INTEGRATED PATIENTS' INFORMATION MANAGEMENT SYSTEMS MODEL AND SERVICE DELIVERY IN PRIVATE HEALTH CENTERS. A CASE STUDY OF EMMANUEL, ENTEBBE UGANDA

BY

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A RESEARCH DISSERTATION SUBMITTED TO THE SCHOOL OF BUSINESS ADMINISTRATION IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF A MASTERS DEGREE IN BUSINESS ADMINISTRATION-INFORMATION TECHNOLOGY (MBA-IT) OF NKUMBA UNIVERSITY, ENTEBBE, UGANDA.

OCTOBER 2018

DECLARATION

I, Atamba Brian, declare that this study is my original work and has never been presented to any Institution or University for both professional and academic purposes. Where the work of others have been used, due acknowledgement has been done.

Signed……..

ATAMBA BRIAN

DATE…….

STUDENT

APPROVAL

I certify that, Atamba Brian has carried out research on Integrated Patients' Information Management Systems model and Service Delivery in Private Health Centers in Entebbe: A case study of Emmanuel Medical Center, Entebbe Uganda under my supervision.

SIGNED……...…….

Mr. OGERE BENARD EKEMU

DATE…….…….

SUPERVISOR

DEDICATION

This dissertation is dedicated to my parents Mr. John B Agaba &Mrs. Mary Agaba.

This work is also dedicated to my loving wife Charity Atamba.

Special dedication to my daughter Georgia Arinda Atamba, sons Gareth Elijah Atamba and Gayle Agaba Atamba.

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ABSTRACT

The study was about integrated patients' information management systems model and service delivery in private Medical Centers, using Emmanuel Medical Center as a case study. The study was guided by the following objectives.

i. To find out the type of patients' information management system used by Emmanuel Medical Center.
ii. To analyze the challenges faced by Emmanuel Medical Center in using its patients' information management system model in its service delivery
iii. To come up with an Integrated Patients' Information Management Systems model model for enhancing service delivery at Medical Center.

The study employed a descriptive approach that looked at patients' information management systems and service delivery at Emmanuel Medical Center. The study used a population of 64 with a sample size of 55. Census and simple random sampling were used to select the sample. The self-administered questionnaire and Interview guide were the main data collection instruments.

Integrated Patients' information system and service delivery in private health centers were related with significant level of $r^2 = 0.48$ and this means that adopting an integrated patients' information system improves 48% to service delivery. In addition, it was found out that increasing and developing the patients information system, is associated with the quality service deliveries in private health centers.

The study recommended that, Emmanuel Medical Center should provide training to staff on new technologies such as integrated patients' information management systems and this will equip them with new skills to provide effective, efficient and accurate services. More training should be done to the data entrants so as to equip them with skills and knowledge on how to enter data into new improved systems environment. Emmanuel Medical Center should move from partially automated system to fully integrated system and this means that it should employ the use of computers in all its work. Therefore it should adopt the model developed by the researcher in figure 6.1. This will make it easier in terms of record management, time management and thus improved quality service delivery to the patients and centrally managing records for various departments at the health center.

CHAPTER ONE: INTRODUCTION

1.0. Introduction

The study was about integrated patients' information management systems model and service delivery in private Medical Centers, using Emmanuel Medical Center as a case study. Integrated patients' information management systems model is one that is designed to improve the quality and management of health care in areas of patients' information. Integrated Patients' Information Management Systems model integrates all patients' data relating to a single entity for which the Emmanuel Medical Center functions. It accommodates the Emmanuel Medical Center needs with respect to central patient repository of inpatients which involves admission/discharge/ transfer, scheduling and sensitive patients tracking as well as outpatients.

1.1. Background of the study

Emmanuel Medical Center is a private health found at Katabi Entebbe. It opens 24 hours a day. Its staff comprises of well -trained doctors and nurses, and handles different types of services, it also provides guidance/counseling and any other medical consultation and thus very important to represent other medical centers. The Medical centre practices direct care, direct primary care, and direct practice medicine for individuals and Health insurance for members of corporate organizations.

The confluence between increased computer acceleration capabilities, the reach and expansion of the Internet and the growing ability to capture and leverage knowledge in a digital format, are mainly responsible for the technological revolution we are nowadays experiencing. The information society can similarly impact healthcare services, changing the relationship between patients and healthcare professionals providing significant opportunities for healthcare professionals to deliver technology-effective healthcare services to their customers and offering the latter ways to access all the information they need (Bratteteig, 2008). However, healthcare systems all over the world are undergoing a considerable pressure to reduce continuously rising costs while simultaneously maintaining, or even improving, the quality of healthcare services.

Collateral factors, such as demographic changes, the lack of qualified healthcare professionals, the expectations and the demands from patients, local administrators, and health insurance companies, hinder the attainment of this goal (Dabholkar, 2015).

It is strongly expected that a broader adoption of integrated patients information management model (IPIMM) in the health field will contribute decisively to improve quality delivery of services. However, evidence shows that implementing IPIMM without considering the underlying strategic and organizational structures and processes will not necessarily produce the expected benefits. Indeed, IPIMM are generally perceived as holding enormous potential to improve healthcare systems. Unfortunately, some cases have also led to disappointment and skepticism (Carpon, 2013). Several studies that highlight the importance of finding suitable model that improves measures and assess the success rate of healthcare systems related projects and IPIMM is a perfect match.

