INFORMATION COMMUNICATION TECHNOLOGY USAGE IN PATIENTS' RECORDS MANAGEMENT SYSTEM IN SELECTED UGANDA POLICE FORCE CLINICS IN KAMPALA - UGANDA

A Thesis

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In Partial Fulfillment of the Requirements for the Master

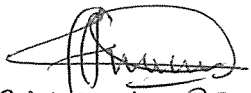Degree of Science in Information System

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DECLARATION A

"This thesis is my original work and has not been presented for a degree or any other academic award in any university or institution of learning".

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16/12/2013
Date

DECLARATION B

"I confirm that the work reported in this thesis was carried out by the candidate under our supervision".

_Nabbanja Teddy (PhD) ___

Name and Signature of Supervisor

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Date

APPROVAL SHEET

This thesis entitled "ICT USAGE IN PATIENTS' RECORDS MANAGEMENT SYSTEM IN SELECTED UPF CLINICS IN KAMPALA-UGANDA", prepared and submitted by **OKELLO ALFRED** in partial fulfillment of the requirements for the Master Degree of Science in Information System; has been examined and approved by the panel on oral examination.

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Name and Signature of DVC, CHDR

DEDICATION

This thesis report is affectionately dedicated to my supervisors Dr. Ssegawa and Mr. Asiimwe, fellow students of Post Graduate School, my beloved wife Monica, my son Matthew, my mummy, Mr. and Mrs. Opio Peter's family for unifying moral support that enabled me to accomplish this report successfully.

May our Lord Jesus Christ richly bless you!

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I wish to express my inner most and heart felt gratitude to my Lord Jesus Christ for His unending love and mercies towards me through my education. You deserve all the glory and honor. Amen!

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With gratitude, I appreciate the assistance of all my friends whose contribution has been very instrumental in the course of my studies.

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Many thanks also go to all my respondents in Nsambya, Kibuli and Naguru clinic for providing a good and enabling environment that helped me to successfully complete my study. I recognize and appreciate you all for the good job well done which I will stand to remember.

God bless you all.

TABLE OF CONTENTS

List of Tables

ABSTRACT

This thesis is about ICT usage in Patients' Records Management with the main objective of establishing the relationship between ICT usage and patients RMS in selected UPF clinics in Kampala – Uganda. The study was conducted in Nsambya Police Clinic, Kibuli Police Training School Clinic and Naguru Police Clinic.

The specific objectives of the study included (i) To determine the demographic characteristics of the respondents in terms of age, gender, educational level, experience and status; (ii) To establish the level of significance of ICT usage in patients' records management system in the selected UPF clinics in Kampala; (iii) To identify the type of Patients' RMS currently in use by the force medical department; (iv) to determine if there is a significant relationship between the level of ICT usage and Patients' RMS in the UPF medical section in Kampala.

The researcher used case study design with both quantitative and qualitative approaches adopted for the study. Research instruments employed included questionnaire, observation and interview for collecting data required for the study. The researcher in this study found out that male contributed 51.2 percent of the respondents and 48.8 percent were female. The researcher found out that the rate of ICT usage is still very low. It was also found out that the patients' RMS is not computerized rather manual. The Null hypothesis of the study was rejected because the correlation indicated a positive significant relationship between the variables of r-value of 0.904 and the significance value of 0.01. Recommendations were made on initializing computerization of medical records, training of staff and networking of available computers for purpose of sharing files.

ACROYNMS

ICT	-	Information and Communication Technology
UPF	-	Uganda Police Force
RMS	-	Record Management System
AU	-	African Union
DMS	-	Database Management System
NGOs	-	Non-Governmental Organizations
PEAP	-	Poverty Eradication Action Plan
UN	-	United Nations
I.V	-	Independent Variable
D.V	-	Dependent Variable
AST	-	Adaptive Structuration Theory

CHAPTER ONE

THE PROBLEM AND ITS SCOPE

Background of the Study

Uganda Police Force (UPF) became a fully fledged institution on 25th May 1906. Before that it was a Para-military force called The Uganda Armed Constabulary whose main function was to quell riots and unrest in the different parts of the then British Protectorate. Since then it has undergone institutional metamorphosis which culminated into the current Uganda Police Force which was established under Article 212 of the 1995 Constitution of the Republic of Uganda. It is charged with advancement and enhancement of peace and stability, order and adherence to the rule of law and good governance to ensure internal co-existence of the public. Police Force under article 212 of the Constitution of the Republic of Uganda is mandated to: (i) Protect life and property, (ii) Preserve law and order, (iii) Prevent and detect crime.

Police therefore, contributes directly to the realization of the strategic objectives under pillars 3 and 4 of the Poverty Eradication Action Plan (PEAP) through securing life and property, managing disasters and contributing to good governance and democratization. It contributes indirectly to PEAP pillars 1, 2 and 5 by: Providing a secure environment within which individuals/households can work towards improving their incomes and livelihoods, providing an environment conducive to investment, enforcing individuals' rights, including the right to property, taking services nearer to the people, especially the marginalized and the poor, providing emergency rescue services for any form of distress (Uganda Police Force, Oct. 2007).

The UPF has various directorates and departments among them include; Criminal Intelligent and Investigation Directorate (CIID), Directorate of

1

Logistics and Engineering, Directorate of Human resource Administration, Directorate of forensic, Directorate of legal and human right services, Directorate of Interpol, Directorate of medical services and others. This study entirely focused on the Directorate of Medical services and emphasis is put mainly on the usage of ICT for managing patients records in the selected UPF clinics in Kampala. The current data production method in these clinics is predominantly manual and most of the information is stored in hard copies (in filing cabinets) not electronically. The Police system has been in existence for a hundred years, but it faces various challenges in data production and management. Currently, there is no central Information System for the UPF clinics in Uganda. Therefore, Patients record is still being recorded in counter book and at times in papers. The overall situation on ICT usage for RMS is still poor in this department of the force and that explains the reason why the researcher conducted the study in this medical department of the force as a means of finding solution to this vise for proper management of patients' records in these clinics.

Statement of the problem

The problem UPF medical department currently facing is using the manual process to store patients' records, provide health services and use of counter books/papers and files to track records of continuing patients and setup records for new patients in their clinics. This process has so many inconsistencies and inconveniences like patients losing their exercise books/papers or their files being misplaced. Therefore, a better patients' Records Management System (RMS) will help to keep track of patients' records which will make it easy to determine the state of new and continuing patients in these clinics.

With the advent of modern Information Communication and Technology (ICT), one expects an organization to be aware that information is an important organizational resource, just as manpower, capital, patents and Good will which calls for proper records management.

If the force continues to operate with this poor RMS then it is most likely to cause or result in to the following: -

Higher costs of operation, missing files/lost documents, duplication of records due to multiple registration, lower productivity of the workers as they operate manually, More office space required for filing equipment, more time spent on filing documents, high cost of recovery of vital records, difficulty in organizing, tracking and retrieval of records thus time wasting.

There are several possible causes of the poor RMS in the force and they include lack of computer trained records management personnel, improper database management system (program) in place, rigidity to adopt fast growing ICT, inadequate funds allocated to the department leaves the management with no option but just to give priority to drugs as opposed to ICT equipments and failure to embrace ICT as RMS tool.

While other causes have contributed to the problem of poor RMS in the UPF medical section, the researcher chose ICT as the major cause because the researcher believes that no other study has ever investigated the cause chosen for the study.

Purpose of the Study

The purpose of this study is to assess the influence of ICT usage in Patients' Records Management in the selected UPF clinics in Kampala.

Research Objectives

General

To establish the relationship between ICT usage and patients' RMS in selected clinics in UPF in Kampala.

Specific objectives

1. To determine the demographic characteristics of the respondents in terms of age, gender, educational level, experience and status.
2. To determine the level of significance of ICT usage in patients' RMS in the selected UPF clinics in Kampala.
3. To determine the type of Patients' records management system currently in use by the force medical team in Kampala.
4. To determine if there is a significant relationship between the level of ICT usage and Patients' RMS in the UPF medical section in Kampala

Research Questions

1. What is the profile of the respondents in terms of gender and educational level?
2. What is the level of ICT use in UPF medical unit in Kampala?
3. What is the level of Patients' RMS in the Police medical unit in Kampala?
4. Is there a significant relationship between level of ICT and Patients' RMS in the UPF medical unit in Kampala?

