ASSESSING THE EFFECT OF DATA UTILIZATION ON ORGANISATIONAL DECISION MAKING IN LUBAGA HOSPITAL.

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A post graduate dissertation presented to the faculty of agriculture in partial fulfilment of the requirement for the award of a degree of Master of Science in Monitoring and Evaluation.

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DEDICATION

This dissertation is dedicated to my daughter Nakkazi Martha Nicole, my wife Nakatugga Suzan for giving me the necessary support and encouragement towards this journey.

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ABSTRACT

Comprehensive and reliable information is the foundation of decision making across all health system building blocks and is essential for health system policy development and implementation, governance and regulation, research, human resources development, health education and training, service delivery and financing. Data driven decision making involves the use of data to guide the process of decision making which involved planning, budgeting, organizational learning as well as follow up of the organizational performance. This concept has been related to improved efficiency, effectiveness, accountability and meeting external demands for competitiveness by an organization, despite all this, information/data has not been used by stakeholders to effectively inform policy and in making strategic decisions, this has hindered their ability to respond to priority needs and explore valuable improvement opportunities. This study was therefore carried out to assess the effects of data utilization on organizational decision making in Lubaga hospital. A cross sectional survey design was employed for the study and a purposive sampling technique was used to identify potential participants in the survey. A total of 165 participants completed the self-administered questionnaires. A correlation analysis technique was used to determine the relationship between data utilization variables and decision making variables. The results indicated that only data management practices ($p < .001$) influenced financial allocations decisions while collection processes ($p < .134$) and feedback mechanisms ($p < .094$) did not. Access to data influenced staffing allocations decisions through access different forms of reports i.e. HMIS ($p < .001$), hospital annual report ($p < 001$), health sector performance report ($p < 001$), surveillance reports ($p < 001$), national health survey ($p < 001$), and census reports ($p < 001$). Data sharing influenced organizational learning through periodic data sharing i.e. weekly access ($p < 001$), monthly access ($p < 001$), quarterly access ($p < 001$), bi-annual and annual access at ($p < 001$). In conclusion, the study identified a limited utilization of data in decision making with a 38.7% utilization in staffing decision and 35.1% utilization in organizational learning. Data utilization was however highest in financial allocations at 77.34%. The study recommended hospital managers to continuously build capacity among their teams in making evidence based financial decisions. Improved data accessibility in friendly formats based on user requirements to encourage easy access for data when required to make decisions, develop skills of knowledge acquisition, sharing and modification to reflect new knowledge and insights which can add value to the organization.

CHAPTER ONE: INTRODUCTION

1.0   Introduction of the study

This chapter looked at the background of the study, statement of the problem, objectives of the study i.e. general objective and specific objectives, research questions, significance of the study, scope of the study and conceptual framework.

1.1   Background of the study.

Comprehensive and reliable information is the foundation of decision making across all health system building blocks and is essential for health system policy development and implementation, governance and regulation, research, human resources development, health education and training, service delivery and financing (WHO, 2008). The concept of data driven decision making involves the use of data to guide the process of decision making which involved planning, budgeting, change management/ organizational learning as well as follow up of the organizational performance (Kavale, 2012). This is in contrast to decision making process based on intuition or the experience of the decision maker in the related field of operation.

Marsh, Pane and Hamilton (2006) defines data driven decision making as when all stakeholders from the lower organizational positions to top management systematically collecting and analyzing various types of data from input, process, outcome and satisfaction data to guide arrange of decisions to help improve the success of strategic organizational objectives.

The data driven decision making strategy according to Kavale, 2012 has been related to improved efficiency, effectiveness and accountability and meeting external demands for competitiveness by an organization. Companies that have taken effectively captured, analyzed and used data to inform their decisions have registered 5% to 6% increase in outputs and productivity over those that do not use data (Grenier, 2013).

The concept of data use in hospitals is the use of data to inform decisions at all centers of decision making in the health system to improve services and realize organizational goals through planning, patient monitoring and follow up, organizational learning and change management, financial and performance evaluation. Strauss (2016) states that health facilities capture and report large sums of data on a daily basis but the main challenge they face is how they can use this data to drive improvement initiatives through planning and budgeting as well as predicting and measuring performance for value-based purchasing and improve organizational growth. He says that while nearly all hospitals use data in some form to make quality decisions, evidence suggests that the industry has a long way to go to fully realize the potential of data-driven improvement, it's easy to generate data but Pulling it in a timely fashion and in a format that is usable for decision makers has proven to be a challenge for many hospital systems.

Though the term Data is used to mean raw facts that have no significance beyond its existence and information to mean data that is processed to provide context and

meaning to give answers to "who", "what", "where" and "when" question (Bellinger, n.d and AICPA, 2009), in this research data will be used to mean information that has been analyzed and is ready to be put to use in making decisions.

In Uganda, the health management information system (HMIS) is used to guide data collection and reporting in the health facilities and to the government through the ministry of health. Government through the Ministry of Health has put up many strategies to improve data management over time like continuous review of the HMIS reporting forms and registers, continuous training of data users like records assistants, District Bio statisticians and medical staff on data management and reporting (MoH, 2014/15). The Ministry of Health, health sub districts and the health facilities are meant to use this data for monitoring performance of Health sector strategic investment plan (HSSIP) and other National and International health related developments. The same data should be used in planning and budgeting for efficient and effective resource distribution.

However, according to the assessment on data use made by measure evaluation (2008), it was realized that staff capacity to analyze, interpret and use data was limited. Data accuracy and timeliness were other factors that affected the quality of data in addition to the lack of feedback to the staff at all levels, who collect this data thus unable to understand the reason for collecting this data and making it difficult to use it to make improvement decisions. Until recently, only a few not for profit organizations had an incentive to adopt the strategy of data driven decision making

in contrast to both for profit and public institutions (Maxwell, 2015) despite the attached benefits to increase the effectiveness of management decisions (LeRoux and Wright, 2010).

Using verifiable data in making organizational decisions has been proved more effective in making strategic business decisions compared to decisions made based on intuition and individual experience (Maxwell, 2015). According to Corwin (n.d), effective leaders use data to guide them in decision making, this data is used to identify gaps, setting and prioritizing goals as well as evaluating progress, this eventually improves effectiveness of management decisions (LeRoux and Wright, 2010). Gaining access and applying clinical and advanced analytics to this valuable data enables organizations to improve insight into possible strategic decisions like risk, outcomes, resources, referrals, performance and readmissions, and to take prescriptive action (IBM, 2013). According to Abouzahr and Boerma (2005), effective use of quality and timely data and information from health information systems are a foundation of improving health systems and informing decision making in the other five building blocks of the WHO for health systems strengthening.

On the other hand, according to reports from measure evaluation (2010), research shows that despite of the availability of big volumes of data collected in hospitals, this information has not been used by stakeholders to effectively inform policy and in making strategic decisions, this has hindered their ability to respond to priority

needs and explore valuable improvement opportunities. This trend can be attributed to the prevailing constraints to data use which include poor data quality, insufficient skills to analyze, interpret and use data, insufficient institutional support to data collection and use and insufficient access to data as reported by Measure Evaluation (2010). The ministry of health (2014/2015) also reports low reporting rates of less than 50% of the expected annual reports from the health facilities country wide which has affected effective informed strategic decision making. Many health care managers in hospitals do not know their service catchment areas, have no healthcare service targets for their facilities and lack baseline data to their strategic plan indicators. (Karengera et al, 2016).

Too often data sit in reports, on shelves, or in databases and are not sufficiently used organizational strategic decision making processes of policy development, strategic planning, or advocacy (Nutley, 2012). Part of the reason for the breakdown in the process is the complex nature of the causal pathway between the collection of data and data analysis and synthesis skills as well as the capacity to interpret and use the available data in strategic decision making. Health data lack value if they are not used to inform decision and efforts to improve data quality will be wasted if they do not include innervations to increase local demand for data and facilitate data use (measure evaluation, 2010).

While a lot of data is generated in hospitals and data collection can still be improved, there are many missed opportunities for using this data in decision making (measure evaluation, 2010). The cause of limited use of data in decision

making can be linked to Many times theses missed opportunities can be related from prevalent lack of data ownership were decision makers are not aware of existing data sources or do not fully understand their underlying technical issues, low value placed on data by decision makers with perceptions that the data may not be reliable, may be of poor quality or lack of understanding how the information could be useful as well as failure to present the data in user-friendly, accessible formats.

1.2　　Statement of the Problem

Data in hospitals can be used to make decisions in staffing, financial allocations, quality improvement interventions, improving customer experience, organizational learning among others by management to improve organizational overall performance.

However, according to the Lubaga hospital annual report of the 2016/17 financial year, for the last four years from i.e. 2013/2014 to 2016-2017 the hospital has experienced a decline in the number of its output as indicated by the standard unit of output report (SUO), reducing from 436954, 405223,384537 and 379366 in the Financial years 2013/14, 2014/15, 2015/16 and 2016/17 respectively. An issue that poses a direct effect on the organization's financial and marketing position.

This situation poses a question of whether this data is used to analyze the root cause of this decline and in making other strategic decisions. Health data lack value if it's not used in decision making.

1.3 Objectives

1.3.1. General Objective.

Assessing the effects of data utilization in organizational decision making in Lubaga Hospital.

1.3.2 Specific objectives

i. To establish the effect of data quality on organizational financial allocations in Lubaga hospital

ii. To determine the effect of data access on organizational staffing allocations in Lubaga hospital

iii. To determine the relationship between data sharing and organizational learning for procedural change in Lubaga hospital

1.4 Research Questions

i. What is the effect of data quality on organizational financial allocations in Lubaga hospital?

ii. What is the effect of data access on organizational staffing allocations in Lubaga hospital?

iii. What is the relationship between data sharing and organizational learning for procedural change in Lubaga hospital?

1.5 Significance of the study.

A lot of research has been put on efforts to improve data quality and data management practices in hospitals (measure evaluation, 2010) and little has been

done to determine the effect data has on decision making among PNFP hospitals. So this research is aimed at exploring the role of data in decision making.

This will help decision makers in the circle of healthcare management to understand the power of the data available to them in improving the quality of decisions made and well as improving competitive advantage through efficient and effective health care management processes.

1.6 Scope of the study

This study on the data management practices on organizational decision making in Lubaga hospital was conducted between August 2017 and October 2017 using a survey research design. The study was conducted in Lubaga hospital, one of the biggest and oldest private not for profit hospitals in the country (Uganda). Data will be collected using questionnaires and interviews techniques. The study was specifically aiming at determining the effect of data quality, accessibility and sharing on organizational decision (specifically; financial allocations, staffing and organizational learning for procedural change in Lubaga hospital.