Patients' information concerning their sickness at Emmanuel Medical Center is tracked and accessed by the doctors or other authorized staff through use of manual and to some extent computerized system. The patients' information management system is through records obtained at the time of compiling assessments that staffs have clear background information about each patient's treatment. On the other hand, the adoption of integrated patients' information management model will also help staff in assessing and making reports about the patient's treatment since they would have background information about the patient's diagnosis over time in order to lay strategies for improvement (Bloor, 2009)

The current system of the patients' information at Emmanuel Medical Center is based on partial system that is both manual and computerized, the manual system is the use of medical cards where each is issued his or her own medical card where the information about his/her status is recorded and the computerized is mostly for financial transactions, instead of an integrated system that ensures security, integrity, efficiency, and provides faster database processing capability. Integrating the patients' system, management is therefore targeted towards improving the whole treatment process i.e. from entering patients' information and storing them up to the

production of results of useful related document like laboratory forms, drug forms, discharge forms and other personal documents.

The Medical Center's information management system needs an effective system that process patients' information in a short period of time. This system helps the staff to retrieve the patients' treatment data and records so as to make informed decisions on how to improve the services in the Medical Center. The decisions would be based on how the patients' diagnosis in the different days of the treatment days will be analyzed. In this case, the different approaches would be put in the Medical Center's environment in order to improve the services where necessary.

Most health centers in Entebbe are using Quintegra Model for electronic Healthcare which is a model that goes beyond the limits of an organization, incorporating every service linked to the medical process applied to each health care provider in each stage (Gally, 2003). Another model in the health field is the health information management system Model for Electronic Medical Record, which identifies different maturity stages in the Electronic Medical Record (EMR) of health centers. This model has been used all over the world by health centers, both to evaluate the maturity of information system and to compare average differences between regions and countries in different continents (Doyle,2001).

Medical centers have been also using Electronic Patient Record model which is directed to the system that manages personal related information, that is, a system that manages the Electronic Patient Record. Another model used in medical centers is Interoperability Model which focuses on interoperability associated with technical, informational and organizational capabilities of the different players involved in health care services. They also use the infrastructure Maturity Model which helps health centers carry out an objective self-assessment in terms of technological infrastructures (Greenlaw, 2009).

However by using these models patient's information systems in medical centers in Uganda are struggling with limited resources and capability in reaching the demand in terms of service delivery (Landiya, 2004). All the above models are focused on the management system of health center as a whole not specifically patients information management and this means that, the need to find ways to strengthen such systems is very urgent. Therefore, having reliable data on the

service delivery of the patients is the only way to devise, execute, and measure interventions and this necessitates the need for an integrated patients' information management model that deals with patients' registration, treatment and feedback system which in turn improves on service delivery.

1.2 Statement of the problem

An effective and efficient management system is one that centrally integrates all information system such that all information can be accessed centrally for easy management. At Emanuel Medical Center, some sections are computerized most especially in tracking financial transactions and records while others still use manual system such as the use of medical cards of writing patient's details in an individual card. As a consequence the doctors, nurses face challenges like mis-location of files when retrieving patient's information due to poor record keeping manifested in misplacement of the file records (Medical report 2016, Emmanuel Medical Center) thus affecting service delivery, there is also duplication of data as a result of multiple records appearing in different records hence creating redundancy in the file storage system (Emmanuel Medical Center management Report 2016). In addition, the same report also indicated that, service delivery has declined from 70% to 60% in the years 2015 and 2016 respectively. It is upon this background that, the researcher intended to find out the contribution of Integrated Patients' Information Management Systems model to service delivery at Emmanuel Medical Center.

1.3. Objectives of the study

1.3.1. Main objective

The purpose of the study was to establish how the Integrated Patients' Information Management Systems Model contributes to service delivery in Emmanuel Medical Center.

1.3.2. Specific objectives

1. To find out the type of patients' information management system used by Emmanuel Medical Center.
2. To analyze the challenges faced by Emmanuel Medical Center in using its un intergrated patients' information management system.
3. To come up with an Integrated Patients' Information Management Systems model for enhancing the service delivery at the Emanuel Medical Center.

1.4. Research questions

The research questions were:

1. What type of patients' information management system is used by Emmanuel Medical Center in providing services to its patients?
2. What are challenges faced by Emmanuel Medical Center in using its un integrated patients' information management system?
3. What type of Integrated Patients' Information Management Systems model can be used by Emmanuel Medical Center to enhance service delivery?

1.5. Hypotheses

The following formed the hypothesis of the study:

H_O: Integrated Patient's information system model does not contribute to Service delivery in Medical Center

H1: Integrated Patient's information system model contributes to service delivery in Medical Center

1.6. The scope of the study

1.6.1. Geographical scope

The study was carried out at Emmanuel Medical Center which is located in Katabi Town Council, Kampala Entebbe road approximately 30 km, in Wakiso district in Central Uganda.

1.6. 2. Contextual scope

The study was limited to study objectives. The main focus was to determine the relationship between Integrated Patients' Information Management Systems model and service delivery at Emmanuel Medical Center. The specific objectives were to examine the impact of integrated patients' records information system to service delivery in Medical Center, to establish the challenges faced by Patient's information system at Emmanuel Medical Center and to come up with an Integrated Patients' Information Management Systems model model for promoting the service delivery at Medical Center.

1.6.3. Time scope

The study was carried out from January 2017 to June 2018 and Integrated Patients' Information Management Systems model considered the literature that was gathered from 2008 up to date.

1.7. Significance of the study

The study on integrated patient's information system and service delivery at Emmanuel Medical Center is important because Integrated Patients' Information Management Systems model provides information to the public as to whether proper information system managing, monitoring and implementing are being practiced in Medical Center.