Hypothesis

1. There is no significant relationship between the level of ICT usage and Patients' RMS in the UPF medical section in Kampala.

2. There is significant relationship between the level of ICT and Patients' RMS in the UPF medical section in Kampala.

Scope

Geographical Scope

The study was conducted in selected UPF-clinics in Kampala such as Nsambya Police Clinic, Kibuli Police Training School - Clinic and Naguru Police Clinic. These clinics were chosen because they have large number of Police personnel and their family members who all get treatment from these clinics. The researcher dealt with Clinic administrators, doctors, nurses and patients in this study for gathering the required data.

Theoretical scope

The scope of this study was based on ICT usage and Records Management System theories advanced by Philip and Jones (1985); who stated that the use of computerized information storing and processing technologies has permitted much more intense use of information.

They also argued that "as increasingly sophisticated means of processing information became available, the importance of information management also increased until there arose an awareness of the fact that information is an important organizational resource"

Content scope

The study was limited to the use of computers as an ICT resource with relevant database management system for storing, retrieving and producing reports that UPF can use for making critical decision at the

top management level, although there are ICT resources in use such as telephones, fax, and others.

Time scope

This study was estimated to take eight months that is running from February, 2013 up to September, 2013. It was mainly to give the researcher ample time to conduct the study and possibly evaluate the type of Records Management system currently used in these UPF clinics.

Significance of the Study

The study will provide UPF medical department with information about the level of availability of ICT resources in their organization. Thus, the management will be able to make appropriate decision to that effect.

It will benefit the UPF medical administrators by providing the data about the level of ICT usage for patients' records management in the selected clinics which may act as a guiding tool for the force to improve on the level of ICT usage consequently promoting efficiency and effectiveness.

There will be reduction in duplication of records within these clinics if ICT usage is initialized in capturing, processing and storage of patients' records as opposed to the traditional system where patients register at the reception, laboratory and pharmacy while receiving drugs/treatment.

Reduction in the cost of operation will be realized if ICT is used for computerizing patients' records such as purchase of stationery,

cabins and others because records will be captured using computers compared to manual system of using papers/counter books.

The force will be able save huge storage space if patients' computerized records management is implemented since computers take small space as compared to cabins, boxes for storing health flipcharts and stationery in general.

It will save doctors/nurses a great deal of time wastage using manual system to trace previous records of patients if the management accepts to computerized its patients records.

Doctors/nurses will be able to give right prescriptions for drugs/treatment basing on the previous record when a particular patient last paid a visit to the clinic. Thus reducing on the possibility of ministering overdose/wrong treatment to patients or the doctor may consider changing the drugs if no change is realized on previous treatment.

To the community, this study will help to reduce on time spent waiting in line/ queue if the force initiates a computerized records management system in these clinics.

Members of the community will be able to save money if computerized patients' record is implemented since no more paper work will be needed with new system which will be introduced.

The study will help future researchers on this work with the aim of building knowledge in the field of ICT for patients' records management.

The researcher will benefit from this study in that it will broaden his knowledge in this field of records management by searching deeper for proper understanding of how best can patients, records be preserved for future use.

It will enable the researcher to attain his academic qualification that will lead to the award of Master of Science in Information System.

Operational Definitions of Key Terms

Below are some of the key terms used in the research study:-

ICT in full – Information Communication Technology

In this study therefore, ICT refers to the use of computers to manage the patients' records for storage, retrieval, monitoring and future references. It refers also to devices and systems for communicating within medical department of the force.

Information: In this study, it refers to processed data that is useful for decision making regarding effective functioning of health facilities, allocate resources and also to make strategic policies.

Patients: In this study, it refers to sick people who go to hospital/clinic to seek medical treatment or these are people admitted in the hospital.

Records Management:

It refers to the application of management techniques to the creation, use, maintenance, retention, preservation, and disposal of records for the purposes of reducing the costs and improving the efficiency of recordkeeping.

Records management systems are those information systems, which captures, manages and provides access to records through time.

Records management strategies are based on developing and adopting policies, procedures and practices, and designing and implementing systems in ways that meet the operational needs of the organization and that accord with the regulatory environment.

System refers to a group of interrelated components working together towards a common goal by accepting inputs and producing outputs in an organized transformation process.

Users: Refers to people or computer operators

Computer: An electronic device used to process, convert data into information that is useful to the force.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

This chapter presents concepts, opinions and ideas from various authors/experts as stated below

Concepts:

Information Communication Technology: In this study refers to the use of computers to manage the patients' records for storage, retrieval, monitoring, decision making and future references.

According to Stevenson (1997), Information and communications technology (ICT) refers to a general term that stresses the role of unified communications and the integration of telecommunications (telephone lines and wireless signals), computers, middleware as well as necessary software, storage and audio-visual systems, which enable users to create, access, store, transmit, and manipulate information.

Information: In this study, it refers to processed data that is useful for day to day decision making on how to prevent certain diseases such as cholera, typhoid, measles and others within its population.

Communication Technology: As per the author, it refers to devices and systems for communicating within the force.

Brian, Stacey and Hitchinson (1999) defined Information as summarized data or otherwise manipulated data that is used for decision making.

According to White (2001) Information resources refers to all the physical and logical components of the information processing system

such as computers, programs, analysts, programmers, managers, data operating system and communication links.

Brian et al; also stated that Communication technology or telecommunications technology consists of electromagnetic devices and systems for communicating over long distances.

Patients: In this study, it refers to sick people who go to hospital/clinic to seek medical treatment or these are people admitted in the hospital.

Records: It refers to the detail information about the person such as names, age, tribe, residence, type of sickness, recommended treatment and others. Medical records management is much easier once you have a system in place.

Management: Refers to the authorities responsible for the medical section of the force. Records management strategies are based on developing and adopting policies, procedures and practices, and designing and implementing systems in ways that meet the operational needs of the organization and that accord with the regulatory environment.

Opinions:

ICT and recordkeeping professionals are both concerned with the creation, storage, accessibility and security of digital information. However, where ICT professionals engineer and maintain systems to manage an organization's information assets, the focus of recordkeeping professionals is on protecting, classifying and maintaining the authenticity of records (a subset of information) so they remain

accessible and function as evidence of the business conducted for as long as they are required to be kept. (The state records of New South Wales, 2010).

Theoretical Perspectives

This study is based on the Management demands on information and communication technology in process-oriented health-care organizations: The importance of understanding managers' expectations during early phases of system design; proposed by Andersson, Vimarlund, Timpka, (2002).

Management demands on information and communication technology theory in health care organization states that there are numerous challenges to overcome before information and communication technology (ICT) can achieve its full potential in process-oriented health-care organizations. One of these challenges is designing systems that meet users' needs, while reflecting a continuously changing organizational environment. Another challenge is to develop ICT that supports both the internal and the external stakeholders' demands.

In perspective of Management demands on information and communication technology for health-care organization, this study will focus on qualitative research strategy to explore the demands on ICT expressed by managers from functional units of Uganda Police Force Clinics in Kampala.

Therefore, from the perspective of ICT development, the main task appears to be to coordinate the different visions and in particular

clarify them, as well as to establish the impact that these clinics would have on the forthcoming ICT application.

This study is also based on the records management because Records managers often complain that undervalued record, suffers from the influence of irrelevant traditional concepts, and is therefore theoretically flawed. The findings of several surveys attest to this situation, but do not explain the many reasons that contribute to the lack of understanding and acceptance of records management as a separate discipline. For any field or discipline to be accepted, it must possess a strong foundation in theory, proposed by Zawiyah, M., Yusof, Robert, W., Chell, (2002) which states that "The issues and principles of who should have access to records is both a legal issue and a records management issue".

This study will examine whether there is an accepted body of theory underlying records management methods and practices. An attempt is made to develop a conceptual model that the author believes records managers need in order to explain the present "state of the art" of the discipline and justify their contribution to the management of organizations.

Figure 1: The Business
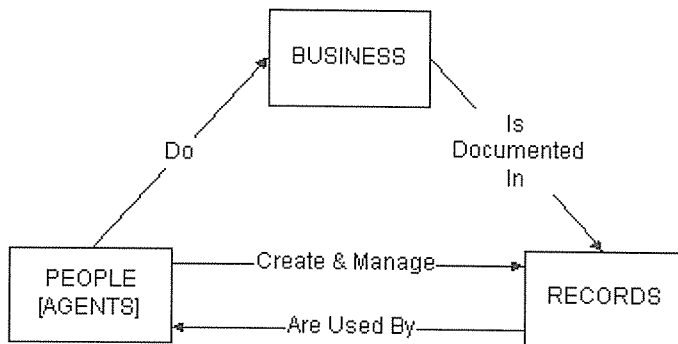
People do business of all kinds with each other. In the course of doing business, they create records. The records created in the course of doing business capture in documentary form the business done. In this conceptual model, the term business is defined in the very broadest sense to encompass social and organizational activity of all kinds.