1.7   Conceptual framework

Figure 1.1: Showing the conceptual framework of the study
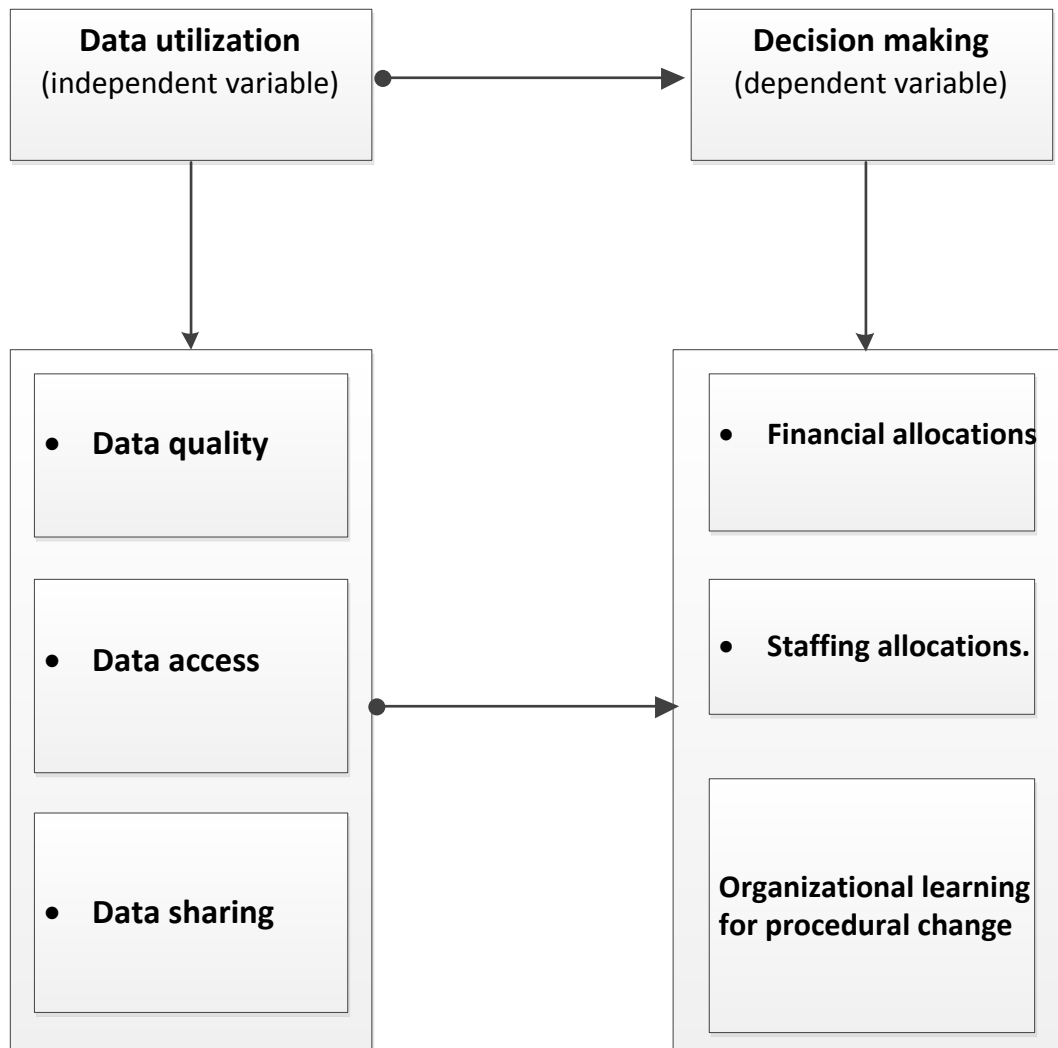
Source: Author, 2017

CHAPTER TWO: LITERATURE REVIEW

2.1   Introduction

Kavale (2012) defines data as a set of unorganized facts. According to this definition, examples of data in the health facility may include patient diagnosis, village date and age. The Merriam-Webster Dictionary (2005) defines data as'' factual information (as measurements or statistics) used as a basis for reasoning, discussion, or calculation''. However, Gordon (2007) adds some more value to data, he defined data as an interpretable representation of information in a formalized manner suitable for communication, interpretation or processing.

According to Omotunde (2012), decision making could be defined as the study of identifying and choosing from alternatives, the best option that suits a purpose. It is usually regarded as a logical study as it involves mental and logical reasoning. In decision making, there are various alternatives that are worth to be considered but the interest is not on the number of different alternatives rather to identify all the alternatives and choose the one with the highest probability of success or that best fits specific goal or objective.

The concept of strategic data based decision making is the use of robust data and intelligence to support a company's decisions (Kavala, 2012). This is in contrast to intuition based or intuitive based decision making, where decisions are based on baseless beliefs of the business and its external environment. Data-based strategic

decision making is the systematic collection and objective analysis of data to make decisions (Lassen, 2007)

The survival or closer of business/organizations primarily depends on the quality of management that leads them. This means that decision making is not only, but the basic function of management that determines the success or failure of an organization (Puseljic, Skledar, Pokupec, n.d). Jones (2014), categorized all the types of decisions made in organization into three major forms namely; strategic, tactical and operational decisions.

Strategic decisions

Strategic decisions are executive-level decisions. These are made in every area, from IT (information technology), HR (human resources), finance, and CRM (customer relations), for example. They look ahead to the longer term and direct the company to its destiny.

Strategic decisions tend to be high risk and high stakes. They are complex and rely on intuition supported by information based on analysis and experience. When you face it, you may have time to consider options reinforced by the gathered information, or you may have moments to decide. He states that to make good strategic level decision, you need to be comfortable working with a lot of data and the ability to see the interrelationships among different organizational stakeholders.

Tactical decisions

Tactical decisions translate strategic decisions into actions. Tactical decisions are more straightforward and less complex than strategic-level decisions. When they are in alignment with your company's core values or its overall mission, tactical decisions add even more value to the outcomes of the implementation.

Conversely, if tactical decisions become detached from the company's direction, you and your employees end up expending a lot of effort on tasks that don't help the company achieve its goals or vision.

Tactical decisions fall in the scope of middle management. Middle managers are the proverbial meat in the sandwich; they make things happen. In vertically organized hierarchies, middle managers translate top-level decisions into goals that can be operationalized.

Operational and frontline decisions.

Operational and frontline decisions are made daily. Many operational decisions are guided by company procedures and processes, which help new employees get up to speed and serve as a backdrop for more experienced employees, who, having mastered the current procedures and processes, can detect and rapidly collate additional information, like cues, patterns, and sensory data, that aren't covered by the procedures.

Take mechanics, for example: A master mechanic is able to apply procedures and specifications to fix a problem, and his accumulated experiences (and intuition) strengthen his troubleshooting abilities. Detecting subtleties is an intuitive intelligence. The effect is faster and more accurate diagnosis or assessment of a particular situation.

2.2   Data quality and financial allocations.

Wang and Strong (1996) define data quality as data that is fit for use by the consumers. Attributes (dimensions) of data quality including accuracy, timeliness, reliability, completeness, relevancy and interpretability. Wageningen (2017), also defined data quality as fitness for use according to the judgment of the intended data consumers. All these definitions agree that data quality is defined as fitness to use. However, these definitions emphasizes data quality as being fit for use by consumers, consumers have different needs and some of them may not be directly related to the goals of the organization which should be the overall objective of organizational data to support achieving organizational goals.

There for according to Dama-UK (2013), data is of quality when it meets organizational standards and able to support business process or organizational decision making needs. Herzog et al (2007) emphasizes that data is of high quality if they are fit for use in their intended operational decision making and other organizational roles as well as conforming to the set standards.

In the view of discrepancies and similarities above, the definition of data quality adopted for this study is derived from Wand and Strong (1996), Dama-UK (2013) and Herzog et al. Data quality is defined as data that is fit for use to support organizational decision making needs and meets organizational set quality standards. This definition is appropriate because it caters for decision makers needs to support them in decision making exercise and follows organizational set standards to ensure sustainability of the program of ensuring data quality.

In 2013 a DAMA UK defined the following six best practice definitions as generic data quality dimensions suggesting that these dimensions and definitions should be adopted by data quality practitioners as the standard method for assessing and describing the quality of data.:

1. Completeness: The proportion of stored data against the potential of '100% complete'.

2. Uniqueness: No object will be recorded more than once based upon how that object is identified.

3. Timeliness: The degree to which data represent reality from the required point in time.

4. Validity: Data are valid if it conforms to the syntax (format, type, range) of its definition.

5. Accuracy: The degree to which data correctly describes the 'real world' object or event being described.

6. Consistency: The absence of difference, when comparing two or more representations of an object against the definition.

Authors have developed different theories on data quality. Fan (2012) states that if the quality of data is poor, it is difficult to find correct answers to the existing problem no matter the level of analysis into the problem. Unfortunately real data that is found in organizations is often dirty, inconsistent, incomplete, inaccurate, absolute and duplicated. He further states that more than 25% of critical data in the world's top companies is faulty and pieces of information perceived as being needed for clinical decisions were missing from 13.6% to 81% of the time. It is also estimated that 2% of records in a customer file become obsolete in one month and hence, in a customer database, 50% of its records may be obsolete and inaccurate within two years. According to Fan (2012), US business loose about $600 billion annually as a result of decisions guided by poor data quality.

According to Harris (2009), most of the efforts to improve data quality in organizations come as reactive projects, usually launched after events of poor data negatively impacting organizational decision making processes. As a result many of these initiatives end in failure because they are based on flawed perspective that data quality problems can be fixed by a one off project, as opposed to establishing a sustainable program to ensure good data management practices to produce reliable and consistent data.

Ken (1980) stated that the principle role of most information systems is to present views of the real world that the people in the organizations can use to make decisions. If those views presented by the system do not agree with the real world situation at hand, then the system is a poor one and the decisions made basing on such data are likely to be wrong. According to his modal "feedback control system", data quality is the measure of agreement between the data views presented by the information system and the same data in the real-world. Ken states that the major challenge affecting data quality is change, all the data we have in our databases is static yet the real world keeps changing. This is because even if the current data base contains data that matches with the real-world at a given time t0, at time t1 the data will be slightly different and at time t3, it may be completely different from the real-world.

Here he states that in order to have quality data that matches the real world, you need a component of feedback. This means that the users need to constantly monitor the data in the database and that of the real-world such that in case of any deviations between the two, timely updates are made to match the situation of the real-world. This will provide a more realistic piece of information relevant for the decisions at hand.

According to Kavale (2012), the rational choice theory assumes that for decision makers to be able to make good decisions, decision makers should have clear goals, with all the data they need to analyze various alternatives, and that they aspire to

maximize the effectiveness of their organizations by making the best choice. Linear strategy models call for organizations to set out broad strategic goals and to operationalize them by making decisions such as budget allocation and personnel, for instance - that are in line with organizational objectives (Pisel, 2008)

According to Curristine *et al.* (2007), increasing the use of performance information in budget processes is an important initiative that is widespread across Organization of Economic Corporative and Development (OECD) countries. It is part of an ongoing process that seeks to move the focus of decision making in budgeting away from inputs (how much money can I get?) towards measurable results (what can I achieve with this money?). According to Curristine, countries that have embraced the use of data to guide resource allocations during budgeting process have registered the following benefits;

- It generates a sharper focus on results within the government.

- It provides more and better information on government goals and priorities, and on how different programs contribute to achieve these goals.

- It encourages a greater emphasis on planning and acts as a signaling device that provides key actors with details on what is working and what is not.

- It improves transparency by providing more and better information to parliaments and to the public, and has the potential to improve public management and efficiency

However, he continuous to state that OECD countries that have implemented the use of performance information in the budgeting process have experienced several challenges were the quality of data available is one of the key challenges, others challenges include difficulty in measuring the activities, engaging the politicians to embrace the use of data in decision making.

2.3 Data access and staffing allocations.

Fathin *at el.* (2014) referred data accessibility to a situation where data is available and easily retrievable. He states that data should be easily accessible regardless of any obstacles such as manmade disasters or hardware failures. Vale (2012) defined data accessibility as data that is easy to find by the intended user and presented in a simple and easy to use format by a range of different types of users. He states that data should be freely available to all possible sources of convenience to the users and presented in simple and easy formats in a language that is universally holistic. Access to high-quality data is critical to innovation, quality improvement, and increased efficiency in health care, Patrick (2010). Timely access to high-quality information can help healthcare managers to identify and address priority health problems in their populations more effectively and efficiently, Wilkins at el. (2008). According to Fathin at el (2014), within healthcare management systems environment, one factor that determines the quality of healthcare services is the accessibility of patient's records. Fast and seamless access to patient's records is necessary in order to support sharing of complete lifetime patient's records among healthcare providers while promoting the greater use of it. The increase of vast

amounts of patients data and the need to access those data from anywhere at any time has made accessibility of data to be a crucial issue especially in healthcare management systems domain. According to measure evaluation (2010), for data to be useful in decision making, decision makers need to have access to all relevant data sources. Access to both summary reports and full data sets is critical in organizational management and improvement and policy formulation. For example, complete data is necessary to supporting trend, output and outcome monitoring, problem identification, target setting, site comparison and hypothesis testing. Without sufficient access to full and multiple data sources, data-informed decision making will be limited.

In an assessment by measure evaluation on the constraints to using data in decision making, the following challenges were discovered;

• Insufficient access to departmental data beyond summary findings from clinic supervisors created challenges for clinic staff to adequately plan for referrals, to better understand service delivery issues and to share best practices.