In addition, the findings of the study shall significantly benefit Patients information systems' following stakeholders:

i. ***Management at Emmanuel Medical Center.***

The study findings may enhance the organization's oversight function in providing relevant information system policies to check on the quality of service delivered to its clients. The findings may enable Emmanuel Medical Center management to evaluate the way they have been operating the system and make adequate changes where necessary.

ii. ***Staff of*** **Medical Center.**

The findings, conclusions and recommendations shall be of practical significance to the staff of Emmanuel Medical Center by providing a better insight regarding the importance of integrated patient's information system in maintaining the service delivered.

iii. ***Academicians and prospective researchers:***

The findings of the study may provide and add knowledge to existing literature in higher institutions of learning and may also act as a foundation for further research in the area of patient's information system and service delivery.

iv. Other policy makers

The study may raises awareness among the policy makers and managers or other organizations. The findings may be used for policy makers to improve on service delivery.

iv. Government organizations

The study recommendations may guide the government in policy formulation of how best Integrated Patients' Information Management Systems model can improve service delivery mostly in public Medical Centers.

1.8. The structure of the Dissertation

This study was arranged in five chapters:

Chapter one presents the introduction to the study which indicates what the study is about, problem statement which shows the current state of patient's information system at Emmanuel Medical Center, study objectives which address what the study bases on, purpose of the study which shows the main reason for carrying out the study, study questions that presents the bases for study instruments, study hypothesis that shows the relationship between the topic variables, study scope shows the study boundary, significance of the study indicates the importance of the study to different stake holders.

Chapter two contains two sections: section one is the literature survey which addresses what local people have written about the related topic in order to identify the gap that the current study will cover and section two is literature review which discusses theories and models in relation to information system.

Chapter three presents the methodology to be used in the research process. Integrated Patients' Information Management Systems model presents the Research Design, Study Population, and Sample Size, Sampling methods, Data collection instrument, Data collection procedures,

Reliability and Validity of research instrument, Limitations to the study, Data processing and analysis.

Chapter four presents the data presentation, interpretation and analysis

Chapter five presents the summary, conclusion and recommendation

Finally the preliminaries, references and appendices formed part of the final dissertation.

CHAPTER TWO: STUDY LITERATURE

2.0. Introduction

This chapter covered literature survey, literature review and conceptual framework.

2.1. Literature survey

Apparently there is no literature that addresses the topic of the current study. The absence of direct literature on the topic does not mean that there is no literature on the various aspects of the topic. There are many writers and researchers who have written about information system in health sectors.

Landiya (2004) conducted the study on Information System and performance of Health centers using Mulago Health Center as a case study. The objectives were; to find out the effect of information system and to find the significance of information system in Mulago Health center. His findings were: the ultimate purpose is to store and manage information and also patients' information management system is the basic infrastructures of the modern business organizations, they coordinate the resources and activities of the input, process and output sub-systems of the organizations, thus monitoring and ensuring internal efficiency. Simply, the information system gathers and stores all the needed information of the organisation. After all, to plan effectively, an organisation needs to know its present position, its strengths and weaknesses, those of its competitors, market trends. This study did not look at the impact of information system on service delivery in health centers thus the current study closed this gap

In a study conducted by Okello (2000), the role of information technology to client service delivery in Medical Centers taking a case study of Entebbe general Medical Center following the objectives; to find out the improvement of health services due to the introduction of information system. He lists some of the health services that have been revolutionized through the use of information system including patient account opening, client account mandate and transaction processing. This study did not cover the challenges faced by information systems in delivering services and therefore this study aims at closing this gap

Agboola (2004), conducted the study on the impact of information systems components to service delivery in Medical Centers in Uganda using post Medical Center Ndeba branch. Some of the objectives were; to find out the information technology components that put forward in post Medical Center Ndeba branch. He found out that innovation of information technology concepts techniques, policies and implementation strategies to Medical Center services has become a subject of fundamental importance and concerns all Medical Centers and indeed is a prerequisite for local and global competitiveness. Information systems directly affect how managers decide, how they plan and what products and services are offered in the health sector. This study did not consider information systems in health sector of which the current study is to close this gap.

2.2. Literature Review

2.2.1. A system

Jones et al (2003) defined a system as a group of components linked together towards a common goal by accepting inputs and producing outputs in an organized transformation process. O'Brian further defined three major controls which must be developed to ensure the quality and security of information system such as;

Information system control

This is a method and device that attempts to ensure accuracy, validity and propriety of information system activities e.g. input control, processing control and output control. (Bloor, 2009)

Procedural control

According to Bratteteig (2008), these are methods that specify how the information service organization should be operated for maximum security e.g. separation of duties, authorization requirements.

Physical facility controls

According to Lang *et al* (2000), these are methods that protect physical facilities and their contents from loss or destruction e.g. computer failure controls, telecommunication controls.

Most organizations use databases and database management systems for organizing, managing, and working with information. Greenlaw (2014), databases contain information while database management systems are software used to manage databases.

A database is a collection of all the required information pertaining to a particular subject. In other wards, Integrated Patients' Information Management Systems model is a collection of related records and files. Crawford (2005), a database consolidates many records previously stored in independent files, in that a common pool of data records serves as a single central file for many data processing applications.

According to Farhoomand (2011), in a database, the responsibility for developing and maintaining the organization data dictionary, designing and monitoring the performance of database and enforcing standards for database users and security is performed by the data resource management function. Data about business transactions and other events must be captured and prepared for processing by the basic data entry activities. End users typically record data about transaction on some type of physical medium such as paper form, or enter Integrated Patients' Information Management Systems model directly into the computer system. This usually involves a variety of editing activities to ensure that they have recorded data correctly. Once entered, data may be transferred into a machine-readable medium such as a magnetic disk or tape until needed for processing. For example, data about sales of drugs can be recorded on some documents such as sales paper forms.