Therefore, the present "State of the Art" in Records Management has come about because of new market drivers combined with new vendor solutions in response to these requirements (Mark Mandel, 2012) such as:

e-Discovery

The Federal Rules of Civil Procedure dictate that ALL available documents are discoverable in a court case. This includes electronic content, regardless of media. Email is the largest type of electronic content that is requested in eDiscovery. Instant messages, voice mail, copies, drafts, personal correspondence, and so on are all discoverable.

Therefore, it does not matter if your organization has declared "official" records, all content whether declared or not is discoverable.

Audit Readiness

Audit Readiness is a term coined by some U.S. Department of Defense organizations to refer to the ability of an organization to respond quickly, accurately, and completely to an audit. Paper based and non-automated solutions to this requirement can produce negative results and serious ramifications. An automated process, on the other hand, can allow organizations to relatively easily produce a full audit trail of their business transactions, reducing the time and effort required to respond to an audit.

Related Studies

Norton's (2001) argued that a computer is amazing machine that can help you perform so many tasks, whether you want to track an investment, publish newspapers/letters, design a building and others you can use a computer to do it.

Fox (1977) suggested that it was not until the early 1979s that the value of computers for performing various functions in the medicine began to be demonstrated with any conviction, since then the use of computers in health care has increased greatly.

He further pointed out that with a centralized record keeping system, it could be ensured that all of the basic, but necessary information about a patient is recorded, including allergic reactions to particular drug, blood type, current medication and others.

Glantz (1978) argued that the desire for greater accuracy and for more comprehensive display of data encourages favorable reactions to anyone proposing the purchase of a new piece of equipment to fulfill these desires.

Richardson (2006) argues that healthcare providers and governments have no choice but to meet healthcare demands for future citizens and the application of e-health is therefore fundamental.

According to Ojo (2007) there is a need to improve information and communication exchange in the healthcare industry in order to accelerate knowledge diffusion and increase access to information.

AbourZahr and Boerma, (2005) stated that Clinical managers and health planners rely on information in order to make decisions regarding effective functioning of health facilities, allocate resources and also to make strategic policies.

Rodrigue (2011) stated that great strides are being made to improve healthcare services through the use of ICT (Information and Communication Technology).One of the most promising ICT development project is the e- health which involves the store and forward system; the tele-medicine system video conferenceing and the real time tele-medicine system.

Chin (2003) argues that ICT has transformed the ways modern healthcare system acquire, store, access and communicate medical information. These developments offer significant benefits to patients

16

and healthcare providers, though it gives rise to ethical and legal challenges in the protection of patient privacy and confidentiality.

An effective approach in the use of (electronic health) ICT for advancement in biomedical world is the proper training of medical specialists to set up and manage the system, also setting public standards for accessibility and expression of patient autonomy. This ensures its effectiveness and safety.

Hasting Center Report (1996) argues that ICT is a tool of expression, the competence of healthcare workers such as medical doctors, nurses medical Laboratory scientist, radiologist in modern healthcare. ICT has become well assimilated into healthcare delivery system that few doctors can imagine a day without using the computer or the network: prevention of disease and injury, promotion and maintenance of health, relief of pain and suffering, care and cure of those with malady, avoidance of premature death, and pursuit of a peaceful death.

Rodrigue (2011) also stated that ICT systems help in the acquisition and storage of electronic medical records, and the accessibility and rapid transmission of healthcare information over the internet. ICT system in biomedical helps diagnosis and treatment of patient faster, for example e-health system such as the store and forward system works like this if a patient is diagnosis and necessary tests are conducted on him or her in one hospital, the results of these test can be sent via this store and forwarded system to the referral

doctor in another hospital and this doctor can then examine the test results and proposes the treatment via the same root.

Gyang (2008) stressed that "Information and Communication Technology facilities particularly the internet is important in the access of valuable information. However, inequality of access of these facilities to Nigerians is a serious problem as computers telephone lines; satellite dishes etc necessary for internet connectivity are still not available in most parts of Nigeria districts.

Denise (2011) discouraged use of ICT in hospitals since most of the electronic health devices are computer based, there is a big danger that patients over rely on computer control equipment. This happened in America when radiation therapy machines accidentally gave patients overdoses of radiation, leading to 3 patients death.

Tomasi, Facchini and Maia, (2004:867) stated that developed countries have embraced the use of information communications technologies (ICT) within the hospitals and health clinics. A few examples of the use of ICT include computerization of medical records, electronic scheduling for appointments, and use of the Internet for the purposes of communication and the use of magnetic cards.

Hadeel Allam (2009) stated that Medical records used to be stored on paper but now it is transferred to a computer data base that keeps a track of patients' medical history e.g. the prescribed drugs and what illness the patient has suffered from and Data bases of patients have been used to track trends in illnesses such as heart disease.

Records Management

It is the practice of identifying, classifying, archiving, presenting and sometimes destroying records. According to (ISO, 2001) defines records as "Information created, received, and maintained as evidence and information by an organization or person, in pursuance of legal obligations or in the transactions of business".

The International Committee on Archives (CIA) and Electronic Records defines a record as "a specific piece of recorded information generated, collected or retrieved in the initiation, conduct or completion of an activity and which comprises sufficient content, context and structure to provide proof or evidence of that activity".

While the definition of a record is often identified strongly with a document, a record can be either a tangible object or digital information which has value to an organization. For example, birth certificates, medical x-rays, office documents, databases and application data, and e-mails are all examples of records.

According to Chrisanthi and Cornford (1998) the process of development of an Information System can be seen as a list of tasks, starting with identification and launching of an Information System's project and ending with maintenance of its optional components for a period before the system is phased out or replaced. However, they say that this vaies from one organization description to another. On their part they suggested the following steps to be typical for most organizations:

- Identification of a problem, pressure or opportunity.
- Determination of general requirements for change
- Feasibility study to explore possible approaches

- System analysis to model detailed requirements for technical components or organizational reform.
- Systems design to work out how requirements are to be met.
- Development or acquisition of software and hardware and their configuration.
- Systems implementation with the organizational settings
- Operation and maintenance
- Phase out when the system is no longer needed or used.

According to Scott and Rundall (2005) the key to successful adoption and implementation of Electronic Health care Record (EHR) include a participatory selection process, flexibility regarding staff roles and responsibilities, and decisive leadership at critical stages.

Meghan (2006) reported that advocates say that Electronic Health Records could save 140 billion dollars a year in health care expenses on things like file clerks and space for file cabinets, while also saving tens of thousands of lives each year by reducing medical errors.

He further stated that when medical records management is computerized, there are no rooms full of shelves lined with manila folders stuffed with charts. Instead, patients' insurance, medication, examination and treatment records are maintained on eight Dell servers stacked in a large closet.

According Lucey (2002) all organizations operations are ever changing. Management and Information systems that support them have to deal with that change and adapt to their operations, systems and organizations themselves in order to survive and prosper.

Klein (2006) stated that there is an opportunity to transform health care and improve patients safety by leveraging information technology to improve efficiency, accuracy and effectiveness of the health care system. However, adoption has been slow and the results have been mixed up. If deployed incorrectly, without well conceived process improvements IT systems can just do the reverse leading to critical delays or mistakes.

According to Cisco (2005) managing a clinical environment today invoves a large amount of paper. Clinical information stored in paper charts is difficult to access, takes up costly space dedicated to chart storage and can impact on quality of care.

Conceptual framework:

Adaptive structuration theory (AST) of DeSantis and Poole (1994) is based on Anthony Giddens' (1984) structuration theory. AST was viewed appropriate for this study because it examines the change process from two advantage points: (i) the types of structures that are provided by advanced technologies, that is management information systems, internet and electronic databases; and (ii) the structure that actually emerge in human actions as people interact with these technologies (efficiency, quality, consensus, commitment and effectiveness).

Proponents of AST contend that developers and users of these systems (ICT) hold high hopes for their potential to change organizations for better, but actual changes often do not occur, or occur inconsistently.