• Lack of access to external data sources (from district hospitals, and governmental and nongovernmental databases) made it challenging for staff in various settings to compare their performance to other organizations and to formulate appropriate interventions based on the needs of the community.

As a result, Fathin *at el.* (2014) defined *Infrastructure-based Access, Online-based Access, Biometric-based Access and Tool-based Access* as key data access improvement methods in organizations.

For health information systems to function effectively and efficiently health professionals need to be trained not only to collect and manage the information but also to analyze, interpret and disseminate it for use in decision making. For data to be used consistently, the entire health system must place a high value on health information and be structured in a way that supports and encourages evidence-based decision making, Measure evaluation (2010)

However, protecting patient privacy is a key element in broadening access to data for activities such as research, and health planning. To achieve this goal, all the personnel, systems, and processes engaging in health information storage and exchange within and across organizations should adhere to principles of data stewardship. Data stewardship encompasses the full range of responsibilities and accountabilities associated with any use of personal health information, Amia, (2011).

The difficulty of ensuring an adequate and appropriate distribution of health services, together with increasing financial pressures in the public sector in both developing and developed countries, are forcing many countries to consider using more rigorous methods for ensuring effective use of their available resources, staffing being on the most critical resource. This is because it consumes between 70% and 75% of the recurrent budget allocated to health and because it is the skills, capacity and commitment of this resource that will be a major determinant of efficiency and effectiveness in the delivery of health care, Ozcan at el. (1999). Adequate staffing is essential in a healthcare environment if any hospital is to

realize the objective of quality patient care. Staffing not only has a quality and cost implication for the nursing service, but it is also important in terms of its contribution to staff satisfaction and the retention of personnel in the nursing service. It is therefore extremely important to appoint a person in the right post in order to facilitate high quality care. Jooste at el. (2013). Over the years, the difficulties involved in anticipating patient care demands led inevitably to the use of historical bed utilization data to provide averages for projecting purposes; decisions related to the allocation of nursing resources were often based on measures of expected peak needs, as a function of average bed occupancy and of some implicitly accepted risk of shortage. Needless to say, such procedures have proven less than effective and have contributed, to operational inefficiencies in patient care delivery, Young *at el.* (1981).

According to Jooste at el. (2013), average occupancy rate of the ward is a key factor that should be considered by hospital managers to determine hospital staffing levels mains among nurses. Other factors stated by Jooste as key determinants of staffing needs among nurses include; nurses' workload, the time required to provide patient care, patients' medication and treatment regime, volume of patients requiring care and differing doctor practices.

According to Ozcan at el. (1999), all the financial, organizational and operational dilemmas now facing most health systems, require a new approach to determining staffing requirements which is locality specific, objective based and not derived solely on national norms that are unrelated to local service needs, staff utilization

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and workload. He stated that as a part of the Human Resources (HR) Development Division's activities, within a World Bank supported Health Project of the Ministry of Health (MOH), the initial steps of a process for determining staffing norms for hospitals which meets these requirements was initiated in Turkey in 1995. The overall intention of this development study was to move staff requirement assessment from an arbitrary and institution based approach to an interactive one in which the determination of staff requirements was based on utilization and workload. The approach utilized is a method known as Workload Indicators of Staffing Needs (WISN). This tool utilizes all the available data collected in the health facilities including client attendances, hospital procedures done among others to come up with the staffing requirements of a given health facility.

2.4   Data sharing and organizational learning for procedural change.

Data sharing is a central process through which team members collectively utilize their available informational/data resources, Jessica (2009).   She states that Organizations are increasingly assigning complex decision making tasks to teams rather than to lone individuals, this is because superior solutions to complex decision making needs require members to effectively integrate unique, relevant, and often diverse levels of data. Information sharing among team members is critical for team and organizational success, Shatdal et al. (2011). If decision-relevant information is distributed among team members, the group is prone to focus on shared information to make evidence based decisions. Abele (2008).

According to Jordan (2015), organizational learning is the process of improving actions through better knowledge and understanding. This includes change in organizational practice, including routines and procedures, structures, technologies, systems and so on. A learning organization is an organization skilled at creating, acquiring, and transferring knowledge and at modifying its behavior to reflect new knowledge and insights (Anjana, 2002). Davenport and Prusak (1998) stated that knowledge is "a fluid mix of framed experience, values, contextual information, data and expert insight that provides a framework for evaluating and incorporating new experiences and information

Celik (2012) identified three categories of the critical aspects of the information to be shared when developing modals to help in decision making. These include the axis of shared information, the degree of shared information, and the content of shared information. The axis of shared information which can be either vertical, where the information is shared among various hierarchical levels within a single department or horizontal, where the information is shared across multiple departments of the organization. The content of shared information refers to the actual information that is shared between various members of the organization and customers, and can be defined both for vertical or horizontal axis's. The degree of information shared can be divided into three aggregated levels for both axes: no information sharing, partial information sharing, and full information sharing.

Data-driven innovation has great potential for the development of innovative services that does not only offer economic value to an organization, but that help to

address societal challenges such as epidemics, malnutrition among others which could be a problem that requires a deliberate intervention to save the community. Many of these challenges can only be addressed by sharing of the available organizational data by the decision making team, Eckartz (2016).

However, despite the critical need for organizations to share data so that analysts could analyze the data, mine the data, and make effective decisions, there is an urgent need to protect the information within an organization. Essentially we have a conflict between data sharing and data security. The challenge is to enforce appropriate administration and security policies that facilitate data sharing as needed, (Harris, 2006).

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Research design

This study was conducted through a cross sectional survey design. Survey research is defined as the collection of information from a sample of individuals through their responses to questions (Check & Schutt, 2012). This type of research allows for a variety of methods to recruit participants, collect data, and utilize various methods of instrumentation. Survey research can use quantitative research strategies (e.g., using questionnaires with numerically rated items), qualitative research strategies (e.g., using open-ended questions), or both strategies (i.e., mixed methods). As they are often used to describe and explore human behavior, surveys are therefore frequently used in social and psychological research (Singleton & Straits, 2009).

3.2 Target population and sampling.

3.2.1 Target population.

This study was conducted in Uganda Martyrs Hospital, Lubaga. Lubaga hospital was chosen because it is one of the biggest and oldest hospitals in the country, with a bed capacity of 236 beds and a total of 429 staff both clinical and non-clinical (UMHL, 2015/16). Therefore it can better represent the status of the Uganda hospitals. The target population included members of the Hospital Management Team, heads of departments, area managers and heads of units. Lubaga hospital was founded in 1899 by the white sisters because of an outbreak of sleeping

sickness. It is the oldest catholic hospital in Uganda and very significant for the Catholic Church in Uganda as it was the site of the miracle in 1941 that led to the canonization of the Uganda Martyrs by Pope Paul VI in October 1964. It is owned by the Archdiocese of Kampala and managed by the Board of Governors appointed by the Archbishop of Kampala and managed by the Hospital Management team whose membership is approved by the Board (UMHL, 2013/13).This made Uganda Martyrs hospital Lubaga appropriate for providing a focal point for the study of the role of data utilization in decision making in hospitals.

3.2.2   Sampling

Uganda Martyrs hospital Lubaga was selected because of the ease to obtain information given in the time available to carry out research and the characteristic of the hospital. The number of staff that participated in this study was calculated using the formulae below. A total of 200 questionnaires were distributed among potential respondents but only 165 were collected.

$$n = [\{Z^2 p(1-p)\} / e^2] / 1 + [\{Z^2 p(1-p)\} / e^2 N]$$

Where;

N= population size

Z= z-score (confidence interval)

e= margin of error

p= standard deviation

$$n = [\{2.58^2 \times 0.5\,(1-0.5)\}/0.05^2] / 1 + [\{\quad 2.58^2 \times 0.5\,(1-0.5)\}/0.05^2 \quad x\ 400]$$

n= 197

Sample size = 197 respondents.

3.2.3   Sampling Technique

This study employed a purposive sampling technique to select the sample. Using this technique, the researcher consciously decides who to include in the sample, it is used to collect focused information ((Oso and Onen, 2008). It is the preferred technique to this kind of the study where there are different categories of staff who may not necessary need data to make decisions like the cashiers, work shop staff (support staff) among others, so this gives the researcher an opportunity to select only those groups of people that fit in the objectives of the study. Purposive technique will be used to only select the target groups of staff which included Clinicians, Nurses, and finance and administration staff.

3.3   Data collection

3.3.1   Instruments

In this study, questionnaires technique was used to collect data to achieve the objectives of this study. Questionnaires were used by the researcher to suit the desired objectives. Questionnaires were used in the collection of items to which a

respondent was expected to react in writing (filling), it is very important when a lot of data needs to be collected over short period of time.

3.3.2   Research procedure.

Quantitative data using questionnaires was collected from a total of 165 staff. Data was collected using a well-trained research assistant to avoid bias from the researcher. This data was collected between the periods of August and September 2017 from Uganda Martyrs hospital Lubaga selected staff.

3.4.   Quality control

The data collection tools such as the structured questionnaires was pre-tested by the researcher at a different hospital i.e. Nsambya hospital which is of the same size. This was intended to test whether the tool fitted the intended targeted group in terms of content and relevancy. The researcher organized an orientation meeting for the research assistant to take her through the data collection tools.

3.5   Data analysis

In this study, the researcher analyzed the relationship between the independent (data use) and dependent variables (decision making). In this regard, a correlation data analysis technique was used. Correlation is a bivariate analysis that measures the strengths of association between two variables and the direction of the relationship. In terms of the strength of relationship, the value of the correlation coefficient varies between +1 and -1. When the value of the correlation coefficient lies around +- 1, it is then said to be a perfect degree of association between the two

variables. As the correlation coefficient value goes towards 0, the relationship between the two variables will be weaker. The direction of the relationship is simply the + (indicating a positive relationship between the variables) or − (indicating a negative relationship between the variables) sign of the correlation.

3.6   Ethical Considerations

The proposal was submitted and approved by the University before an introduction letter for data collection was released. This introduction letter was submitted to my center of data collection with a copy of the proposal for review and permission was granted. A formal consent was sought from all participants before any form of data collection and confidentiality was guaranteed to all participants.

CHAPTER FOUR: RESULTS AND DATA ANALYSIS.

4.1   General characteristics of the respondents.

Out of the 165 respondents who returned the questionnaires, 22.2%) were Males and 78.8%) were females. Table 4.1 below also shows that Majority(61%) of the respondents were between 30 and 45 years of age, 29.1% and 29.7% had served for below two year and between six years and ten years. 20% and 21.2% had served between two years and five years and above ten years respectively.

Majority (50.3%) of the respondents were working with the inpatients section which included wards like medical, surgical, maternity and pediatrics, 16.4% were working under administration and finance department, 12.1% under the Outpatient department while 21.2% were under other supporting departments like Pharmacy, Public health and ACT program. 54.5% were nurses, 12.1% Doctors, 7.3% holding management positions, 7.3% as officer as indicated in the table below.

Table 4.1: Summary of general characteristics.

Summary of background characteristics		
		Percent (%)
SEX		
	male	55.0
	female	45.0
AGE BRACKET OF THE RESPONDENT		
	below 20yrs	10.0
	20 yrs. and 30 yrs.	5.0
	30 yrs. and 45 yrs.	60.0
	46 yrs. and above	25.0
PERIOD OF SERVICE IN AGIVEN POSITION		
	below 2 yrs.	30.0
	Btn 2 yrs. and 5 yrs.	15.0
	Btn 5 yrs. and 10 yrs.	25.0
	Above 10yrs	30.0
Department where the respondent works		
	outpatients	10.0
	inpatients	25.0
	Administration and finance	45.0
	other	20.0
Position occupied by the respondent		
	manager	20.0
	administrator	10.0
	Doctor	15.0
	Nurse	5.0
	officer	35.0
	other	15.0

4.2   Effects of data quality on organizational financial allocations.

The first objective of this study was to determine the effects of data quality on the hospital financial allocations in Lubaga hospital. To achieve this objective, members of the hospital staff were asked questions/ statements intended to describe the quality of data in relation to financial allocations decisions. Data quality was defined in terms of data collection process, data management practices as well as mechanisms for improving data quality. At the same time, data use in financial allocations was defined in terms of the types data used and determinants of financial allocations in Lubaga hospital.