Alternatively, sales data could be captured by sales person using computer keyboards or optical scanning devices that are usually prompted to enter data correctly by video displays. Greenlaw et al (2014), this provides them with a more convenient and efficient user interface i.e. methods of end user input and output with a computer system. Methods such as optical scanning and displays of menus, prompts and fill in the blank formats makes Integrated Patients' Information

Management Systems model easier for end users to enter data correctly into an information system.

2.2.2. Processing data into information

Information

According to Leow et al (2013), information is data (for example, raw facts or observations) that have been put into a meaningful and useful context. This gives the information value for specific persons and meets their particular information needs. Thus information is a basic resource that individuals and organizations must have to survive and succeed in today's society. That's why information systems are very important.

Information system

A set of people, procedures and resources that collects, transforms, and disseminates information in an organization. Reddy (2000), there are different types of information systems for example simple manual (paper and pencil) information systems and informal (word-of-mouth) information systems. Most Medical Centers are mostly on the simple manual information system.

Information system functions

Document and record management may well be the most crucial aspect of any information system. Some examples of types of information maintained in these systems would be accounting, financial, manufacturing, marketing, and human resources. An information system can serve as a library. Frank (2004), when properly collected, organized, and indexed in accordance with the requirements of the organization, its stored data becomes accessible to those who need the information.

According to Dabholkar (2015), the location and retrieval of archived information can be a direct and logical process, if careful planning is employed during the design of the system. Creating an outline of how the information should be organized and indexed can be a very valuable tool during the design phase of a system. A critical feature of any information system should be the

ability to not only access and retrieve data, but also to keep the archived information as current as possible (Gally et al, 2003).

Management system

Carpon (2001), it's the system that provides periodic and predetermined reports that summarizes information. In an organization information comes from a database that gathers and stores daily information from transaction processing and customer integrated system.

2.2.3. The impact of patients' integrated information management system

According to Bimil (2002), patients' information systems adoption in Medical Centers and health service providers has become a very important component in achieving organizational goals. In recent past therefore, computerized technologies have been used extensively in health sector for many years to advance agenda of health service providers. The earliest forms of information system technologies used in Health sector were mainly office automation devices. Telephones, telex and facsimile were employed to speed up and make more efficient, the process of servicing patients. However, with coming of new partners in Health sector, Kintai (2008), the advancements in computer technology have led to application and adoption of a full set of information system that has changed the Health sector in the country. The fast-changing competitive environment, globalization, economic changes, regulation, privatization and the like demands that Medical Centers are run efficiently and effectively by continuously engaging in technological innovations. Emergence of new technologies, products, markets and competitors places demand on any organization to apply any skills necessary to remain competitive and achieve competitive advantage.

In addition, every well managed medical center must undertake technological innovations which will enable patients' information management system to have a competitive edge over the others. Mugambi (2006), these innovations are intended to facilitate a firm's sustainability in the face of growing competition and external threats. The information systems are revolutionizing the Health sector over the years. The rapid development and commercialization of Information systems has prompted Health Centers to increasingly adopt these technologies.

Oliver (2003), this is based on the expectation that the new information based systems and processes would lead to an improvement in their operating efficiencies and service delivery levels. The Health Sector has already been depicted (Parasuman et al., 2001) as exhibiting little market orientation and fulfilling services with little regard to customer needs as well as including branches dissimilar in efficiency. Long lines, limited time for patient servicing, recording errors, excessive bureaucracy, and security and network failures have been said to be the most frequent problems using Medical Center services. This highly lower customer's perception on the quality of service offered and hence reduces customer service delivery and the Medical Center's profitability and credibility. One question relates to whether automated, telephone and Internet services represent positive change and are satisfactorily serving the clients. Whilst technology can save time and money and eliminate errors, thereby addressing certain issues associated with changing cultural and social trends, Integrated Patients' Information Management Systems model can also minimize direct customer interaction and any associated service value to be gained (Gally et al, 2003).

According to Jahangir et al. (2002), reliable and accurate Medical Center services; customer services; personalized services; and accurate records are some of the factors which are considered by the clients in their choice of a given type of service delivery channel. Since the year 2000, technology has increasingly been innovated in the delivery of services in the Uganda health sector. The adoption of technology into service industries, more so in Emmanuel Medical Center is becoming a strong trend as service providers are now being urged by industry bodies to invest in technology. The small business segment (retail and corporate services) has not been an easy one for the main Medical Centers to target and a number of studies have highlighted imperfection in service provision and problems regarding service quality and customer service delivery (Jahangir, 2002).

According to Silow-carroll et al (2012), implementation of information technology and communication networking has brought a revolution in the functioning of the Medical Centers and the financial institutions. Integrated Patients' Information Management Systems model argues that dramatic structural changes are in store for financial services industry as a result of the Internet revolution; others see a continuation of trends already under way. In a study conducted by Reddy (2000) in Nigeria, he lists some Medical Center services that have been

revolutionized through the use of ICT as including account opening, customer account mandate, and transaction processing and recording. Information and Communication Technology has provided self-service facilities (automated customer service machines) from where prospective clients can complete their account opening documents direct online. Integrated Patients' Information Management Systems model assists clients to validate their account numbers and receive instruction on when and how to receive their patients' information. (Oliver, 2003).

The ICT products in use in the health sector in many developing and developed include Automated Teller Machine, Smart Cards, Telephone, MICR, Electronic Funds Transfer, Electronic Data Interchange, Electronic Home and Office Emmanuel Medical Center(Reddy, 1998). Why doesn't everybody innovate is a common question in business literature? Integrated Patients' Information Management Systems model is widely recognized that innovation is a key to the economic performance of firms. Innovative firms grow faster in terms of employment and profitability. An innovation is an idea, practice, or object that is perceived to be new by a person or adopting entity (Nickerson, 2000).

