and gives recommendations for improvement and also for further studies.

#### 5.1 Summary of the Findings

The study found out that health information systems does have substantial influence on the monitoring and evaluation of HIV/AIDS programmes in Nandi hills district hospitals.

##### 5.1.1 Physical resource acquisition and monitoring and evaluation

On the physical resource acquisition and monitoring and evaluation, the study revealed that a majority of the respondents (88.9%) were of the opinion that acquisition of ICT resources facilitates access to the world's medical knowledge that has locally-relevant content resources; 88.6% of the respondents were of the opinion that the availability of ICT resources enables health systems to monitor and evaluate the spread of HIV/AIDS. The study also established that 87.4% of the respondents agreed with the fact that monitoring and evaluation can be conducted using a wide array of ICT resources, systems's and approaches. However, the study as well revealed that 86.9% of the respondents were of the opinion that the adoption of ICTs improves and extend health care and health information systems to remote and underserved areas and vulnerable populations.

### **5.1.2 Stakeholder support and monitoring and evaluation**

In respect to stakeholder support and their impact to monitoring and evaluation, the majority of the respondents (89.3%) were of the opinion that building ICT infrastructure and systems in implementation of HIV/AIDS program will enable employees get the required skills and knowledge; 87.9% of the respondents were of the opinion that health workers have recognized health information systems as an important factor in monitoring and evaluation of HIV/AIDS initiatives; 86.9% of the respondents were of the opinion that the program implementers should invest in building the monitoring and evaluation capacity of front-line health staff and district-level data managers. The study also established that 80.3% of the respondents were of the opinion that employees frequently do not evaluate their ICT systems and may not address limitations in existing monitoring and evaluation techniques.

### **5.1.3 Data availability on monitoring and evaluation**

On how data influence monitoring and evaluation, the majority of the respondents 93.1% indicated Data availability leads to autonomy of the monitoring and evaluation process, 91.7% of the respondents were of the opinion that Availability of data influences efficient feedback mechanisms to support monitoring and evaluation. The study also established that 91.4% of the respondents were of the opinion that Data assists in long-term planning to enhance efficiency of the monitoring and evaluation process. However, the study as well revealed that 89.5% of the respondents agreed with the fact that Data is a key indicator of the progress of the monitoring and evaluation process.

#### **5.1.4 Systems support and monitoring and evaluation**

On systems support and monitoring and evaluation, The findings showed that majority of the respondents 91.8% were of the opinion that System support provides the required operations support of the HIS, 91.5% of the respondents were of the opinion that Systems support is key ensuring the scope of monitoring and evaluation is comprehensive and Systems support ensures availability of the service for monitoring and evaluation. However, the study as well revealed that 90.5% of the respondents agreed with the fact that Systems support is provides a platform for other applications that can aid in monitoring and evaluation.

#### **5.2 Conclusions**

The availability of ICT hardware resources enable health systems to be alert, monitor and control the spread of HIV/AIDS, through the improvement of common information systems. It would also facilitate access to the world's medical knowledge and locally-relevant content resources for strengthening public health research and prevention programmes and promoting women's and men's health, such as content on sexually transmitted infections, and for diseases that attract full attention of the world including HIV/AIDS is considered the as important for effective monitoring and evaluation.

The stakeholders (people) in health sector also need to be in the technology and influencing how it gets developed and created and become very literate so the concerns of the management are in the development of it further upstream rather than them being just passive recipients of it. ICT solutions are facilitating access to information and education for patients, health workers and policy makers. The use of information technology is

breaking down barriers, enabling health service providers to work together more closely and reach out to local clients as well as communities far beyond their geographic borders.

Effective Monitoring and evaluation planning aims to provide those working at the county level on monitoring and evaluation systems linked to expanded HIV/AIDS programmes with rapid access to key resources and standard guidelines. An evaluation that is not followed by appropriate monitoring and evaluation planning and implementation serves little or no purpose. Monitoring and evaluation system is ideally incorporated in the national strategic evaluation cycle.

Collecting simple monitoring information requires resources and a skilled workforce at the national level. Pragmatic, well coordinated and strategic monitoring and evaluation activities are essential to minimize the burden of data collection on country partners while maximizing the usefulness of monitoring and evaluation data for decision-making. National AIDS programmes, ministries of health and other sectors can jointly contribute to enhancing monitoring and evaluation and must commit to identifying sustainable resources if monitoring and evaluation is to be a routine programme function.