Out of the 165 respondents, 95.2% considered the existing data collection process as appropriate to produce quality, 76.4% considered the data management processes as suitable and 67.9% considering that there is defined feedback mechanisms to improve the data quality . Despite the fact that data quality is considered good by the majority of the respondents, the analysis indicated that there was no statistical significance between data collection process and financial allocation ($p < .134$) and between feedback mechanisms and financial allocations ($p < .094$). However, the results between data management process and financial allocations were statistically significant ($p < .001$), although it had a negative relationship. Which means that as one variable increases, the other is decreasing thus a negative relationship which is similar with the data collection practices.

Table 4.2: Relationship between data quality and financial allocations.

Data quality indicators.	Response	Percent	Pearson correlation.
			sig. (2-tailed)
Data collection process appropriate	NO	4.8	-0.117
	YES	95.2	0.134
Data management process suitable	NO	23.6	-0.289**
	YES	76.4	.000
Is there defined feedback mechanisms to improve data	NO	27.3	0.134
	YES	67.9	0.094
a. Dependent Variable: is data used in financial allocations.			
**. Correlation is significant at the 0.01 level (2-tailed).			

As indicated in the table 4.3 below, different variables were used to descried the data collection process, twenty three percent believed that data collection was done by qualified people, 22.3% believed that standard registers/electronic system are used to capture data, 20% considered data entry process in registers/electronic systems to be done by qualified staff, 17.4% considered that standard tools are used

in the collection of data and that registers needed for data entry being available all the time when needed as other factors that determine the process of data collection as appropriate.

**Table 4.3: Determinants of data collection process.**

		Percent
Do you consider the data collection process as appropriate to produce quality data for decision making? If YES, please select all that apply to you.	standard registers/electronic system are used to capture data	84.6%
	data entry in registers/electronic systems is done by qualified staff	75.8%
	data collection is done by qualified staff	87.2%
	registers needed for data entry are usually available	65.1%
	standard data collection tools are used to collect data	65.8%

4.2.1. Is the data management process suitable to produce reliable and consistent quality data for decision making

Seventy six percent (76%) of the respondents believed that the data management process was suitable to produce consistent and reliable quality data for decision

making.   Figure 4.1 below shows the respondents' reasons to support their statement.

Figure 4.1: Determinants of data managment practices.
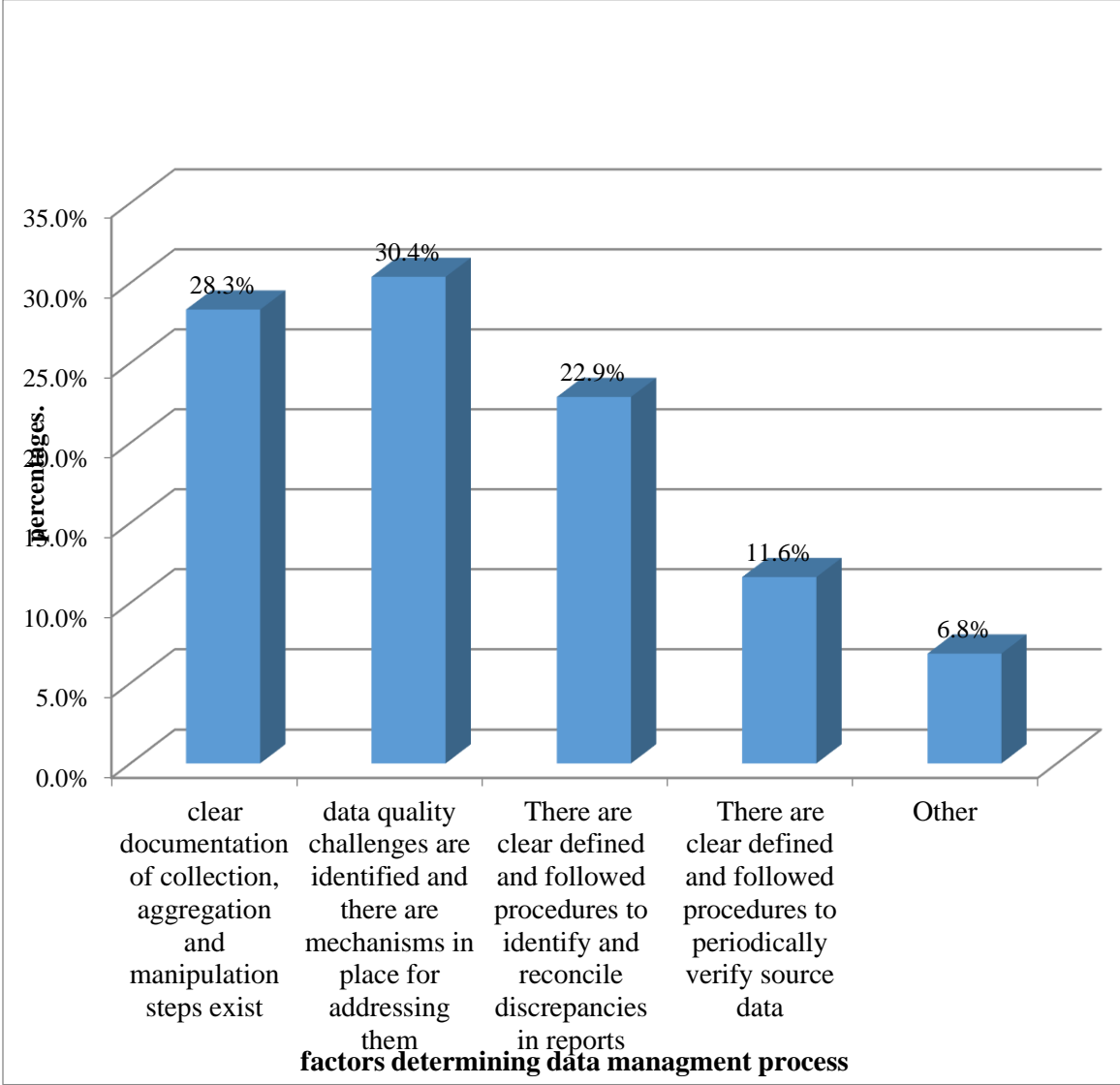
28.3% of the respondents indicated that clear documentation of collection, aggregation and manipulation steps exist, 30.4% indicated that data quality challenges were identified and there are mechanisms in place for addressing those

challenges, 22.9% indicated that there are clear defined procedures to identify and reconcile discrepancies in data reports as major points that define that data management practices are suitable to produce reliable and consistent quality data.

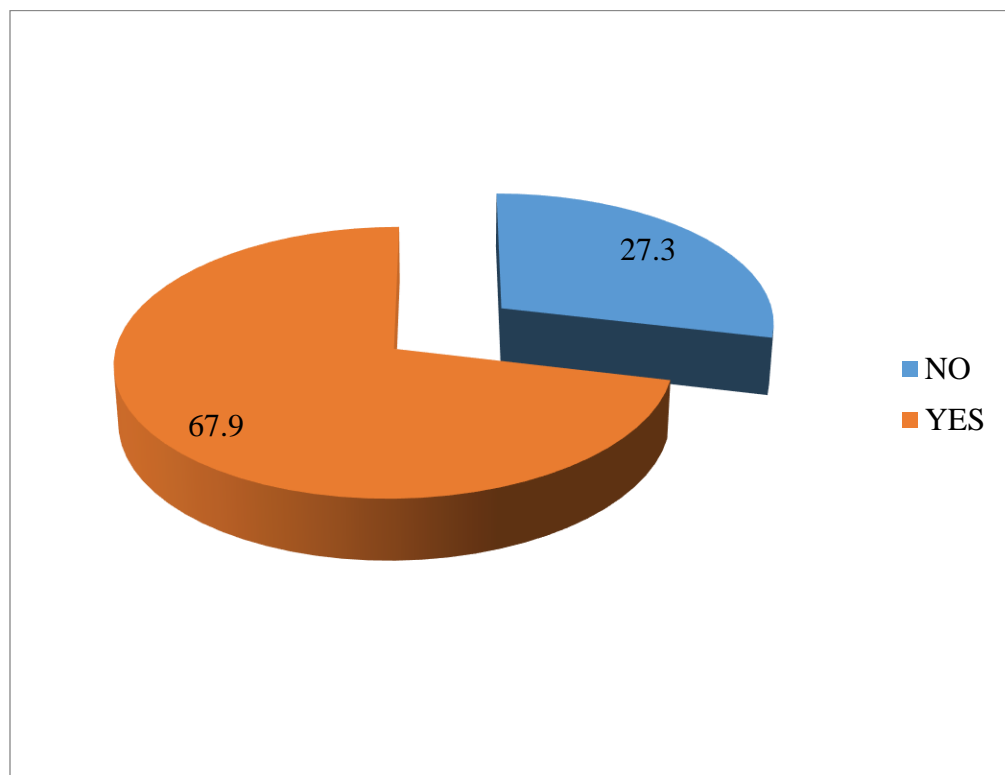**Figure 4.2: Availability of defined feedback mechanisms.**

Figure 4.2 above shows that 67.9% of the respondents believed that there were defined feedback mechanisms to improve the quality of data produced. 26% stated that data quality improvements were discussed during quality improvement meetings, 26.9% stated during general staff meeting, 24.9% stated during

departmental meetings and 19.3% stated during data assessment meetings as platforms used to discuss improvement of data quality.

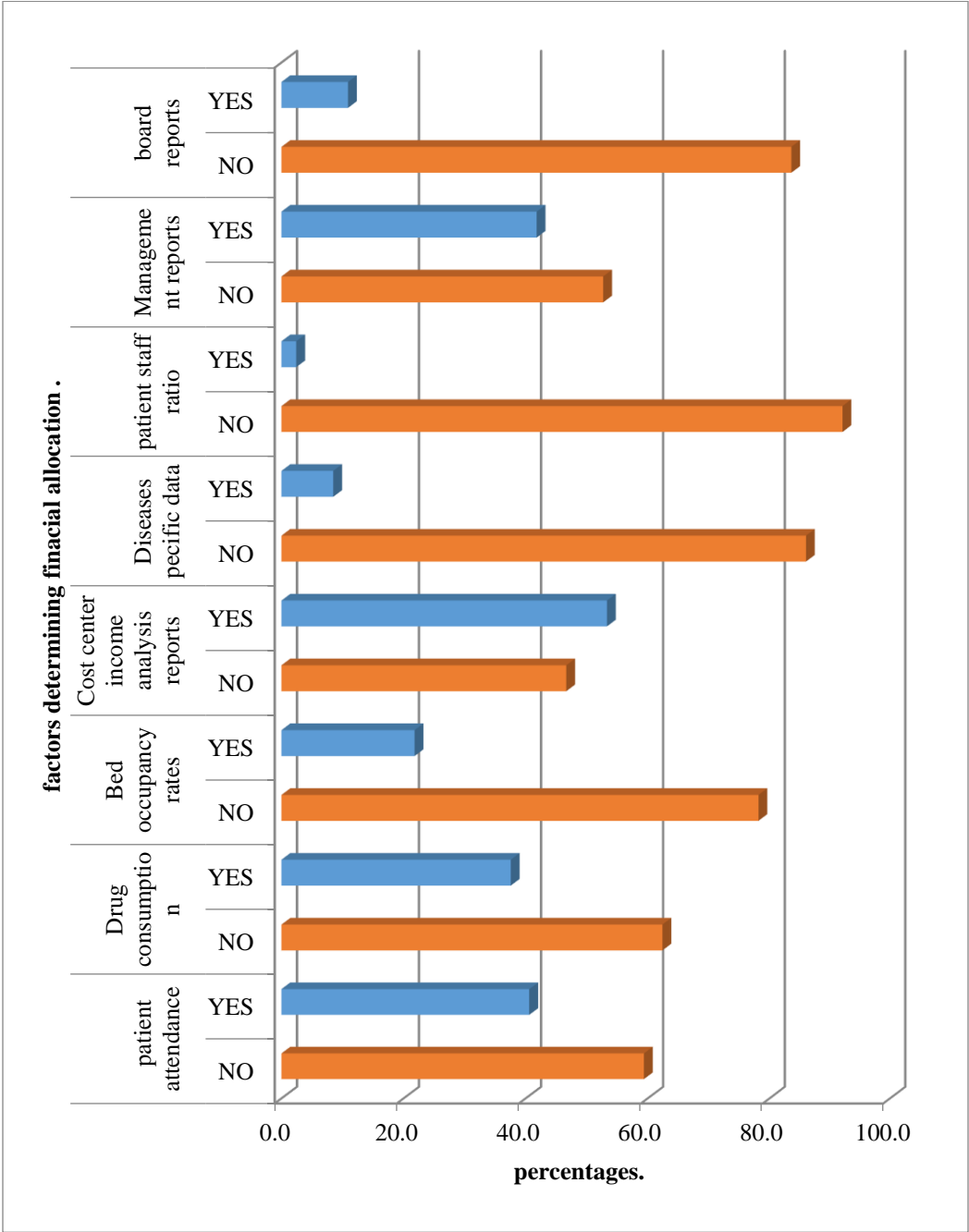**Figure 4.3: Type of data used to make financial allocations.**

Figure 4.3 above show the type of reports used in making financial allocations in Lubaga hospital, 53.3% use cost centre income analysis reports, 41.8% use management reports, 40.6% use patient attendance trends data and 37.6 use drug consumption rates. Other types of data used include board reports, patient staff ratio reports/data, bed occupancy reports and disease specific reports.