According to Storbacka et al (2014), the literature provides several frameworks to classify product newness, e.g., from incremental to radical innovations. This study, however, is concerned with product innovation as a phenomenon, rather than with product innovations with a certain degree of newness. This includes significant improvements in technical specifications, components, and materials, incorporated software, user friendliness, or other functional characteristics. Product development is used as a term for the span of innovation activities leading to, or that are intended to lead to, product innovation. According to Carpon (2001), the application of information and communication technology concepts, techniques, policies and implementation strategies to Medical Center services has become a subject of fundamental importance and concerns to all Medical Centers and indeed a prerequisite for local and global competitiveness.

ICT directly affects how managers decide, how they plan and what products and services are offered in the health sector. Integrated Patients' Information Management Systems model has continued to change the way Medical Centers and their corporate relationships are organized worldwide and the variety of innovative devices available to enhance the speed and quality of

service delivery (Journal of retailing Vol.70 No. 3, pp201-30).However, most research about innovation focused on manufacturing industries though increasing attention has been paid to innovation in service industries recently (Moutinho, 2011).

According to Frank (2004), the survival of an enterprise in the age of knowledge-based economy depends on how to improve their organizational innovation capability. Technological innovation is the key variable and means of differentiation between logistics service providers. Commercial Medical Centers can increase their performance by employing new technologies.

Doly (2001) suggests that unsatisfied clients may choose not to defect, because they do not expect to receive better service elsewhere. Additionally, satisfied clients may look for other providers because they believe they might receive better service elsewhere. However, keeping clients is also dependent on a number of other factors. These include a wider range of product choices, greater convenience, better prices, and enhanced income (Storbacka et al., 2014).

Obeng (2010), in his study of Swedish clients, notes that although customer service delivery and quality appear to be important for all firms, service delivery is more important for loyalty in industries such as Medical Centers, insurance, mail order, and automobiles. Kimtai (2008) further proposed that product differentiation is impossible in a competitive environment like the health sector. Medical Centers everywhere are delivering the same products. For example, there is usually only minimal variation in interest rates charged or the range of products available to clients. Medical Center prices are fixed and driven by the marketplace. Thus, medical Center management tends to differentiate their firm from competitors through service quality. Service quality is an imperative element impacting clients' service delivery level in the health sector. In Medical Center, quality is a multi-variable concept, which includes differing types of convenience, reliability, services portfolio, and critically, the staff delivering the service.

2.2.4. Significance of patients' information system

The paper titled "Why do people use Information technology? A critical review of the technology acceptance model" by Carpon (2003), suggested Technology Acceptance Model 2 (TAM2). TAM had proven to be a useful theoretical model in helping to understand and explain use behaviour in IS implementation. Integrated Patients' Information Management Systems

model examined the mediating role of perceived ease of use and perceived usefulness in their relation between systems characteristics (external variables) and the probability of system use (an indicator of system success). A new and improved version of Davis's model: TAM2 was used that included subjective norms, and was tested with longitudinal research designs. Analysis of empirical research using TAM shows that results were not totally consistent or clear. Research has shown that the influence of some factors on intention to use IS, varies at different stages in the IS implementation process. Patients' information system was concluded that TAM is a useful model, but has to be integrated into a broader one, which would include variables, related to both human and social change processes.

The purpose of the paper named "Impact of Information Technology management practices on customer service", by Carpon (2003) was to gauge whether Integrated Patients' Information Management Systems model management practices differ among firms where Integrated Patients' Information Management Systems model has a major role in transforming marketing, operations, or both, which gave the firms advantage by affecting customer service. Several research hypotheses were tested using data obtained from a survey of 213 IT-leaders in the financial services industry. The results clearly indicated that the patients' information system leader firms had a higher level of patients' information management system sophistication and a higher role for their Integrated Patients' Information Management Systems model leaders compared to IT-enabled customer focus, IT-enabled operations focus, and IT-laggard firms. The study concluded that patient's information system management practices differed among Integrated Patients' Information Management Systems model leader firms, IT-enabled customer focus, IT-enabled operations focus and IT-laggard firms. This paper was silent on other aspects of patient's information system like functional integration, technological integration, etc., besides customer service. Börje (2000) in their paper titled "Customer Focusing Medical Center Services" had stressed on importance of customer relationship management.

The aim of the Medical Centers should be to retain the existing clients and acquire the new clients. In order to add value to the services offered, the health sector has to efficiently and effectively utilize the technology with an eye on the cost of product and the services offered. To win the clients, the modern Medical Center should integrate technology and deploy marketing strategies that would enable Medical Centers to maximize profits through customer service

delivery. In market with fierce competition providing the clients with value addition is the only way to achieve complete sustained customer service delivery. Mugambi (2006) in his paper titled "CRM – With special emphasis on financial services and Medical Center", emphasized about growing need of managing clients better in Medical Center. CRM applications applied in Medical Centers were customer knowledge, sales effectiveness, customer retention, customer segmentation, product presentation, customer fulfillments, customer acquisition, channel management, marketing intelligence, campaign management. The processes need to be redesigned in order to be able to utilize CRM for the clients and organizational benefits. The three S's of Medical Center i.e., Size, Speed, Service; are better managed by CRM. In the world of Medical Center CRM technology was the answer to the question of increased growth with less cost.