Monitoring and evaluation indicators should measure population-based, biological, behavioral, facility-based and programme data to determine the collective effectiveness of consolidated programmes, and these efforts should be supplemented with good contextual data

### **5.3 Recommendations**

The management should facilitate availability and easy acquisition of resources to facilitate monitoring and evaluation. Health Information Systems can only be useful

when it run on computer hardware. Monitoring and Evaluation can be conducted using a wide array of tools, methods and approaches.

The governments and donor agencies worldwide should come up to terms with the complexity of current ICT opportunities, the multitude of new ICTs coming on line, and the realities of the global digital divide. They should do so in attempting to harness the power of cutting edge digital technology within their own organizations for monitoring and evaluation.

HIV monitoring and evaluation requirements should be designed by the management in such a way that they do not overwhelm the capacity of the health staff. Efforts to coordinate HIV M&E with the overall HIS are therefore essential. In many cases, it is both desirable and feasible to integrate data collection forms and data management systems.

#### 5.4 Contributions to the body of knowledge

<b>Objective</b>	<b>Contribution</b>
To determine the influence of physical resource (hardware) on monitoring and evaluation of HIV/AIDS program.	The study established that adoption of ICTs improves and extends health care and health information systems to remote and underserved areas and vulnerable populations. It also found out that monitoring and evaluation can be conducted using a wide array of ICT resources, systems and approaches. Availability of ICT resources also enables health systems to monitor and evaluate the spread of HIV/AIDS.
To establish the influence of stakeholder support (people) on monitoring and evaluation of HIV/AIDS program.	The study showed building ICT infrastructure and systems in implementation of HIV/AIDS program will enable employees get the required skills and knowledge; and that the program implementers should invest in building the



	monitoring and evaluation capacity of front-line health staff and district-level data managers.
To evaluate the influence of data on monitoring and evaluation of HIV/AIDS program.	The study indicated availability of data leads to autonomy of the monitoring and evaluation process; and that data assists in long-term planning to enhance efficiency of the monitoring and evaluation process. Also, availability of data influences efficient feedback mechanisms to support monitoring and evaluation
To establish the influence of system support (software) on monitoring and evaluation of HIV/AIDS program.	According to the study, system support (software) provides the required operations to support Health Information Systems, and is also to ensuring the scope of monitoring and evaluation is comprehensive

### 5.5 Suggestion for Further Study

The fusing of strategic management with evaluation has offered fresh insights and whole new areas of practical interest. Therefore, many stakeholders can benefit even more from applied research in the area on effectiveness of Information and communication technology (ICT) on monitoring and evaluation of HIV programme. Studies in the aforementioned areas will not only challenge stakeholders to ‘think outside the box’, but will also help in revitalizing evaluations.

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## APPENDICES

### APPENDIX I: INTRODUCTION LETTER



UNIVERSITY OF NAIROBI  
COLLEGE OF EDUCATION AND EXTERNAL STUDIES  
SCHOOL OF CONTINUING AND DISTANCE EDUCATION.  
DEPARTMENT OF EXTRA- MURAL STUDIES

Telegram: "CEES"  
Telephone: KARURI 32117&32021  
Your Ref:

P.O BOX 30197, NAIROBI  
or P.O BOX 594 ELDORET  
KENYA

28<sup>TH</sup> MAY, 2014

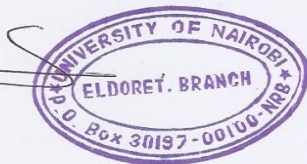
TO WHOM IT MAY CONCERN

**SUBJECT: ALBINA NJERU – MASWAI L50/60261/2013**

The above named is a student at the University of Nairobi, College of Education and External Studies, Department of Extra Mural Studies pursuing a course leading to the award of Masters of arts in Project Planning and Management. For this course to be complete, she is required to write and submit a research project. Therefore, the purposes of this letter is to kindly request you to accord her necessary assistance in getting information that will enable her complete the Research project. Her area of study is titled "influence of health information software on monitoring and evaluation of hiv/aids programmes in Kenya: a case of Nandi hills district hospital."