4.2.2 Determinants of financial allocations.

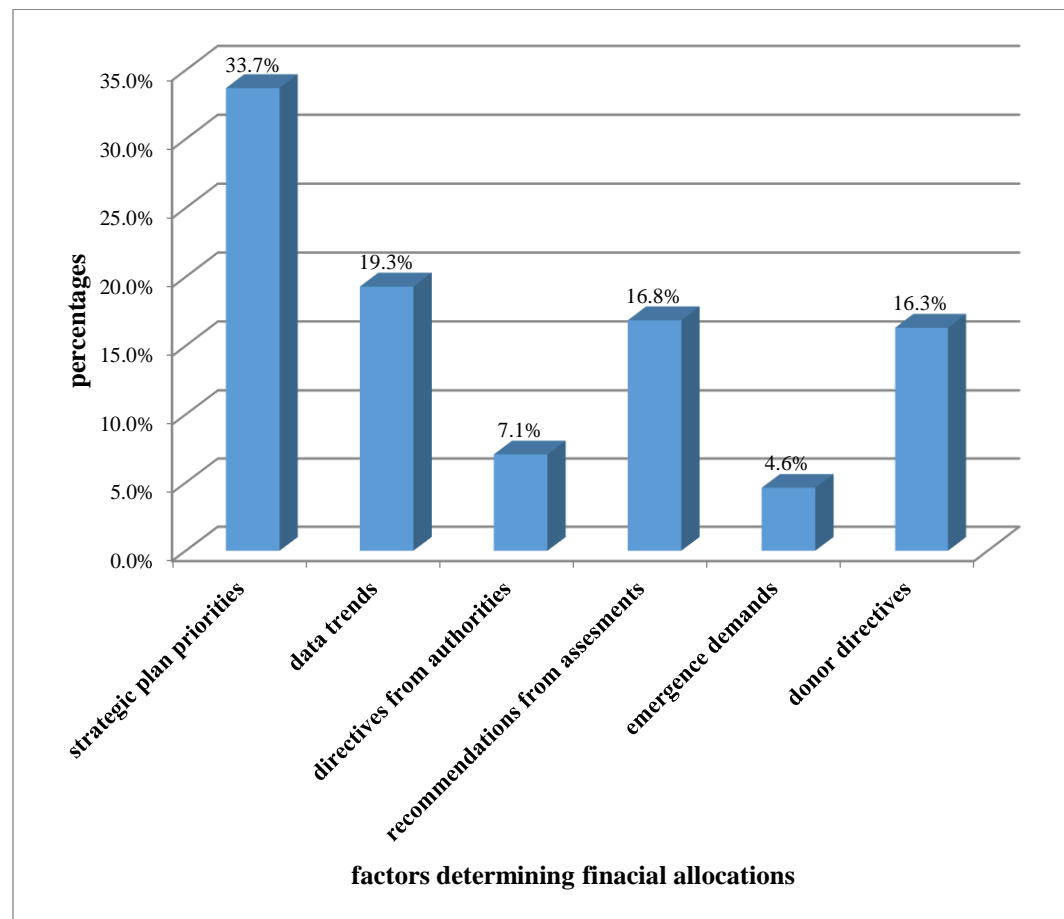**Figure 4.4: Key determinants of financial allocations.**

Figure 4.4 above shows that strategic plan priorities is the major factor determining financial allocations in Lubaga hospital with 33.7% of respondents pointing it out. 19.3% stated data trends, 16.3% stating donor's demands as a major factor determining financial allocations, 16.8% stating recommendations from both internal and external assessments being another important determinant of financial allocations, directives from the top management and organizational emergency demands being other factor with 7.1% and 4.6% respondents stating tem respectively.

4.3. Effects of data access on organizational staffing allocations in Lubaga hospital.

The second objective of this study was to determine the effects of data access on staffing allocations in Lubaga hospital in Kampala. To achieve this objective, members of the hospital staff were asked questions/ statements intended to understand access to data in relation to staffing allocations decision making. Data access was defined in terms of types of data accessible, main sources of data and access to regular feedback on departmental performance. The types of data used in making staffing allocations decisions and the determinants of staffing allocations in Lubaga were other questions.

4.3.1 Access to different types of data.

The results presented in the table 4.4 shows that access to data and staffing decision making have a statistically significant linear relationship (P < .001) for HIMS,

Hospital annual report, health sector performance report, surveillance reports, national health survey reports and (P < .009) for financial reports in relation to data use in making staffing decisions. The direction of a relationship is positive meaning they are positively correlated. The magnitude of the association is approximately moderate (3 < r < 5).

Table 4.4 shows respondents access to different forms of reports, data in the table shows that respondents had more access to data generated internally compared to that generated from outside the hospital. This is evidenced by 86.7% respondents having access to hospital annual report, 65.5% having access to the HMIS reports and 55.2% having access to financial performance reports. This is contrary to the only 33.9% having access to the health sector performance reports, 28.5% having access to national health survey reports and only 16.4% declaring access to census reports.

**Table 4.4: Access to different reports.**

Access to different forms of data		Percent	Pearson Correlation
			Sig. (2-tailed)
HMIS	no	34.5	.429[**]
	yes	65.5	.001
Hospital annual report	no	13.3	.280[**]
	yes	86.7	.001
health sector performance report	no	66.1	.444[**]
	yes	33.9	.001
surveillance reports	no	72.1	.329[**]
	yes	27.9	.001
national health survey reports	no	71.5	.343[**]
	yes	28.5	.001
census reports	no	83.6	.314[**]
	yes	16.4	.001
financial reports	no	44.8	.203[**]
	yes	55.2	.009
a. Dependent Variable: is data used in staffing allocations			
**. Correlation is significant at the 0.01 level (2-tailed).			
*. Correlation is significant at the 0.05 level (2-tailed).			

4.3.2 Main sources of data

Figure 4.5 below shows that the Data office was the main source of data with 38.7% of the respondents testifying to it, internet and respective department heads making 22.6% and 23.3% as other important sources of data, 12.3% the respondents stated

the management secretariat as the source of data used in making staffing decisions in Lubaga hospital. 3.1% stated that there are other sources other than those stated here.

Figure 4.5: Sources of data for staff in Lubaga hospital.
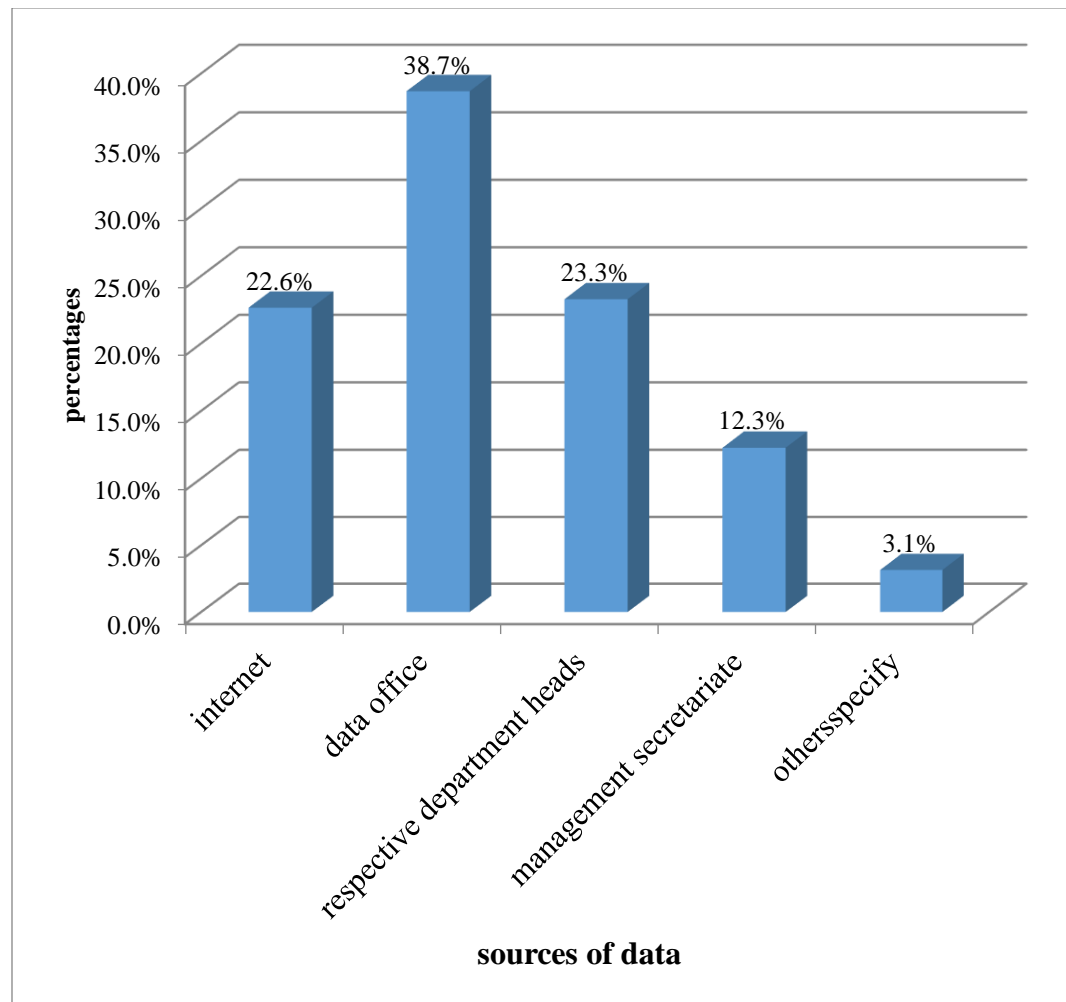

4.3.3 Feedback on departmental performance.

The findings indicate that 22.7% of the respondents get feedback about the performance of their departments on monthly basis, 46.4% get this feedback on a

quarterly basis, only 3.4% get the feedback on a bi-annual basis and 27.5% get this feedback on an annual basis.

4.3.4 Data use in staffing decisions

Data utilization in staffing decisions is only at 39%, while 61% do not use data when making staffing decisions as indicated in the figure 4.6 below.