In a study titled "Capturing the customer's voice" by Jones et al (2003), customer needs and wants in medical centers were properly emphasized. Customer needs are categorized as Basic needs, Performance needs and Excitement needs. The various Center services like Tangibility, Reliability, Competence, Courtesy, Understanding clients, Communication, Access, Responsiveness, Credibility, and Security; were related with these needs. This paper helped to identify how clients perceived services of a Medical Center. Greenlaw (2014) studied the impact of computer automation on the medical center services in Lagos and discovered that Electronic Medical Center has tremendously improved the services of some Medical Centers to their clients in Lagos. The study was however restricted to the commercial nerve center of Nigeria and concentrated on only six Medical Centers. He made a comparative analysis between the old and new generation medical centers and discovered variation in the rate of adoption of the automated devices.

Bloor (2009) wrote on the application of information technology in Nigerian Medical Centers and pointed out that Integrated Patients' Information Management Systems model is becoming the backbone of Medical Centers' services regeneration in Nigeria. He cited the Diamond Integrated Medical Center Services (DIBS) of Diamond Medical Center Limited and Electronic Smart Card Account (ESCA) of All States Medical Centers as efforts geared towards creating sophistication in the Medical Center sector.

Oliver (2003) discovered that Medical Center in Nigeria has increasingly depended on the deployment of Information Technology and that the patients' information system budget for Medical Center is by far larger than that of any other industry in Nigeria. He contended that On-line system has facilitated Internet Medical Center in Nigeria as evidenced in some of them launching websites. He found also that Medical Centers now offer clients the flexibility of operating an account in any branch irrespective of which branch the account is domiciled. Cashless transactions were made possible in our society of today.

Circulating records

Tracking the record while Integrated Patients' Information Management Systems model is away from the normal storage area is referred to as circulation. Often this is handled by simple written recording procedures. However, many modern records environments use a computerized system involving bar code scanners, or radio-frequency identification technology (RFID) to track movement of the records. These can also be used for periodic auditing to identify unauthorized movement of the record (Parasuraman, 2001).

Electronic health records can also open communication with patients through online secure portals and reception area kiosks. Biddles et al (2001), these encourage patient partnering by allowing patients to enter personal or medical history information, make appointments, request refills on prescriptions, or obtain laboratory results. These kiosks and web portals can also be made interactive so patients may receive targeted education materials and other information (5).

Tracking and Reporting

The ability of an information system to store and retrieve data makes Integrated Patients' Information Management Systems model a logical tool to improve the quality of patient care. Using an EHR can consolidate patient information, such as diagnosis, medications, and test results, which may enable providers to deliver safer, more effective health care. Decision-making support, such as prompts and reminders when tests are due or when specific care does not meet guidelines, provides the medical center with a tool to provide quality care. Moutinho (2011), the enhanced ability of a health care provider to clearly document all aspects of the encounter using an EHR may also ensure proper billing and coding to optimize reimbursement. Outside the

patient encounter, EHRs may improve tracking for patient follow-up care, especially with missed appointments. They can also flag abnormal test results and store information about a patient's symptoms. Obeng (2010), in addition, a well-designed EHR will enable providers to search for specific patient populations to ensure that quality measures (such as mammograms, Pap tests, or hemoglobin A_{1C} assessments) are up-to-date.

Improve Health Care Delivery and Office Efficiency

Office efficiency and the ability to streamline work-flow processes may improve with the use of EHRs because of timely access to medical records, especially to records at multiple or remote locations. Doyle (2001), this cross-over frequently occurs between inpatient and ambulatory care settings. Improved efficiency can translate into increases in direct patient care time, and in the accuracy, legibility, and completeness of the data entered into an EHR (6). According to Nickerson (2000), the improvement of office efficiency and the availability of legible documentation may also improve billing efficiency, generate referrals, and increase office revenue. This is possible because the system provides clear, timely, and legible documentation to support expanded team initiatives.

Changes in Work Flow

Changes in work flow and redistribution of existing work have impeded the adoption of EHRs. Crawford (2005), whether Integrated Patients' Information Management Systems model is order entry or retrieval and viewing of information, these processes are more intricately related to the documentation process of physicians. The design of many vendor-provided EHRs adds structure to this process, which may not always be intuitive to the user. The system may be difficult to learn and the practice may be less productive as the new technology is assimilated, especially at the outset (8). Additional staffing resources may be necessary until the system is fully implemented. (Briner et al, 2013).

The change of the Medical Center's focus from the patient to a machine is also a concern. This may even detract from the patient encounter and may, at least temporarily, result in a decrease in the number of patients seen. Patients' information system may also have an effect on residents and students. Dabholkar (2015), this may reduce the learning potential of a patient encounter as residents become more focused on placing orders or typing notes rather than obtaining a detailed medical history and performing an adequate physical examination. Patients' information system is important for all health care providers to understand that even the best EHRs are not a substitute for listening to patients. Appropriate placement of the computer screen during the patient encounter may also improve the communication process.

The Joint Commission's Sentinel Event Alert 42, Safely Implementing Health Information and Converging Technologies, and outlines the effect technology can have on health care processes, work flow, and safety (9). Bimil (2002), various technology-related adverse events already have been reported to the U.S. Food and Drug Administration, including medication errors, confusion between patient records, loss of information or corruption of data, and software incompatibility.

Keys to Implementation

A key to implementation is to identify champions or leaders among health care providers who can bridge the training programs from the vendors to the health care providers. Farhoomand (2011), these champions need to continuously engage in improving systems and related work-flow processes to make them more effective and efficient. There are few things that can undermine the use of EHRs faster than a system that is unreliable, slow, or unable to take advantage of new, powerful advances in health care information systems.