For the case of UPF, not much has been invested in technology to register, track and store records of patients in their clinics.

21

I.V

ICT usage

ICT usage
-Availability of computers
-Availability of internet
-Accessibility of network
-Availability of servers
-Availability of flash/CDs

D.V

RMS

RMS
Patients Affairs
-Registration
-Storage
-Tracking
-Reporting

Demographic
-Gender
-Age
-Education
-Experience
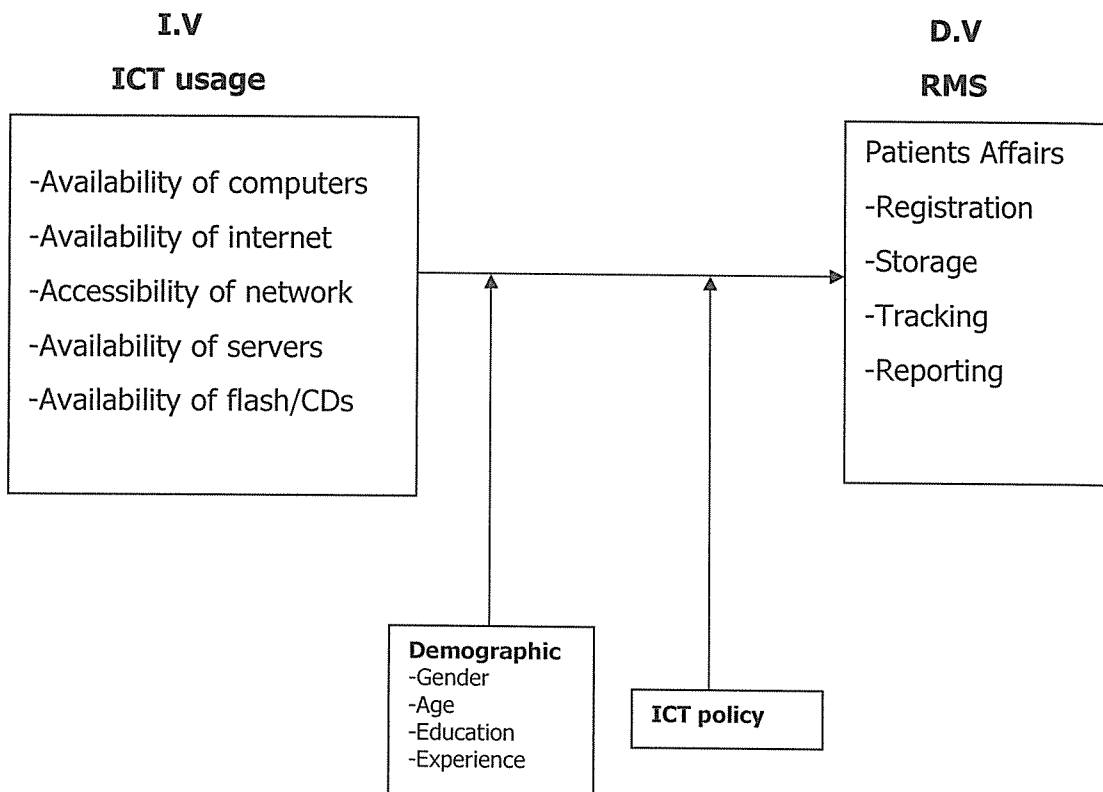
ICT policy

Figure: 2.0

Source: Researcher, 2013

The above conceptual framework is composed of ICT usage as the Independent Variable (I.V) and patients' records management system as Dependent Variable (D.V), while demographic characteristics and ICT policy form the intervening factors that affect the performance of I.V in the management of patients' records

Demographic characteristics such as gender affects usage of ICT resources in that young age bracket cannot fully utilize ICT resources whereas adults do fully make use of ICT resources.

On gender, sometimes, males tend to dominate as compared to females who may despise themselves as ICT is meant for men only thus affecting negatively the utilization of ICT.

Educated people are able to make good use of ICT as compared to their counterpart the illiterates who may not attempt to apply ICT in work.

Experience is the best teacher as the saying goes. People with high level of experience are capable of using ICT more effectively and efficiently as they may easily adapt to any new application in use. Those with less experience may not do otherwise.

Government policy may restrict the use of certain ICT resources which makes it very difficult to achieve the intended goal that an organization or individual would want to. So in this case, if the policy is not favorable then UPF may not benefit from a new patients' records management system.

Gaps in the related studies:

- Technology obsolescence: Rapid changes in software applications and computer hardware have led to what is commonly referred to as technology obsolescence. As new innovations in computer technology appear, old systems become out of date and are no longer supported by the computer industry.

- Technological dependence: Electronic records depend on technology. They are created and managed by computer hardware and software. Therefore, electronic records require mediation in order to be accessed.

- Loss of security and privacy: the introduction of IT has also affected the way government and private organizations preserve and make available records in their custody. Without proper security protections, information may be accessed by others, threatening the privacy of the owners of the information.

- Increased costs: the cost of hardware and software can be very high. Costs are incurred not only when acquiring technology in the first place but also more importantly when upgrading equipments and systems which is essential in order to keep pace with changing technologies.
- Lack of willingness to adopt modern technology.
- Risk involved such as virus, hackers and others were not put into consideration
- Disasters such as fire, floods etc
- Illiteracy (inadequate skills): ICT requires some skills for one to operate it.

CHAPTER THREE

METHODOLOGY

Introduction

This chapter dealt with research design, Research Population, sample size, sampling procedure, research instrument, validity and reliability of the instruments, data gathering procedures, data analysis, ethical considerations and limitation of the study.

Research Design

The research design strategy that the researcher used in this study is the case study design. It is a strategy that provides descriptive accounts of one or more cases yet can be used in an intellectual rigorous manner to achieve experimental isolation of one or more selected social factors with real life context. Charles Schell, (1992).

The researcher adopted both quantitative and qualitative approaches. This is because under qualitative approach, the researcher wanted to get deeper understanding of the way patients' records are managed and why they are like that at the moment. Of course this was conducted through extensive observation, interviews and discussion with the relevant authorities concerned. Using quantitative approach in this study enabled the researcher to collect data that was used to test hypotheses concerning the level of significant relationship between ICT usage and patient' RMS in selected UPF – clinics in Kampala.

Research Population

The targeted population of the study was the UPF – medical staff, Police officers and their family members who pay visit to these clinics

when they are sick (patients). This target population of the force was drawn from the three main barracks of Nsambya, Kibuli and Naguru/Ntinda, where the clinics are located. The total population of the three barracks is estimated to around 900 people. The target population was categorized basing on gender basis.

From the target population of 276, the researcher selected a minimum of 160. Table 1 below demonstrates the researcher's respondents in the category of Administrators, Doctors, Nurses, Patients, others and sample size.

Table 3.1

Population and sample size

Category	Number of respondents	Target population		Sample size	
		Male	Female	Male	Female
Administrators	60	35	25	15	12
Doctors	30	20	10	10	8
Nurses	60	-	60	-	38
Patients	86	36	50	26	32
Others	40	25	15	12	7
Total	**276**	**116**	**160**	**63**	**97**
Grand Total		**276**		**160**	

Table 3.1: Shows the target population and sample size of study.

Source: Research, 2013

Sample Size

The portion of the population that was involved in the study was estimated to 276 respondents out of the total population of 900 people. This sample size is calculated using Slovene's formula for calculating population sizes, which is stated as;

$$\text{Sample size (n)} = \frac{N}{[1 + N(e^2)]}$$

Where, N – Known population size

e – Level of significance, given always as 0.05.

n – Sample size

Therefore, n = 900/[1 +900(0.05^2)]

n = 276

Sampling Procedure

In this study, the researcher chose Simple Random Sampling technique as the method for selecting the respondents to be included in the study. With this method, each respondent has an equal probability of being selected. The probability is calculated using the formula stated below;

$$\text{Probability of being selected} = \frac{\text{sample size}}{\text{Population size}}$$

$$= \frac{276}{900}$$

$$= 0.31$$

Thus, the Simple Random Sampling technique was applied to a list of qualified respondents chosen according to inclusion criteria to select respondents in consideration to the calculated minimum sample size.

Research Instrument

The instruments that the researcher used for collecting data during the study include the following: -

Questionnaire: It refers to the use of well designed questions to obtain data related to the subject of the study. The questionnaires were issued out to different categories of respondents who were involved in the study.