Figure 4.6: Data use in staffing decisions.
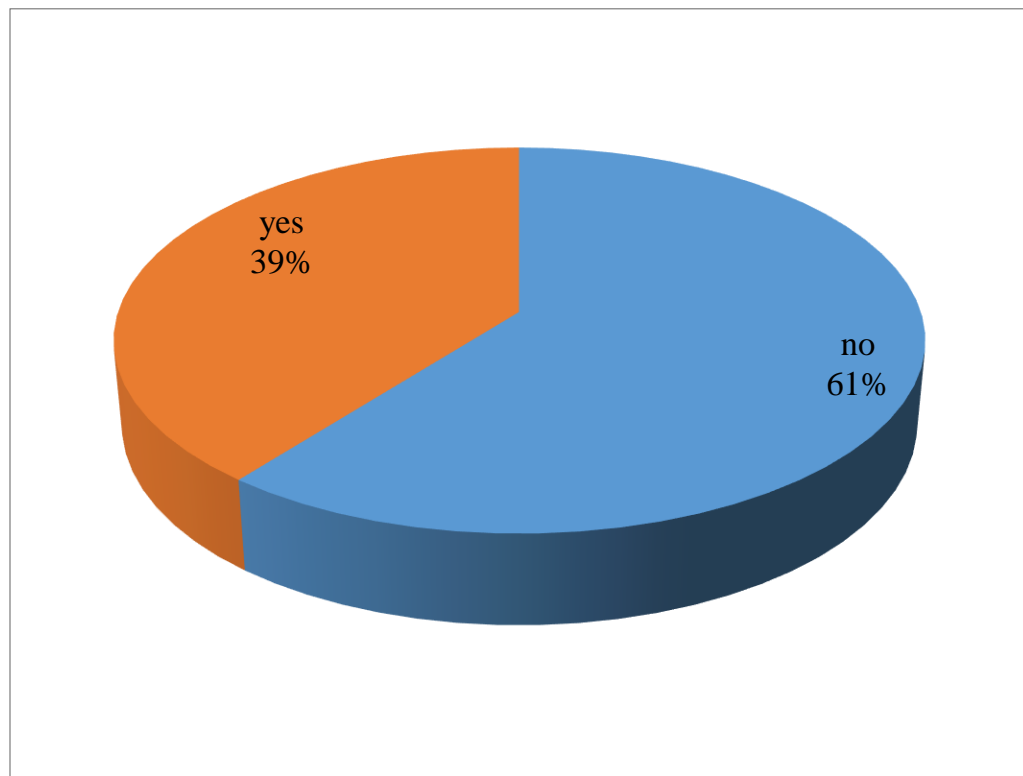
4.3.5 Data used in making staffing decisions.

Figure 4.7: Data used in making staffing decisions.
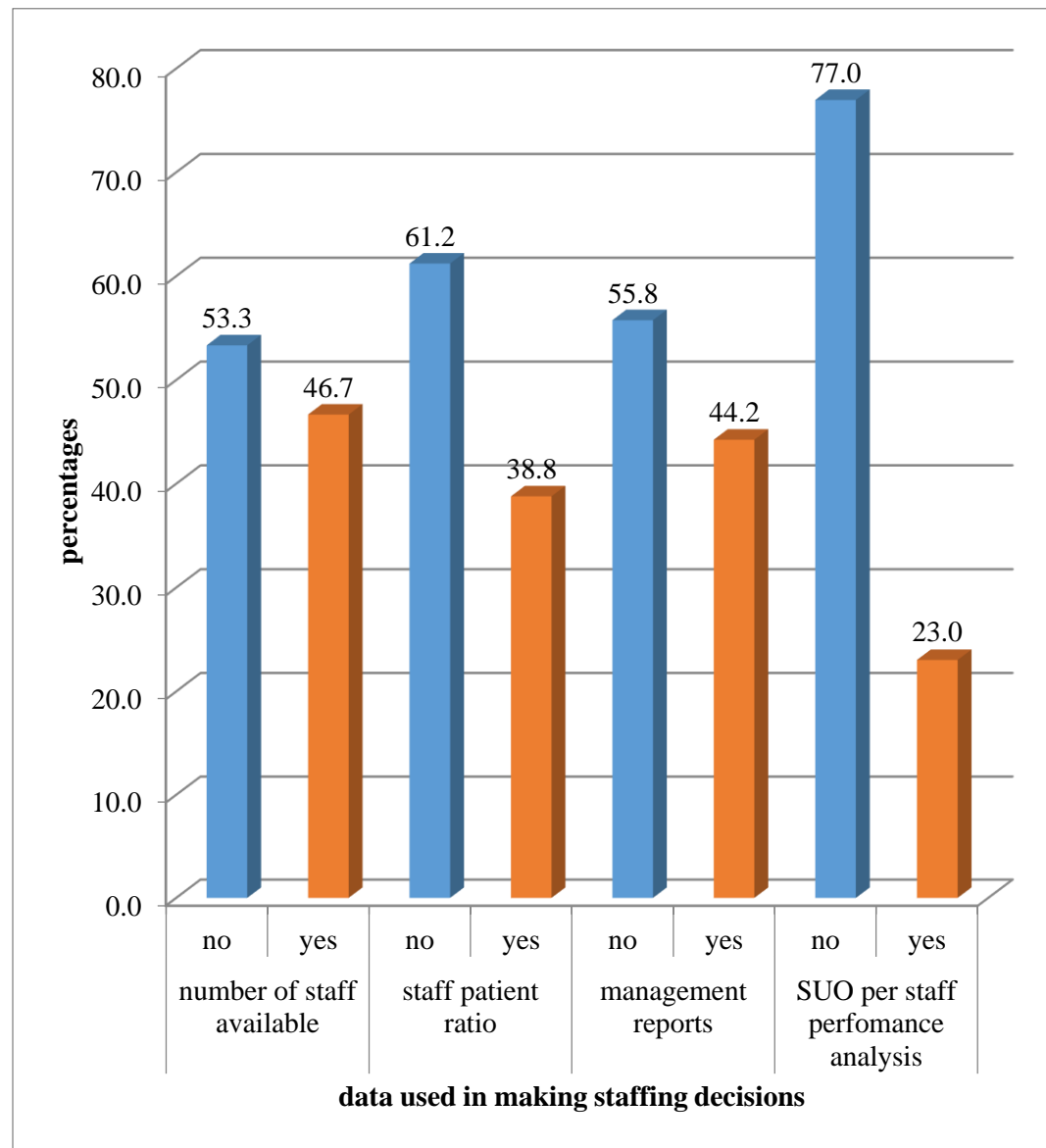

Figure 4.7 above confirms the previous one which indicated that data use in staffing

decision making is only at 39%. Use of staff patient ratio data is just at 38.8%, use

of SUO (standard unit of out) per staff data is just at 23%, and number of available

staff is at 46.7%. This shows that there is little use of data in making staffing decision making.

4.3.6   Determinants of staffing decision making.

Figure 4.8 shows the determinants of staffing decision making in Lubaga Hospital. Majority of the respondents indicated that decisions on staffing levels were mostly based on management's decision to increase or decrease the levels of staffing at a percentage of 64.2, 38.8%, use of client to staff ratio is at 38.8%, staff establishment at 35.8%. Other determinants included availability of staff at 17%, bargaining power of in charges or heads of departments at 20%.

Figure 4.8: Determinants of staffing decision making
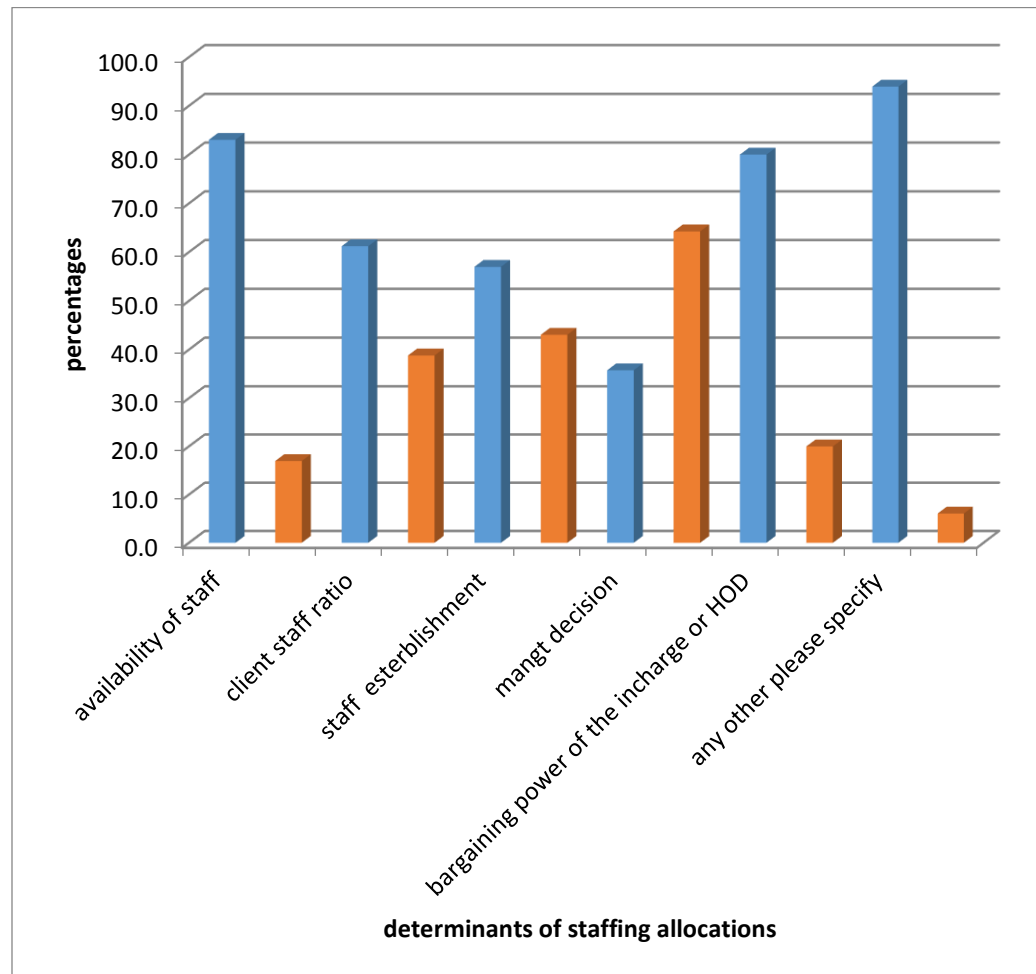
4.4 Data sharing and organizational learning/ procedural change in Lubaga hospital.

This objective was aimed at exploring the rate at which data is shared in Lubaga hospital, the different methods used in data sharing and to find out if there is a relationship between data sharing and organizational change in procure.

The results in the table 4.5 below show that data access and use in guiding organizational learning and change decisions have a statistical significance (.001 < p < .006), with a positive relationship direction, meaning that that these variable tend to increase together. The magnitude of strength of this relationship was higher with monthly and quarterly access to data at (.6 < r < 8), moderate with biannual and annual access at (r =.545 and r = .428) respectively, with the lowest at daily access (r = .205)

**Table 4.5: Data sharing and use procedural change.**

How fast data can be accessed when required.	Percent	Pearson correlation.
daily	29.7%	.205** .006
Weekly basis	26.7%	.453** .001
Monthly basis	14.7%	.814** .001
Quarterly basis	16.7%	.645** .001
Biannual basis	7.2%	.545** .001
Annual basis	5.0%	.428** .001
a. Dependent Variable: is data used to inform organizational procedural /process changes. **. Correlation is significant at the 0.01 level (2-tailed).		

The table above indicate that rate at which data can be accessed by members of staff if needed to inform any decision in the organization. The results from the respondents show 29.7% of the respondents believe that data can be accessed within a day, this means that some data is readily available for use at any given time. 26.7% indicated within a week, 14% indicated within a month and 16.7%, 7.2% and 5% indicated quarterly, biannual and annual basis respectively.