Acceptance of EHR implementation within an institution is facilitated when a single, specific program is installed across a network of computers, along with the establishment of an information technology support department provided by the organization. Lang et al (2000), this allows uniformity of communication and a complete interface between group practices and the institution. More importantly, Integrated Patients' Information Management Systems model allows the institution to provide an information technology support department, through partnership with a particular vendor. The members of the information technology department can

meet with medical center regularly to review usage, navigation, and updates to the system. Also, the information technology support department should be available, at any time, for immediate consultation to troubleshoot any system problems, such as retrieval of lost data due to power outages, or to assist the medical center in efficiently using the system. Frank (2004), the efficiency of the department is dependent on how well Integrated Patients' Information Management Systems model can train and assist medical center, along with upgrading the system as problems or inefficiencies are discovered. Efficiency is maximized when the information technology support department includes vendor-supported personnel who are able to adapt the software for the institution.

Need for Patient Information

The American College of Obstetricians and Gynecologists holds patient privacy and the confidentiality of a patient's medical records in the highest regard and respects the fundamental right of an individual patient to make her own choices about her health care. Gally et al (2003), protecting patients' health information is of paramount importance. Electronic record keeping within a physician's office can make a patient's medical record more secure. Health information technology systems can block unauthorized viewers and keep track of when and by whom a record was viewed.

Health information technology systems should be compatible with the requirements of the Health Insurance Portability and Accountability Act and flexible enough to accommodate state privacy laws, a particular concern for adolescent care, assisted reproductive technology, and genetic testing. Health information technology systems must integrate these various rules (Oliver, 2000).

There are compelling reasons why physicians should have access to shareable, complete medical records. But there are also compelling reasons, based on respect for patients' privacy and right to make their own health decisions, for limiting physician access to some patient medical information. Storbacka et al (2014). In many cases, the Medical Centers benefit from Integrated Patients' Information Management Systems model derived from a physician's knowledge of sensitive personal health information may not be significant enough to outweigh the patient's need for confidentiality and privacy. At one end of the continuum, patients would have no

control over the content of or access to their records, and all of the patient's physicians would have full access to all of the patient's medical information. At the other end, a patient may wish to block access to or delete important information from his or her medical record, leaving physicians with only some information.

The American College of Obstetricians and Gynecologists has strong concerns about allowing patients to delete information from their records entirely or to block provider access to any information in their records. Reddy (2000), the Health Insurance Portability and Accountability Act allow patients to request that inaccurate information be corrected, but not to demand changes for other reasons. Blocking access to selected information gives the patient significant control over her record, but could also hinder a physician's ability to provide the best patient care. The American College of Obstetricians and Gynecologists supports patients being active health care clients but recognizes the importance of physician access to medical information for accurate diagnosis and treatment. (Reddy, 2000)

Because of the unique nature of the practice of obstetrics and gynecology, Integrated Patients' Information Management Systems model is difficult to develop an EHR capable of following the flow of a prenatal record with its frequent encounters and timely laboratory testing, imaging, and counseling. Leow (2013), all of these encounters need to be continually accessed most easily on a single screen within a problem-oriented chart that is automatically populated from multiple areas of care, including laboratory and radiology results, office visits, and labor and delivery. In addition, EHRs need to provide a safety net with medical center decision support to aid busy providers with alerts and guideline compliance assistance.

The use of Integrated Patients' Information Management Systems model may improve health care quality; however, more studies need to be conducted to examine the benefits of the EHR and its effect on improving patient safety and health care outcomes. Jahangir (2002), many of the analyses conducted to date are through single-site studies and national estimates are based on extrapolations from these single-site studies). As data demonstrating the benefits of EHR use become available, including improved communication across the continuum of care, improvements in patient outcomes, and reduction in medication errors or lower readmission rates, the need for health care information technology will become obvious. Using an EHR as a

real-time, evidence-based support tool can help busy obstetrician–gynecologists improve the quality of the care they provide through improved health care coordination, communication, and documentation.

2.2.5. The advantages of Integrated Patients' Information Management Systems model

In the Ugandan's health sector due to competition, Integrated Patients' Information Management Systems model investments and adoption has become a very important component in achieving organizational goals. In recent past therefore, electronic and communications technologies have been used extensively in medical Center for many years to advance agenda of medical centers. The earliest forms of electronic and communications technologies used by the medical centers were mainly office automation devices. Telephones, telex and facsimile were employed to speed up and make more efficient, the process of servicing clients. However, with coming of new partners in health sector, competition intensified and the personal computer (PC) got proletarian, Uganda medical centers begun to use them in back-office operations and later tellers used them to service clients. Parasuraman (2001), the advancements in computer technology have led to application and adoption of new patients' information system investments that have changed the medical center landscape in the country.

According to Joseph et al (2003), the fast-changing competitive environment, globalization, economic changes, regulation, privatization and the like demands that Medical Centers are run efficiently and effectively by continuously engaging in technological innovations. Emergence of new technologies, products, markets and competitors places demand on any organization to apply any skills necessary to remain competitive and achieve competitive advantage. Moutinho (2011), every well managed medical center to undertake technological innovations which will enable Integrated Patients' Information Management Systems model to have a competitive edge over the others. These innovations are intended to facilitate a firm's sustainability in the face of growing competition and external threats. The information and communication technologies are revolutionizing the medical center sector over the years. The rapid development and commercialization of Information and Communication Technologies (ICTs) health sector has prompted medical centers to increasingly adopt these technologies. Bratteteig (2008) this is based on the expectation that the new ICT based technologies and processes would lead to an