The first category was for the profile of respondents, the second for determining the level of ICT usage in selected UPF clinics and third category to establish the level of significance of ICT services in patients' record management system in the selected UPF clinics.

The questionnaires were mainly based on rating scale, where the respondents proceeded by studying the response modes and then selecting the most appropriate rating of the questions as: Strongly agree (4), Agree (3), Disagree (2), and Strong Disagree (1). The interpretation modes were indicated as: Very satisfactory (4), satisfactory (3), fair (2) and Poor (1).

Interview: This method was used by the researcher to collect data through face to face interview with the respondents (Doctors, Nurses, Record officers, administrators and patients) about the subject under the study with the help of interview guide (Appendix V). Therefore, the researcher employed it in the study for gathering the required data on

the dependent variables because of its advantages such as it deals with both literates and illiterates, enables the researcher to clarify on some questions not clearly understood by respondents, promotes friendship with respondents, quick response rate as compared to written questionnaires and also flexible. This method helps in obtaining information that cannot be got by other methods (Bell, 1992).

Observation: It involves the direct use of eyes during the study by the researcher and requires one to be physically present in the study area. In this study, the researcher used it to extract accurate primary data from the study area as opposed to questionnaire and interview methods such as information about how the current system operates, especially on the processes. The researcher had to systematically observe and record the processes of operations in these clinics. Some advantages attached to this method include provision of detailed information, availing of facts on the ground and observation of procedures/processes followed in receiving treatment in these clinics.

Validity and Reliability of the Instrument

The researcher used Content Validity Index to measure the content validity of the questionnaire. In this respect the researcher gave questionnaires to experts in his/her field for judging whether the questions were relevant, this was done using the formula stated below;

$$C.V.I \quad = \quad \frac{\text{Number of items declared valid}}{\text{Total number of items}}$$

For the reliability of the instruments used, the researcher used the t-retest method where questionnaires were administered to a few respondents and later re-administered to the same respondents after a certain period of time as determined by the respondent. The responses

from the two tests were analyzed using Pearson's Linear Correlation and the t-test. The level of significance is always 0.05 and if the level of significance is less than 0.05, the instrument is declared reliable according to Pearson's Linear correlation. While, according to the t-retest, the instrument is reliable if the level of significance is greater than 0.05

Data Gathering Procedures

The procedures that the researcher took to collect data from the study area involved obtaining letter of introduction from the College of Higher Degrees and Research to introduce the researcher to the organization where the study was conducted.

During administration of questionnaires in the study area

The researcher sought permission from the administration of the UPF in order to conduct the study in their organization. The researcher then proceeded to the field to collect data about the subject under the study using the research instruments stated above. Respondents were kindly asked to answer completely all questions. The researcher returned to collect the questionnaires which were issued out after three days from the study areas. Thereafter, the researcher checked all returned questionnaires to confirm whether all questions were fully answered.

After administration of questionnaires in the field

The data collected were all organized, encoded and computed using Statistical Package for Social Sciences (SPSS).

30

Data Analysis

The researcher used SPSS to analyze the data collected from the field. The frequency and percentage distribution were used to determine the profile of the respondents. To analyze data on ICT and Patients' RMS; Mean and Standard Deviation (S.D) were used.

Pearson's Linear Correlation was also used to specify whether there is a significant relationship between the level of ICT usage and Patients' RMS. In this study, all data was analyzed using SPSS and the level of significance at 0.05 was set to determine the strength of relationship between independent and dependent variables.

In order to interpret the responses of respondents on the level of ICT usage and Patients RMS in selected UPF clinics, the mean ranges were used to get the individual indicators with their interpretation as below;

Response mode	Rating	Interpretation
Strongly agree	(4)	Very satisfactory
Agree	(3)	Satisfactory
Disagree	(2)	Fair
Strongly disagree	(1)	Poor

Mean range	Response mode	Interpretation
3.26 – 4.00	Strongly agree	Very satisfactory
2.51 – 3.25	Agree	Satisfactory
1.75 – 2.50	Disagree	Fair
1.00 – 1.75	Strongly disagree	Poor

Ethical Considerations

To ensure confidentiality of the information provided by the respondents and to ascertain the practice of ethics in this study, the following activities were implemented by the researcher:

1. The researcher tried as much as possible to avoid plagiarism except to cite related work done by other researchers.

2. The researcher instilled confidence in the respondents that their responses would be treated confidential and only meant for academic purposes, therefore, their names were not to be revealed.

3. Solicit permission through a written request to the concerned authorities of the selected clinics included in the study.

4. Request the respondents to sign in the *Informed Consent Form* (Appendix III)

Limitations of the Study

In view of the following threats to validity, the researcher claimed an allowable 5% margin of error at 0.05 level of significance. Measures were also indicated in order to minimize if not to eradicate the threats to the validity of the findings of this study.

1. Intravenous variables such as some questionnaires may not be returned back by some respondents to the researcher. To avoid this scenario, the researcher had to go and collect questionnaires from the respondents by himself.

2. Extraneous variables beyond the researcher's control such as respondents' honesty, personal biases and uncontrolled setting of the study.

3. Failure to get responses from the respondents due to various reasons such as language barrier between the respondents and the researcher, failing to interpret certain questions in the questionnaire by the respondents.

The researcher minimized this problem by employing an interpreter to help overcome this problem of language barrier. And the researcher was personally present in the study area to interpreter some questions that were technical for the respondents to understand.

CHAPTER FOUR

PRESENTATION, ANALYSIS AND INTERPRETATION OF DATA

Introduction

This chapter presents the data collected using questionnaires, interview and observation methods employed by the researcher in the study area. It also presents the analysis and interpretation of the data gathered from the field which contributed to the findings and decision made on the Null hypothesis.

Demographic characteristics of the respondents

The findings of demographic characteristics of the respondents in terms of age, gender, educational level, experience and responsibility are summarized in table 4.1 shown below;

Table 4.1

Respondents' profile (n=160)

Variables	Frequency	Percentage
Gender		
Male	82	51.2
Female	78	48.8
Total	**160**	**100.0**
Age		
21 – 25	21	13.1
26 – 30	44	27.5
31 – 35	43	26.9
36 – 40	28	17.5

40 +	15	15.0
Total	**160**	**100.0**
Qualification		
Certificate	54	33.8
Diploma	64	40.0
Bachelor	24	15.0
Masters	4	2.4
Others	14	8.8
Total	**160**	**100.0**
Experience		
0 – 5 Years	60	37.5
6 – 10	57	35.7
11 - 15	25	15.6
16 – 20	9	5.6
21+	9	5.6
Total	**160**	**100.0**
Position		
Administrators	27	16.9
Doctors	18	11.2
Nurses	38	23.8
Patients	58	36.2
Others	19	11.9
Total	**160**	**100.0**

Table 4.1 above shows the profile of Respondents involved in the study

Source: Field data (Selected UPF clinics of Nsambya, Kibuli and Naguru)

As shown in table 4.1 above, males had the highest percentage of 51.2 and males only 48.8 percent of the respondents. Males had the highest

percentage because the forces are dominated by men as most women fear to join due to the harsh nature of work involved in it. However, sampling both males and females helped in the data analysis.

With age group, the majority of the respondents were those from 26-30 (27.5%); followed by the 31-35 (26.9%); and then 21-25 (13.1%), while those from 40 years and above formed 15 percent only. Youth age group formed the majority of respondents because most of the personnel are young people who after completing school end up joining the forces due to scarcity of available jobs in the country.

As regards the educational level of the respondents, 40% were found to have Diploma qualification, followed by Certificate holders with 33.8%, then Bachelors had 15%, Masters 2.4% and other qualifications were only 8.8% of the respondents. These percentages imply that respondents were able to comprehend the concepts of the study.

Concerning the experience of the respondents, the researcher found out that majority of the respondents had experience below 5 years with 37.5%, followed by 35.7% of respondents as having 6-10 years of experience, then 15.6% as having 11-15 years' experience in the force, 5.6% of respondents had 16-20 years of experience and 5.6% also were found to have worked for over 21 years in the force. The highest percentage of respondents were those in youth age bracket with less than 5 years as indicated above because of job scarcity they end up in the forces and youth forms the largest percentage (60%) of Uganda's population.

Regarding status of the respondents, patients had 36.2%, followed by Nurses with 23.8%, Administrators constituted 16.9%, Others with

11.9% and Doctors making only 11.2%. The small percentage of Doctors further explains the scarcity and few numbers of Doctors available in the country but not only the force.