Figure 4.9: Available avenues used for sharing data amongst staff
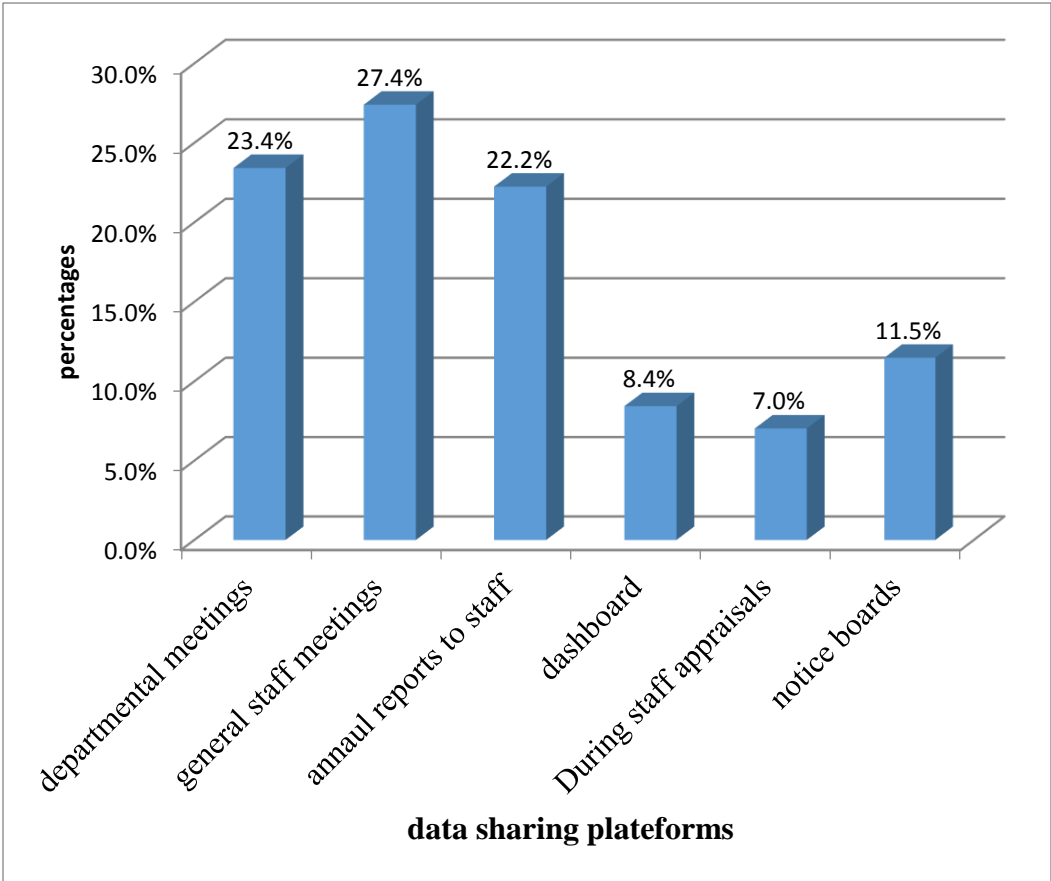
The results from the respondents (figure 4.9 above) identified three major avenues used to share performance data among staff in Lubaga Hospital. These included General staff meeting appearing as the major avenue used to share performance data among the staff at 27.4%, departmental meeting standing at 23.4% and annual reports at 22.2%. Other avenues include dashboards, staff appraisals and noticeboards at 8.4%, 7% and 11.5% respectively.

4.4.1   Main constraints to data use in decision making.

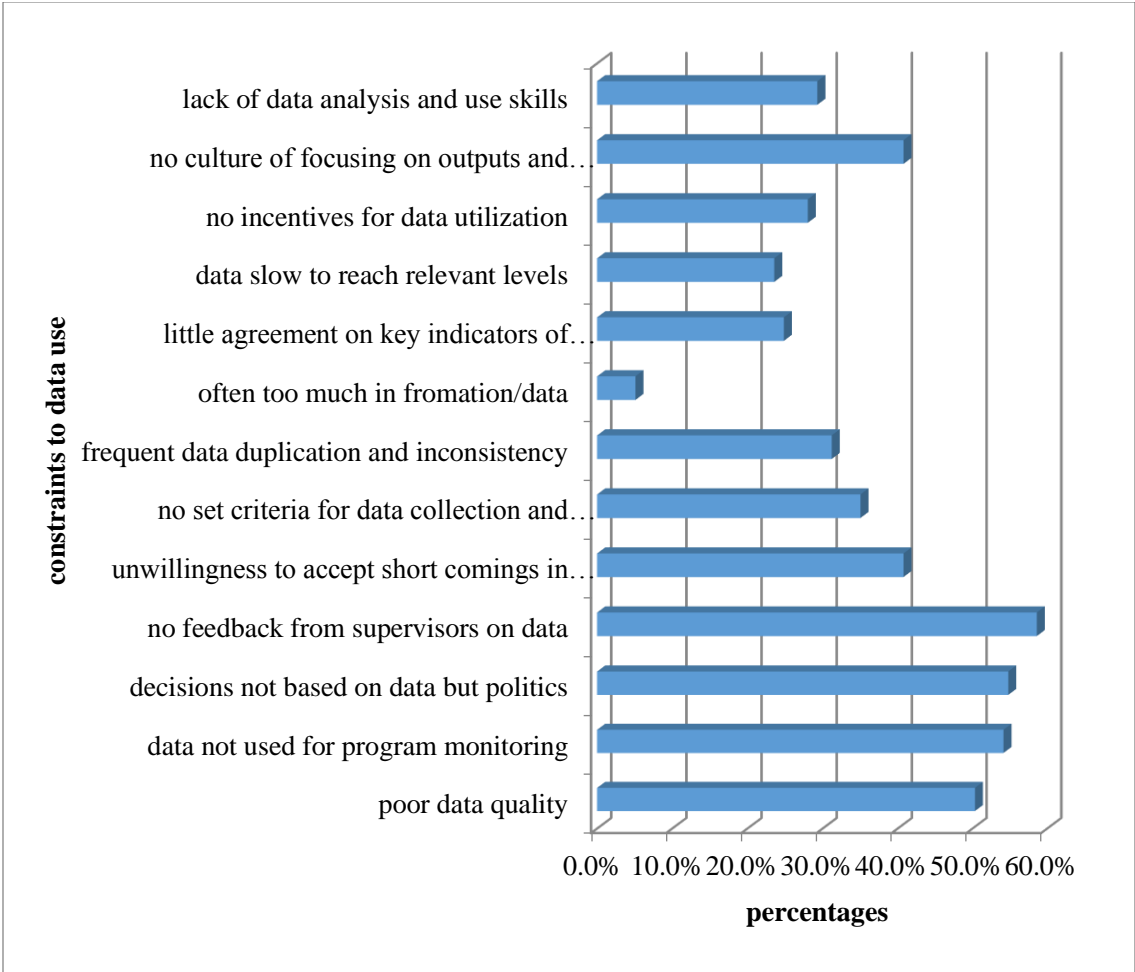**Figure 4.10: Constraints to data use.**

Figure 4.10 above presents the major constraints to data utilization in decision making in Lubaga Hospital. Constraints such as lack of feedback from supervisors on data, most decisions being based on politics rather than fact presented by data, data not being used to monitor program and organizational programs, poor data quality, lack of culture of focusing on out puts and outcomes were identified as key factors affecting data use among others in Lubaga Hospital.

CHAPTER 5: DISCUSSION OF RESULTS

5.1   Discussion of results according to objective one

The first objective of this study was to determine the effects of data quality on organizational financial allocations in Lubaga hospital. Data analysis and interpretation of questionnaires responses from the staff of Lubaga hospital revealed that although data was considered to be of good quality, there was no statistical significance between the two variables (data quality and financial allocations). These findings were contrary to the findings of Curristine (2007) and Kavale (2012) which indicated that the quality of data had a strong correlation with financial / resource allocations decision making.

This can be attributed to the fact that all accredited PNFPs receive conditional funds regularly from implementing partners/donors amounting to 36% of their total annual income as indicated in the health sector performance report (2016/17); this income is in form of Government subsidies (money and drugs) and in form of Aid from both local and international implementing partners. For example, Lubaga hospital receives PHC (primary healthcare fund) from government, PPF (poor patient fund) from international donors, Aid intended for capital development etc. annually, (Lubaga Hospital annual report, and 2015/16). Such funds are allocated according to the donors/funder's condition rather than the need that may be presented in the organization as it could be presented by the data available.

Despite this outcome however, Data quality as it was defined by Wang and Strong (1996) and Wangeningen (2017) is fit for use according to the judgment of the intended data consumers. Curristine (2007) stated that organizations that have embraced the use of data to guide resource allocations during budgeting process have registered several benefits such as generating a sharper focus on results within the organizations, providing a more and better information on organizational goals and priorities, and on how different programs contribute to achieve these goals. Encourages a greater emphasis on planning and acts as a signaling device that provides key actors with details on what is working and what is not as well as improving transparency by providing more and better information to managers and different departments or units, and has the potential to improve organizational management and efficiency.

Dama-UK (2013) stated that if data is of quality and meets organizational standards, it has a great potential to support business process or organizational decision making needs particularly in resource/financial allocations. They also point out the characteristics of quality data as completeness, uniqueness, timeliness, validity, accuracy and consistency. This confirms the results obtained from the survey that indicated a statistical significance between data quality and financial allocations.

5.2 Discussion of results according to objective two

The second objective was to determine the effects of data access to organizational staffing allocations in Lubaga Hospital. Analysis was done on the questionnaires collected from the respondents to understand the views of the staff of Lubaga hospital. The results of the analysis indicated that there is a statistical significance between the dependent variable which is data access and the independent variable which is the staffing allocations in Lubaga hospital.

This can be attributed to the fact that the healthcare system is generally facing the same problem of healthcare staffing due to a huge healthcare provider- patient ratio. And this is why tools like WISN that have been developed to help in staffing allocations are depending on the availability of data. The relationship between data access and staffing allocations and determination was also embraced by Ozcan (1999) and Jooste (2013) who are in agreement that data access influences staffing allocations.

Data access as it was defined by Fathin (2014) and Vale (2012) refers to the data that is available and easily retrievable by the intended user and presented in a simple and easy to use format by a range of different types of users. Young (1981) and Jooste (2013) are in support of this relationship. They stated that use of data such as average occupancy rates, bed utilization rates and patient attendance trends have proved to be key factors in making effective staffing allocations and distributions decisions in healthcare facilities. Through ensuring adequate staffing levels in the

healthcare facilities, staff motivation is achieved and this in the end contributes to the provision of high quality healthcare to the end users. This means therefore that healthcare managers need exploit all the kind of data that is accessible to them and use it to guide them in making effective and informed staffing decisions to avoid over staffing and understaffing for effective and efficient healthcare management.

As reported by Ozcan (1999), there is already a tool that has been developed and embraced by health facilities to determine staffing levels. This tool is commonly known as WISN (workload indicator of staffing needs). This tool highly dependS on the accessibility of quality data about hospital activities to determine the required number of staff in the facility and according to the different service areas. This means that if there is access to quality data in a health facility, the task of determining appropriate staffing needs that is evidence based becomes easy.

5.3 Discussion of results according to objective three

The third objective of the study was to determine the relationship between data sharing and organizational procedural change. The analysis that was done on the hospital staff questionnaire responses revealed that there is a statistical significance between the two variables (data sharing and organizational procedural change). This means that data sharing has got an effect on organizational procedural change decision making. Eckartz (2016) and Davenport and Prusak (1998) are also in agreement with these findings.

Data sharing was defined by Jessica (2009) as a central process through which team members collectively utilize their available informational/data resources to guide evidence based decision making. Prusack (1999) and Eckart (2016) stated that sharing of available organizational data among team members equipped with the necessary skills and expertise to analyze and make meaning of the data presented to them leads to new and innovative ideas and knowledge to influence organization processes and procedures to foster an organizational competitive advantage.

This means that if appropriate data is shared among members with the skills and capacity to develop rare skills and experiences in areas of organizational practices, processes, technology, structure, systems and so on, such organizations can gain competitive advantage in the healthcare service industry over its competitors.

CHAPTER 6: CONCLUSION AND RECOMMENDATIONS.

6.1   Conclusion.

This study investigated the effects of data utilization in organizational decision making in Lubaga hospital. It was intended to establish the role data plays in making effective and efficient organizational decisions in Lubaga hospital. This was in relation to the fact that despite of the availability of big data collected in hospitals, it has not been used in making vital decisions. The study was divided into three specific objectives and questions to answer the main objective.