Thank you,

SAKAJA Y. M.  
CENTRE ORGANIZER  
ELDORET AND ENVIRONS



## APPENDIX II: QUESTIONNAIRES

The questionnaire is made up of two sections A and B. Please answer each question by writing on the spaces provided or tick (✓) against the boxes provided. The information provided will be used for the purpose of this research only; therefore do not write your name on the answer sheet. Please note that there are no correct or wrong answers.

### SECTION A: BACKGROUND INFORMATION

#### 1. Gender

Male  Female

#### 2. Working Experience

Less than 5 years  5 – 10 years

10– 15 years  Over 15 years

#### 3. Age

Tick to indicate your age

20-30 years  31-40 years

41-50 years  Over 51 years

#### 4. Education level

What is your education level?

P1level  Certificate  PhD

Diploma  Degree

**SECTION B: SPECIFIC INFORMATION**

**5. To identify the influence of physical resource acquisition on monitoring and evaluation of HIV/AIDs program**

**SA-strongly agree, A-Agree, U-Undecided, D- Disagree, SD-Strongly Disagree**

<b>physical resource (hardware) Acquisition</b>	<b>SA</b>	<b>A</b>	<b>U</b>	<b>D</b>	<b>SD</b>
Acquisition of ICT resources facilitates access to the world’s medical knowledge that has locally-relevant content resources					
Availability of ICT resources enable health systems to monitor and evaluate the spread of HIV/AIDS					
The adoption of ICTs improves and extend health care and health information systems to remote and underserved areas and vulnerable populations					
Monitoring and evaluation can be conducted using a wide array of ICT resources, systems’s and approaches.					

**6. To identify the influence of stakeholder support (people)on monitoring and evaluation of HIV/AIDs program**

**SA-strongly agree, A-Agree, U-Undecided, D- Disagree, SD-Strongly Disagree**

<b>stakeholder support (people)</b>	<b>SA</b>	<b>A</b>	<b>U</b>	<b>D</b>	<b>SD</b>
Health workers have recognized health information systems as an important factor in monitoring and evaluation of HIV/AIDS initiatives					
Building ICT infrastructure and systems in implementation of HIV/AIDS program will enable employees get the required skills and knowledge					
The program implementers should invest in building the monitoring and evaluation capacity of front-line health staff and district-level data managers.					
Employees frequently do not evaluate their ICT systems and may not address limitations in existing monitoring and evaluation techniques					

**7. To identify the influence data on monitoring and evaluation of HIV/AIDs program**

**SA-strongly agree, A-Agree, U-Undecided, D- Disagree, SD-Strongly Disagree**

<b>Influence of data</b>	<b>SA</b>	<b>A</b>	<b>U</b>	<b>D</b>	<b>SD</b>
Availability of data influences efficient feedback mechanisms to support monitoring and evaluation					
Data leads to autonomy of the monitoring and evaluation process					
Data assists in long-term planning to enhance efficiency of the monitoring and evaluation process					
Data is a key indicator of the progress of the monitoring and evaluation process					

**8. To identify the influence of System Support (systems) on monitoring and evaluation of HIV/AIDS program**

**SA-strongly agree, A-Agree, U-Undecided, D- Disagree, SD-Strongly Disagree**

<b>System Support (systems)</b>	<b>SA</b>	<b>A</b>	<b>U</b>	<b>D</b>	<b>SD</b>
System support provides the required systems support of the HIS					
Systems support is key ensuring the scope of monitoring and evaluation is comprehensive					
Systems support ensures availability of the service for monitoring and evaluation					
Systems support is provides a platform for other applications that can aid in monitoring and evaluation					

**Indicators for monitoring and evaluation**



**SA-Strongly Agree, A-Agree, U-Undecided, D- Disagree, SD-Strongly Disagree**

Statement	SA	A	U	D	SD
<b>There is a significant use of specialized health services by HIV/AIDS victims</b>					
<b>There is adequate knowledge about HIV/AIDS prevention methods among the people in Nandi hills district hospital</b>					
<b>There is provision of life-skilled based HIV/AIDS education in schools</b>					
<b>There is a positive HIV/AIDS testing behavior among the people in Nandi hills district hospital</b>					

**APPENDIX III: NACOSTI RESEARCH AUTHORIZATION LETTER**



**NATIONAL COMMISSION FOR SCIENCE,  
TECHNOLOGY AND INNOVATION**

Telephone: +254-20-2213471,  
2241349, 310571, 2219420  
Fax: +254-20-318245, 318249  
Email: secretary@nacosti.go.ke  
Website: www.nacosti.go.ke  
When replying please quote

9<sup>th</sup> Floor, Utalii House  
Uhuru Highway  
P.O. Box 30623-00100  
NAIROBI-KENYA

Ref: No.