The level of ICT usage in Patients' RMS in the selected UPF clinics in Kampala

The findings on the level of ICT usage in patients RMS were presented by various responses of the respondents in table 4.2 below where the researcher formulated 10 questions for that purpose and the findings were summarized as indicated below;

Table 4.2

The level of ICT usage in Patients' RMS in the selected UPF clinics in Kampala

Category	Mean	Std. Deviation	Rank	interpretation
Availability of Telephone	2.50	.549	1	Fair
Availability of other resources	2.09	.515	2	Fair
Availability of Computers	2.03	.519	3	Fair
Rate of usage	1.92	.582	4	Fair
Availability of Flash discs	1.69	.626	5	Poor
Availability of fax	1.46	.592	6	Poor

Availability of CDs & DVDs	1.32	.506	7	Poor
Availability of Servers	1.26	.479	8	Poor
Availability of computer networks	1.23	.492	9	Poor
Overall mean average	**2.01**			Fair

Table 4.2 shows level of ICT usage in selected UPF clinics in Kampala
Source: Primary data

From table 4.2 above, majority of the respondents stated that ICT resources are few in the selected clinics as indicated by Fair responses on Availability of Computers, Availability of Telephone, Rate of ICT usage and Availability of other resources. While some respondents completely disagree on the availability of certain ICT resources by responding on their status as Poor such as on Availability of fax, Availability of CDs & DVDs, Availability of Flash discs, Availability of Servers and Availability of computer networks. The reason for fair and poor availability of ICT resources could be inadequate funds allocated to the department which leaves them with no option but rather to purchasing vital drugs for its patients. (Gyang, 2008).

Level of significance of ICT services in patients RMS in selected UPF clinics

The researcher was able to determine the level of significance of ICT using 12 questions issued out to the respondents. The respondents were asked to indicate on the questions such as 1 = strongly disagree meaning that they completely disagree with the statement so the level of significance of ICT services in patients' RMS is Very low; 2 = disagree

meaning that respondents disagree with some doubt thus the level of significance of ICT services in patients' RMS is low; 3 = Agree meaning that respondents agree with the statement thus the level of significance of ICT services in patients' RMS is high, and 4 = Strongly agree meaning that respondents fully agree with statement thus the level of significance of ICT services in patients' RMS is very high as shown in table 4.3 below;

Table 4.3
Level of significance of ICT services in patients RMS in selected
UPF clinics in Kampala (n=160)

Category	Mean	Std. Deviation	Rank	interpretation
The system is manual	3.26	.787	1	Very satisfactory
The system allows data retrieval any time	2.08	.813	2	Fair
The system allows different users to access only authorized data	2.06	.871	3	Fair
The system is cost effective	2.02	.835	4	Fair
The system allows data access any time	1.99	.847	5	Fair
The system ensures privacy	1.98	.816	6	Fair
The system is reliable	1.98	.735	7	Fair
The system can allows sharing of data between different points	1.94	.787	8	Fair
The system provides consistent data	1.91	.764	9	Fair

The system is user friendly	1.86	.831	10	Fair
The system provides data protection mechanism	1.82	.726	11	Fair
The system is computerized	1.79	.736	12	Poor
Overall mean average	**2.06**			Fair

Table 4.3: Shows the level of significance of ICT services

Source: Primary data.

As shown in table 4.3, the respondents responded on the level of significance of ICT services in patients RMS in the selected UPF clinics with a very strong disagreement that Patients' RMS is not computerized as Poor and further indicated by a very satisfactory response from the respondents on the system as being manual with mean deviation of 3.26. The respondents also indicated their responses on the status of current system in use as being fair basing on user friendly of the system, that the system does not allows data access any time, The system ensures privacy, The system provides data protection mechanism, The system can allow sharing of data between different points and The system is reliable. Other respondents disagreed on the following current status of the system in use; the system allows data retrieval any time, the system is cost effective and the system allows different users to access only authorized data. (Ojo, 2007).

The significant relationship between the level of ICT usage and Patients' RMS in selected UPF clinics in Kampala

The researcher was able to test the null hypothesis by correlating the overall mean in table 2 with the overall mean in table 3, using the

Pearson's Linear Correlation coefficient and the results are as shown in table 4.4 below;

Table 4.4
Pearson's correlation matrix of ICT usage and Patients' RMS in selected UPF clinics in Kampala.

Correlated variables	ICT usage	Patients' RMS		Interpretation	Decision on H_o
ICT usage	Pearson Correlation	1	.904(**)		
	Sig. (2-tailed)		.000		
	N	160	160	Significant relationship	Reject H_o
Patients' RMS	Pearson Correlation	.904(**)	1		
	Sig. (2-tailed)	.000		Significant relationship	
	N	160	160		

** Correlation is significant at the 0.01 level (2-tailed)

Table 4.4: Shows Pearson's correlation matrix of ICT usage and Patients' RMS

Source: Primary data

Findings presented in table 4.4 indicate that there is significant relationship between ICT usage and Patients' RMS in selected UPF clinics. The positive significant relationship between the variables is indicated by r-value of 0.904 and the significance value of 0.01.

Regarding the findings on the relationship, the null hypothesis which stated that there is no significant relationship between ICT usage and Patients' RMS in the selected UPF clinics is rejected and this made the researcher to conclude that there is a positive significant relationship between ICT usage and Patients' RMS in the selected UPF clinics.

It can be concluded that the relationship between the two variables implies that if ICT usage is adopted by the force then great service delivery will be realized such as reduction in duplication of data, time will be saved in serving patients, sharing of patients records among UPF health workers will be enhanced, proper records will enable management to make right decision basing on reports generated by system. The researcher agrees with Scott and Rundall (2005) who stated that the key to successful adoption and implementation of Electronic Healthcare Records (EHR) include a participatory selection process, flexibility regarding staff roles and responsibilities, decisive leadership at critical stages.

Meghan (2006) argued that when Medical records management is computerized, there are no rooms full of shelves line with manila folders stuffed with charts; instead patients' insurance, medication, examination and treatment records are maintained on eight Dell servers stacked in a large closet. In light of the above the researcher believes that if the management of UPF clinics adopt a computerized medical records then a great relief will be realized in terms of storage space, time and other resources as well.

While Lucey (2002) stated that all organizations' operations are ever changing. Management and Information Systems that support them have to deal with that change and adapt to their operations, systems

and organizations themselves in order to survive and prosper. As the saying goes that "if you do not change then change will change", the researcher feels that when time is ripe the management of UPF medical department will not resist change thus change will change them automatically if they are to survive and prosper in this dot.com era.

CHAPTER FIVE
SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

Introduction

This chapter deals with the summary of major findings, conclusion and recommendations of the data collected basing on the objectives and hypothesis of the study.

The researcher dealt with 160 respondents of which all of them were members of the UPF particularly the administrators in medical department, Doctors, Nurses, patients and others. The respondents were sampled randomly to find out whether ICT is being used to manage patients' records in the selected UPF clinics in Kampala.

Summary of Findings

Demographic characteristics of the Respondents

The researcher analyzed data collected using SPSS and tabulated the profile of respondents using frequency and percentage distribution method as presented below;

Variables	Frequency	Percentage
Gender		
Male	82	51.2
Female	78	48.8
Total	**160**	**100.0**
Age		

21 – 25	21	13.1
26 – 30	44	27.5
31 – 35	43	26.9
36 – 40	28	17.5
40 +	15	15.0
Total	**160**	**100.0**
Qualification		
Certificate	54	33.8
Diploma	64	40.0
Bachelor	24	15.0
Masters	4	2.4
Others	14	8.8
Total	**160**	**100.0**
Experience		
0 – 5 Years	60	37.5
6 – 10	57	35.7
11 - 15	25	15.6
16 – 20	9	5.6
21+	9	5.6
Total	**160**	**100.0**
Position		
Administrators	27	16.9
Doctors	18	11.2
Nurses	38	23.8
Patients	58	36.2
Others	19	11.9
Total	**160**	**100.0**

On the gender of respondents, the researcher found out that 82 respondents were male and 78 were female. This particularly explains how gender sensitivity is being emphasized in this country. Therefore, the force is also gender sensitive to handle issues concerning women as well as men.