The first research question was to find out the of effect data quality on organizational financial allocations in Lubaga hospital. The study established that there was no statistical significance between data quality and financial allocations in Lubaga hospital. In view of these findings, the study concluded that data quality has no effect on financial allocations decision making in Lubaga hospital. This means that there the despite the existence of good data collection process, good data management practices and proper feedback mechanisms that leads to quality data out, the results have no effect on the kind of decisions made in relation to financial allocations.

The second research question was to determine the effect of data access on organizational staffing allocations. The study established that there was a statistical significance between the two variables. In view of these findings, the study concluded that access to data by the intended users has an effect on staffing decision

made in Lubaga hospital. This means that timely access to data that is customized to meet users' need has an effect on the quality of decisions made in relation to the staffing needs.

The third research question intended to establish the relationship between data sharing and organizational learning. The study established that there was a statistical significance between the two variables. In relation to these findings, the study concluded that there is a relationship between sharing of data and organizational learning opportunities. This means that if there is efficient and effective system that enable data sharing, organizational learning opportunities can be exploited for the creation of new knowledge desire for improvement.

6.2   Recommendations.

In order to make the available data in Lubaga hospital more relevant in decision making, the following should be done;

Given the fact that results indicated that the existing data collection processes, data management practices and the availability of defined feedback mechanisms ensure data quality, I recommend the hospital Director to build capacity among his team through training and sensitization, to be able to make evidence based decisions using existing data while making decisions on financial allocations. This will improve the effectiveness and efficiency of their operations.

The head of data and statistics Lubaga Hospital should put efforts in improving the quality of data captured from their different service stations. But this should be enhanced by efforts to increase accessibility to this data in friendly formats, customized to meet the needs of the users, developing standard templates depending on the level and the target audience and this data should be easily accessible in terms of time when ever required to make decisions. By doing this, users will gain confidence that their staffing questions can easily be answered by the available data, in this way, tools like WISN shall be easy to use to solve the staffing challenges in hospitals.

The Hospital Director should also build capacity among their teams to embrace organizational learning using the opportunity of the data presented to them. This can only be done when the team develop skills in creating, acquiring, and transferring knowledge and at modifying its behavior to reflect new knowledge and insights which can add value to the organization. This skill is important if hospitals are to be able to meet the new demands of their clients in the health industry as well as attaining competitive advantage in the market space.

6.3   Limitations of the study

This study is concentrating on private not for profit hospitals in Kampala particularly Lubaga Hospital where the data utilization in decision making is entirely based on the objective perceived by the money source like donor money and this might not be the case in other private for profit hospitals.

6.4 Contributions of the study

The study found out that in most financial decisions like capital developments, data driven decision making is highly not considered due to the suctions put on the funds received. Therefore this study can be an eye opener so that during the grants proposal writing proper analysis is made with use of available data.

Due to the growing numbers in staffing levels yet nationally all patient numbers are declining, the study found out that there is a direct relationship with the use of data use and staffing allocations. Like the use of WISN human resource tool based on the available data to equate the staffing levels per unit.

6.5 Areas recommended for future research

This study mostly concentrated on data use in staffing, financial allocations and organizational learning yet there exists various components like procurement, quality improvement and systems implementation that can be also researched.

With availability of resources and time, the similar study can be diversified in a bigger research area like regional government hospitals to see whether the same effect can be realized.

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APPENDIX

APPENDIX A: CONSENT FORM

STUDY TITLE: Assessing the effects of data utilization in organizational decision making in Lubaga Hospital.

RESEARCHER: Nicholas NSUBUGA, Uganda Martyrs University Nkozi Contact: 0775703025

In partial fulfillment of a Master of Science in Monitoring and Evaluation, every student is required to survey and submit a dissertation on a given.

The researcher would therefore like to request for your voluntary participation in this study where you will be asked questions related to the topic above. The information gathered is purely for academic purposes and a copy of the dissertation will be available for your perusal after approval from the School of Postgraduate studies, Faculty of agriculture. I guarantee that the information will be treated with confidence. If you solemnly and sincerely accept to participate in the study. **(Please tick one box below ;)**

- ☐ **Yes, I agree to participate voluntarily**
- ☐ **No, I don't agree to participate.**

Signature: … …………………….. Date: …………………………….

QUESTIONNAIRE

Assessing the effects of data utilization in organizational decision making in Lubaga Hospital.

Section One: Social and economic information

1. **Which department do you work in?**

   a) Outpatient department
   b) Inpatients department
   c) Administration and Finance
   d) Other   (please specify………………………
      …………………….

2. **Which position do you hold in this hospital?**

   a) Director
   b) Manager
   c) Administrator
   d) Accountant
   e) Doctor
   f) Nurse
   g) Officer

h) Other,
   specify………………………
   ………

3. **Sex of the respondents**
    a) Male
    b) Female.

4. **Age   brackets   of   the respondents.**
    a) Below 20yrs
    b) 20 yrs. and 30yrs
    c) 30yrs and 45yrs
    d) 46 yrs. and above.

5. **How long have you worked in this position.**
    a) Below 2 years
    b) Between 2yrs and 5yrs
    c) Between 5yrs and 10yrs
    d) Above 10 yrs.

Section Two: Effects of Data quality on organizational financial allocations.

6	Do you consider the data collection process as appropriate to produce quality data for decision making? **if YES, please select all that apply to you;** **Or** ☐ **No**, the data collection process is not appropriate and all the above does not apply.	☐ Standard registers/system templates are used to capture data. ☐ Data entry in registers/system is done by qualified personnel. ☐ Data collection is done by qualified staff ☐ Registers needed for data collection are usually available. ☐ Standard data collection tools are used to collect data. ☐ Any other, please specify ……………………………………………..
7	Is the data management process suitable to produce both reliable and consistent quality data for decision making? **if YES, please select all that apply to you;** **Or** ☐ **No**, the existing data management process is not reliable and consistent.	☐ clear documentation of collection, aggregation and manipulation steps exist ☐ data quality challenges are identified and there are mechanisms in place for addressing them ☐ There are clear defined and followed procedures to identify and reconcile discrepancies in reports ☐ There are clear defined and followed procedures to periodically verify source data ☐ Any other, please specify ………………………………………

8	Are there clear defined feedback mechanisms to improve the quality of data produced? **if YES, please select all that apply to you;** **Or** ☐ **No,** there is no clear feedback mechanism to improve data quality systems.	☐ During departmental meetings ☐ In the general staff meetings ☐ During data quality assessment/review meetings ☐ During quality improvement meetings ☐ Any other, please specify …………………………………..
9	Is data used in annual financial exercise of the organization?	☐ YES. ☐ NO
10	**If YES**, Which type of data do you actually use to make your financial allocations decisions during financial? **please select all that apply to you;**	☐ Patient attendance trends. ☐ Drug consumption rates ☐ Bed occupancy rates ☐ Cost center income analysis reports ☐ Disease specific data ☐ Patient- staff ratio. ☐ Management reports ☐ Board reports ☐ None of the above **If none of the above, kindly specify** ……………………………………
11	What are the determinants of financial allocations during the financial exercise? **please select all that apply to you;**	☐ Strategic plan priorities ☐ Individual interest ☐ Facts at hand/data trends ☐ Directives from higher authorities ☐ Assessment recommendations ☐ Emergence demands ☐ Donors' directives.

		☐ None of the above **If none of the above, kindly specify** ……………………………………..
	Effects of data access on organizational staffing allocations in Lubaga hospital	
12	Do you have access to the following types of data? **please select all that apply to you;**	☐ HMIS ☐ Hospital annual report ☐ Health sector performance reports. ☐ Diseases surveillance reports ☐ National health survey reports ☐ Census reports ☐ Organizational Financial reports ☐ None of the above
13	What are the main sources of data that you use? **please select all that apply to you;**	☐ Internet ☐ Hospital data office ☐ Respective department heads. ☐ Management secretariat. ☐ Others, please specify …………………………………………..
14	How often do you receive regular feedback on the performance of the department/ hospital	☐ Monthly ☐ Quarterly ☐ Bi-annual ☐ Annually ☐ Never
15	Is data used in making staffing decisions at any level e.g. departmental or organizational needs?	☐ YES ☐ NO

16	If yes, Which kind of data do you always refer to when making staffing decisions in your department? **please select all that apply to you;**	☐ Number of staff available ☐ Staff-patient ratio ☐ Management reports ☐ Patient average length of stay ☐ Financial status ☐ SUO per staff ratio ☐ Others please specify ………………………………….
17	What are the determinants of staffing allocations in this facility? **please select all that apply to you;**	☐ Availability of staff ☐ Patient to staff ratio ☐ Staff establishment ☐ Management's decision ☐ Bargaining power of the In charge ☐ Others please specify …….……………………………
The relationship between data sharing and organizational procedural change in Lubaga hospital		
18	How is data about performance of different departments or organization shared with other staff? **please select all that apply to you;**	☐ Through departmental meeting ☐ General staff meetings ☐ Annual reports given to all staff ☐ Hospital dashboard ☐ During staff appraisals ☐ Notice boards ☐ Any other, please specify. ……………………………………
19	How fast can you get access to any information required for decision making? **please select all that apply to you;**	☐ Daily ☐ Weekly ☐ Monthly ☐ Quarterly ☐ Bi-annual ☐ Annually

			☐ Never
20	What type of decisions do you make using data collected in the hospital? **please select all that apply to you;**		☐ Day-to-day operations ☐ Medical supply & drug management ☐ Formulating plans ☐ Review financial statement and Budget preparation ☐ Deciding budget reallocation ☐ Human resources management ☐ Monitoring key objectives and policy ☐ Identification of emerging epidemics ☐ None of the above
21	Is data used to inform any organizational procedural/process changes in Lubaga hospital?		☐ YES ☐ NO
22	If Yes, in which areas was this change made?		☐ Staffing allocations ☐ Financial allocations ☐ Patient flow management ☐ Procurement system. ☐ Any other, please specify. ………………………………..
23	What are the main constraints to data use in decision making? **please select all that apply to you;**		☐ Poor quality data ☐ Data not used for program monitoring ☐ Organizational decisions not based on information (but on politics) ☐ No feedback from supervisors on data ☐ Unwillingness to accept shortcomings in data

		□ No set criteria for data collection and analysis
		□ Frequent data duplication and inconsistency
		□ Often too much information
		□ Little agreement on key indicators of performance
		□ Data slow to reach relevant levels
		□ No incentives for data utilization
		□ No culture of focusing on outputs and outcomes
		□ Lack of data analysis and use skills

Thank you for your time.

APPENDIX B: PROPOSED BUDGET

Item	Unit	Quantity	Rate	Amount (shs)
Proposal and report writing	Reams	2	20.000	40.000
	Note book	2	5.000	10.000
	Pens	5	1.000	5.000
Pretest questionnaire	Transport	3	50.000	150,000
	Researcher	1	150.000	150.000
	Pens	3	1.000	3.000
	Lunch	3	20,000	60.000
Data collection	Research tools	20	500	10.000
	Researcher	1	400.000	400.000
	Pens	3	1.000	3.000
	Airtime	3	50,000	150.000
	Transport and lunch	3	100.000	300.000
Data entry	Data entrant	1	250.000	250.000
Data analysis	Data analyst	1	300.000	300.000
Miscellaneous	500.000			
Grand total	22.31.000			

APPENDIXC: **UNIVERSITY**   **APPROVAL.**

Uganda
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Making a difference

Faculty of Agriculture
Office of the Dean

15th September, 2017

TO WHOM IT MAY CONCERN

This is to introduce the bearer NSUBUGA Nicholas a Second year student of Master of Science in Monitoring and Evaluation, Registration Number 2015-M302-20051 in the Faculty of Agriculture of Uganda Martyrs University.

He is conducting a Research Project on *"Assessing the Effects of Data Utilization on Organizational Decision Making in Lubaga Hospital"* to enable him prepare a Dissertation as a partial requirement for the award of his degree.

I will be very grateful if you would accord the student all the necessary assistance and cooperation.
Yours Sincerely,

Ssekandi Joseph

Ag. Dean, Faculty of Agriculture

Approved 22/9/17

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