Date:

**26<sup>th</sup> June, 2014**

**NACOSTI/P/14/5708/2019**

Albina Njeru Maswai  
University of Nairobi  
P.O.Box 30197-00100  
**NAIROBI.**

**RE: RESEARCH AUTHORIZATION**

Following your application for authority to carry out research on *“Influence of Health Information Software on Monitoring and Evaluation of HIV/AIDS Programmes in Kenya: A case of Nandi Hills District Hospital,”* I am pleased to inform you that you have been authorized to undertake research in **Nandi County** for a period ending **15<sup>th</sup> December, 2014.**

You are advised to report to **the Medical Superintendent, Nandi Hills District Hospital, the County Commissioner and the County Director of Education, Nandi County** before embarking on the research project.

On completion of the research, you are expected to submit **two hard copies and one soft copy in pdf** of the research report/thesis to our office.

  
**SAID HUSSEIN**  
**FOR: SECRETARY/CEO**

Copy to:

The Medical Superintendent  
Nandi Hills District Hospital.

The County Commissioner  
The County Director of Education  
Nandi County.

*National Commission for Science, Technology and Innovation is ISO 9001:2008 Certified*



## APPENDIX IV: NACOSTI RESEARCH PERMIT

**THIS IS TO CERTIFY THAT:**

**MISS. ALBINA NJERU MASWAI**  
**of UNIVERSITY OF NAIROBI, 0-30100**

**ELDORET, has been permitted to conduct**

**research in Nandi County**

**on the topic: INFLUENCE OF HEALTH**

**INFORMATION SOFTWARE ON**

**MONITORING AND EVALUATION OF**

**HIV/AIDS PROGRAMMES IN KENYA: A**

**CASE OF NANDI HILLS DISTRICT**

**HOSPITAL.**

**for the period ending:**

**15th December 2014**

**for the period ending:**

**15th December 2014**

**for the period ending:**

**15th December 2014**

**for the period ending:**

**15th December 2014**

**for the period ending:**

**15th December 2014**

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**for the period ending:**

**15th December 2014**

**for the period ending:**

**15th December 2014**

**for the period ending:**

**15th December 2014**

**Permit No.: NACOSTI/P/14/5708/2019**

**Date Of Issue: 26th June, 2014**

**Fee Received :Ksh 1,000**

**Applicant's**  
**Signature**

**National Commission for Science,**  
**Technology & Innovation**

**CONDITIONS**

**1. You must report to the County Commissioner and**

**the County Education Officer of the area before**

**embarking on your research. Failure to do that**

**may lead to the cancellation of your permit**

**2. Government Officers will not be interviewed**

**without prior appointment.**

**3. No questionnaire will be used unless it has been**

**approved.**

**4. Excavation, filming and collection of biological**

**specimens are subject to further permission from**

**the relevant Government Ministries.**

**5. You are required to submit at least two(2) hard**

**copies and one(1) soft copy of your final report**

**6. The Government of Kenya reserves the right to**

**modify the conditions of this permit including**

**its cancellation without notice.**

**7. This permit is valid for a period of 12 months.**

**8. This permit is valid for a period of 12 months.**

**9. This permit is valid for a period of 12 months.**

**10. This permit is valid for a period of 12 months.**

**11. This permit is valid for a period of 12 months.**

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**27. This permit is valid for a period of 12 months.**

**28. This permit is valid for a period of 12 months.**

**29. This permit is valid for a period of 12 months.**

**30. This permit is valid for a period of 12 months.**

**REPUBLIC OF KENYA**

**National Commission for Science,**

**Technology and Innovation**

**RESEARCH CLEARANCE**

**PERMIT**

**Serial No. A**

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**CONDITIONS: see back page**