The age bracket of 26 -30 years had the highest number of respondents of 44 as compared to age group of 40 years and above which had only 15 respondents. Age group of 30-35 years had 43 respondents further emphasizing the composition of the force as dominated by the youth. This means that the force is composed of young people who able to serve the country for over thirty years before clocking their retirement age. Other age groups as 21-25 and 36-40 years had 21 and 28 respondents respectively as shown above.

The respondents with Diploma qualification had the highest number of respondents of 64, followed by certificate holders of 54, graduates had 24, masters with 4 and other qualifications contributed to 14 respondents. These qualifications of the respondents further explain the reason for low usage of ICT in managing patients' record in the selected UPF clinics in Kampala. The experience of the respondents were also tabulated and 0-5 years had 60 respondents as the highest confirming that the force is composed of youth who have not yet served long period of time.

The researcher sampled different categories of respondents of which administrators contributed to 27, Doctors had 18 , Nurses, patients and others contributed to 38, 58 and 19 respectively as depicted in the above table.

On the level of ICT usage the researcher found out that the rate of ICT usage in managing patients' records in the selected UPF clinics is still very low as evidenced in Table 4.2 with low or poor availability of ICT resources. This could be attributed to low level of education as portrayed in the profile of respondents' qualification. Even the rigidity of the UPF management to embrace ICT as tool to computerize its patients' records as it is supposed to be in this dot.com era. This agrees with Chin (2003), who argued that an effective approach in the use of ICT for advancement in biomedical world requires proper training of medical specialists to set up and manage the system.

On the level of significance of ICT services in patients RMS in selected UPF clinics in Kampala, the researcher found out that the patients' RMS is not computerized rather manual as shown in Table 4.3 with the respondents strongly disagreeing completely that the system is not computerized. All data is captured with pen on paper (registers) thus duplication in registration of patients is found to be common such as registration at reception and laboratory since these clinics manage their own registers.

It was also discovered that the system currently in use is not user friendly, does not allow data retrieval at instant time, does not provides data protection mechanism, the system cannot allow sharing of data between different points, not cost effective and the system is not reliable as strongly disagreed by the respondents as illustrated in Chapter Four, Table 4.3. The researcher agrees with Allam (2009), argument who stated that medical records stored on papers need to be transferred to a computer data base that keeps track of patients' medical history.

The correlation between ICT usage and patient' RMS indicated that there is a positive significant relationship between the level of ICT usage and patients' RMS in the selected clinics with the significance value of 0.01. The researcher therefore, rejected the null hypothesis of the study which states that there is no significant relationship between the level of ICT usage and patients' RMS in the selected UPF clinics in Kampala

Through observation, the researcher further confirmed that the system currently in use is manual as patients were carefully observed as they lined up for registration with their exercise books/papers. While the clinical clerk on the other hand was observed registering each patient in the counter book.

With the help of the interview guide, the researcher found out that these clinics do not operate on 24-hour basis with the exception of maternity section. They operate during day time only from morning up to 5:00 Pm

Conclusions

Basing on the findings and analysis of the study, the researcher made the following conclusions;

The Null hypothesis of the study which states that there is no significant relationship between the level of ICT usage and patients' RMS in the selected UPF clinics in Kampala was rejected.

This has proved the Management demands on ICT theory in healthcare organization which states that there are numerous challenges to overcome before ICT can achieve its full potential in process oriented

healthcare organizations. Thus ICT usage is very significant in Patients' RMS for healthcare units therefore, should be introduced in UPF medical department as we embrace the fast advancing world of technology.

Computerization of Patients' record management should be initiated by UPF for its medical department. As reflected in the findings, the level of significance of ICT services in patients RMS is not very significant with the respondents strongly disagreeing that the patients' RMS is not computerized rather manual thus computerizing it will help health workers to keep and track records of their patients for future use.

Proper training in the field of ICT usage for medical personnel needs to be undertaken so that patients' records can be stored in the computerized system. The findings indicate that ICT usage in UPF medical unit is still very low. Therefore, with proper training the researcher believes that great improvement can be achieved with the computerization of the Patient' records.

Chin (2003) argued that an effective approach in the use of ICT for advancement in biomedical world requires proper training of medical specialists to set up and manage the system.

In testing the null hypothesis of a significant relationship between the level of ICT usage and Patients' RMS in the UPF medical section in Kampala, the researcher concluded that there is a moderate significant relationship between the two variables thus null hypothesis is accepted.

Recommendations

From the findings, the researcher made the following suggestions and recommendations as far as ICT usage and patients' RMS is concerned.

The UPF medical department should introduce computer usage for computerizing patients' records management systems by providing the necessary funds for such projects so that modern records management system such as Database program, server and clients computers among others are secured for use in these clinics.

Training of the medical staff with minimum computer skills is paramount because it was found out that most staff are computer illiterate. Without these skills computerized patients' RMS implementation will be difficult therefore it is recommended that a training program be made a priority.

Networking of the few available computers should be undertaken so that medical staff can share patients' data among themselves. This will enable officers transferred to other stations/districts continue with their medication/treatment in the new station with medical staff of that very station as opposed to starting treatment afresh. Internet facilities should be put in place in these UPF clinics so that Doctors and Nurses can also acquire other new knowledge from the net, share ideas with Doctors elsewhere and consult them as well in any health complication the patients may have with their reach.

There is need to solicit for more resources especially funds from government, NGOs and well-wishers so that the force may acquire some

of the vital ICT resources such as servers, well designed Database Management System (DMS) for managing patients' records.

Areas of future research

Since the study was unable to cover all aspects of ICT usage for patients' record management, the researcher recommends the following areas for further studies especially for future researchers:

- Design and implementation of patients RMS for the UPF clinics
- Sharing of patients Data online among health workers since police officers are always transferred from one station/district/region to another.
- E-health services such as use of mobile phones should be researched upon since this study was limited to computers for records management.
- Data warehousing for records management in the force.
- Diagnosing of patients using computer software such as testing of malaria in lab should be ventured into to avoid direct injection as a way of drawing samples

Review

This chapter summarized the research findings as presented in chapter four in terms of profile of the respondents, level of significance of ICT services availability in patients' RMS and the level of ICT services in patient' RMS in selected UPF clinics in Kampala. The findings indicate that there is a positive significant relationship between the level of ICT usage and patients' RMS. It was further found out that the null hypothesis which stated no significant relationship between ICT usage and patients' RMS in selected UPF clinics was accepted thus concluded that there is a positive significant relationship between the two variables

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APPENDIX 1 A

TRANSMITTAL LETTER

KIU
**KAMPALA
INTERNATIONAL
UNIVERSITY**

Ggaba Road, Kansanga
P.O. BOX 20000 * Kampala, Uganda
Mobile: +256782823607
E-mail: mphelixx@gmail.com

COLLEGE OF HIGHER DEGREES AND RESEARCH (CHDR)
OFFICE OF THE HEAD OF DEPARTMENT, APPLIED SCIENCE AND TECHNOLOGY

Date: 14th March 2013

Dear Sir/Madam,

RE: REQUEST FOR OKELO ALFRED MIS/17830/113/DU
TO CONDUCT RESEARCH IN YOUR INSTITUTION

The above mentioned is a bonafide student of Kampala International University pursuing **Masters of Science in Information Systems.**

He is currently conducting a research entitled **"ICT and Patient's Record Management System in Selected Clinics in Uganda Police Force in Kampala, Uganda".**

Your Institution has been identified as a valuable source of information pertaining to his research project. The purpose of this letter is to request you to avail him with the pertinent information she may need.

Any information shared with him from your Institution shall be treated with utmost confidentiality.

Any assistance rendered to him will be highly appreciated.

Yours truly,

Businge Phelix Mbabazi
Head of Department, Applied Science and Technology

NOTED BY:
Dr. Sofa Sali Date
Principal-CHDR
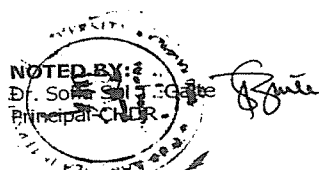
APPENDIX 1 B

TRANSMITTAL LETTER

_____

Dear Sir/ Madam,

Greetings!

I am a graduating student of Kampala International University. Part of the requirements for the award is a thesis. My study is entitled **"ICT usage in Patients' Records Management System"**. Within this context, may I request you to participate in this study by answering the questionnaires? Kindly do not leave any option unanswered. Any data you will provide shall be for academic purposes only and no information of such kind shall be disclosed to others.

May I retrieve the questionnaire within five days (5)?

Thank you very much in advance.

Yours faithfully,

_____

Okello Alfred

APPENDIX II

CLEARANCE FROM ETHICS COMMITTEE

Date_____

Candidate's Data

Name_____

Reg. No _____

Course _____

Title of Study

_____

Ethical Review Checklist

The study reviewed considered the following:

____ Physical Safety of Human Subjects

____ Psychological Safety

____ Emotional Security

____ Privacy

____ Written Request for Author of Standardized Instrument

____ Coding of Questionnaires/Anonymity/Confidentiality

____ Permission to Conduct the Study

____ Informed Consent

____ Citations/Authors Recognized

Results of Ethical Review

____ Approved

____ Conditional (to provide the Ethics Committee with corrections)

____ Disapproved/ Resubmit Proposal

Ethics Committee (Name and Signature)

Chairperson _____

Members _____

APPENDIX III

INFORMED CONSENT

I am giving my consent to be part of the research study of Mr. Okello Alfred that will focus on ICT and Patients' Records Management System in UPF – Clinics in Kampala.

I shall be assured of privacy, anonymity and confidentiality and that I will be given the option to refuse participation and right to withdraw my participation anytime.

I have been informed that the research is voluntary and that the results will be given to me if I ask for it.

Initials:_____

Date_____

APPENDIX 1VA

FACE SHEET: DEMOGRAPHIC CHARACTERISTICS OF THE RESPONDENTS

Gender (Please Tick):   ___ (1) Male

___ (2) Female

Age: _____

Qualifications (Please Specify):

(1) Certificate_____

(2) Diploma _____

(3) Bachelors _____

(4) Masters   _____

(5) Ph.D.   _____

Other qualifications

_____

Number of Years working with Police (Please Tick):

____(1) 0 – 5 Years

____(2) 6 – 10 years

____(3) 11 - 15years

____(4) 16 - 20years

____(5) 21years and above

Responsibilities

_____

_____

_____

_____

APPENDIX IVB

QUESTIONNAIRE TO DETERMINE PATIENTS' RECORDS MANAGEMENT SYSTEM

(For Administrators)

Direction 1: Please write your rating on the space before each option which corresponds to your best choice in terms of **availability of ICT and human resources** in your Clinic. Kindly use the scoring system below:

Response Mode	Rating	Description	Legend
Strongly agree	(4)	Very satisfactory	SA
Agree	(3)	Satisfactory	A
Disagree	(2)	Fair	D
Strongly disagree	(1)	Poor	SD

AVAILABILITY OF RESOURCES USED

_____1. Computers

_____2. Telephones

_____3. Fax

_____4. Compact Disc/ DVDS

_____5. Rate of Computer usage

_____6. Flash disc

_____7. Servers

_____8. Networks

_____9. Cabins

_____10. Stationery

AVAILABILITY OF HUMAN RESOURCES

_____11. Qualified Doctors

_____12. Licensed Nurses

_____13. Support staff (cleaners)

_____14. Secretary

_____15. Others

APPENDIX IVC

QUESTIONNAIRE TO DETERMINE CURRENT SYSTEM

Direction: Please write your preferred option on the space provided before each item.

Kindly use the rating guide below:

Response Mode	Rating	Description	Legend
Strongly Agree	(4)	You agree with no doubt at all.	SA
Agree	(3)	You agree with some doubt	A
Disagree	(2)	You disagree with some doubt	D
Strongly disagree	(1)	You disagree with no doubt at all	SD

CURRENT SYSTEM IN USE

_____1. The system is computerized

_____2. The system is manual (paper based)

_____3. The system is user friendly/ easy to use

_____4. The system can allow access to data at any time

_____5. The system can allow easy retrieval of information required

_____6. The system provide consistent data

_____7.Tthe system is cost effective

_____8. The system allows different users to access only authorized data

_____9. The system ensures privacy

_____8. The system provides data protection mechanism

_____9. The system can allow sharing of data between two different points

_____10. The system is reliable

APPENDIX V

Interview Guide

1. What is your job title?

2. How many patients do you see daily?

3. What role do you play in the Patients records management?

4. How do you find the existing system of Patients records management?

5. What problems do you face with the existing system?

6. Do you recommend to continue with the existing system, if yes why?

7. Do you have some computer knowledge?

8. Suppose the existing system was replaced with a computerized one, how would this help to improve Patients records management?

9. If a new is to be designed, what would you expect from it as a person going to use it?

10. Could you suggest some solutions to problems faced with the existing system?

APPENDIX VI

PROPOSED DATA PRESENTATION THROUGH TABLES/GRAPHS

Demographic Characteristics Of the Respondents

Category	Frequency	Percentage (%)
Gender		
Male	82	51.2
Female	78	48.8
Age		
20-Below (Early adult hood)	-	-
21-25 (Middle adult hood)	21	13.1
26-30 (Middle adult hood)	44	27.5
31-35 (Middle adult hood)	43	26.9
36-40 (Adult hood)	28	17.5
41 and above (Late adult hood)	15	15.0
Educational Qualifications		
Certificate	54	33.8
Diploma	64	40.0
Bachelors	24	15.0
Masters	4	2.4
Others	14	8.8
Number of Years in Police		
0 -5 years	60	37.5
6- 10 years	57	35.7
11-15 years	25	15.6
16-20 years	9	5.6
21 years and above	9	5.6
Position/status		
Administrators	27	16.9
Doctors	18	11.2
Nurses	38	23.8
Patients	58	36.2
Others	19	11.9

APPENDIX VII

PROPOSED BUDGET

The proposed budget for carrying out the study as budgeted by the researcher can be seen as stated below: -

S/NO	Activity	Qty	Unit cost	Total cost
1	Travel costs			100,000
2	Allowances	1 Assistant	100,000	100,000
3	Stationary	5 Reams 1 Cartridge Binding	20,000 50,000	100,000 50,000 100,000
4	Secretarial services			200,000
5	Data Analysis			400,000
6	Research reports	5 Books	100,000	500,000
7	Up keep			300,000
8	Miscellaneous			200,000
	GRAND TOTAL			**2,000,000**

TIME FRAME

Below is a Ghantt chart illustrating the activities and the length of time required for each activity in months.

Activity	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan
1. Conceptual Phase	■	■										
Chapter 1	■	■										
2. Design & Planning Phase	■	■										
Chapter 2-3			■	■								
3. Thesis Proposal			■	■								
4. Empirical Phase					■							
Data Collection					■							
5. Analytic Phase						■						
Chapter 4-5						■						
6. Journal Article						■						
7. Dissemination Phase							■					
Viva Voce							■					
8. Revision								■				
9. Final Book Bound Copy								■				
10. Clearance								■	■			
11. Graduation										■		

RESEARCHER'S CURRICULUM VITAE

Personal Profile

NAME   :   OKELLO ALFRED

SEX   :   MALE

DATE OF BIRTH   :   3RD MAY 1979

NATIONALITY   :   UGANDAN

MARITAL STATUS :   MARRIED

Contact   :   KAMPALA INTERNATIONAL UNIVERSITY

                           P. O. BOX 20000,

                           KAMPALA – UGANDA

Mobile No.   :   +256 783 637545

Email Address   :   okello_alfred@yahoo.com

Educational Background

Year	Institution/School	Qualification/Award
2011 – 2012	Kampala International University	MIS – still pending
2007 – 2010	Kampala International University	Bachelor of Computer Engineering
2002 – 2003	Institute of Accountancy – Jinja	Certificate in Computer Applications
1999 – 2001	UCC – Aduku (MUBS)	Diploma in Business Studies (UDBS)
1997 – 1998	Kampala Students' Centre	U.A.C.E
1990 – 1993	City High School	U. C. E
1987 – 1989	Adyel Primary School	P. L. E

Work Experience

From 2011 – up to date, I work as a Teaching Assistant at KIU in the college of Applied Science and Technology.

In 2010, I did internship training at KIU for a period of one month in the computer lab under the supervision of System Administrator. I acquired basic skills in Hardware, Software and network (LAN) configurations as well as working in a team of different people.

In 2003, I worked as a Computer Instructor at Business Information Technology Centre – Jinja for a period of six months.

In 1999, I worked with Impregilo-Salini Joint Venture as a store clark for a period of eight months.

Other Relevant Data

Hobbies:

I like listening to gospel music, travelling and watching football at my leisure time.