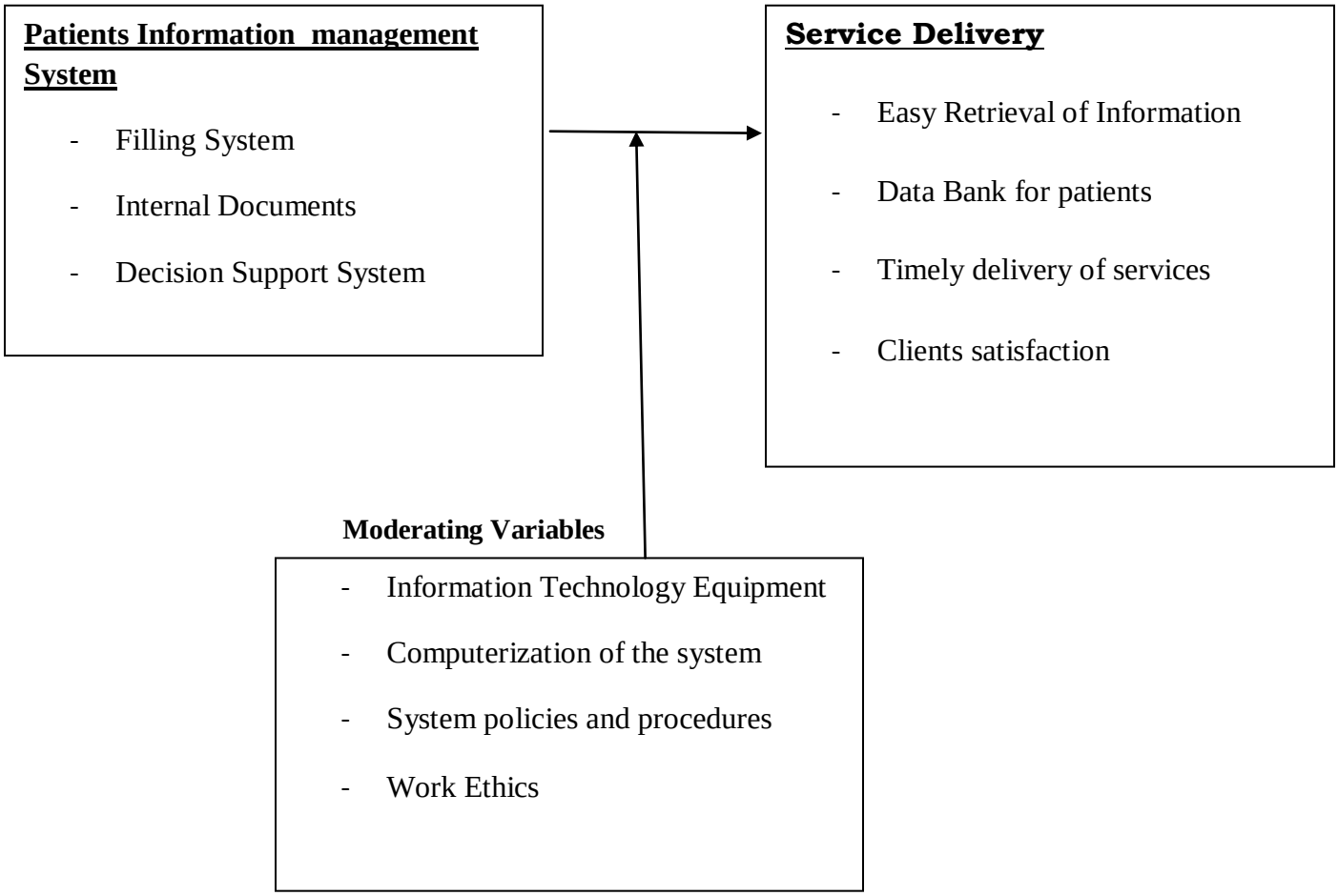
improvement in their operating efficiencies and customer service levels. When clients evaluate the quality of the service they receive from medical center institution they use different criteria which are likely to differ in their importance, usually some being more important than others. While several criteria are important only a few are most important. These determinant attributes are the ones that will define service quality and hence customer satisfaction from the client's perspective (Nickerson (2000).

The health sector has already been depicted (Parasuman et al., 2001) as exhibiting little market orientation and fulfilling services with little regard to customer needs as well as including branches dissimilar in efficiency. Long lines, limited time for customer servicing, transaction errors, excessive bureaucracy, and security and network failures have been said to be the most frequent problems using medical center services. This highly lower customer's perception on the quality of service offered and hence reduces customer satisfaction and the Medical Center's profitability and credibility. One question relates to whether automated, telephone and Internet medical center represent positive change and are satisfactorily serving the clients. Whilst technology can save time and money and eliminate errors, thereby addressing certain issues associated with changing cultural and social trends, Integrated Patients' Information Management Systems model can also minimize direct customer interaction and any associated service value to be gained (Olivier, 2000).

ICT directly affects how managers decide, how they plan and what products and services are offered in the health sector. Integrated Patients' Information Management Systems model has continued to change the way Medical Centers and their corporate relationships are organized worldwide and the variety of innovative devices available to enhance the speed and quality of service delivery (Frank, 2004).However, most research about innovation focused on manufacturing industries though increasing attention has been paid to innovation in service industries recently (Mugambi, 2009).

2.4. Conceptual frame work

INDEPENDENT VARIABLES **DEPENDENT VARIABLES**



Source: Author, 2017

Figure 2.1Conceptual frame work

Figure 2.1 presents patients information management system as independent variable and its elements include filling system, internal documents and decision support system lead and service delivery as dependent variable and its elements are time delivery of services, easy retrieval of information and data Emmanuel Medical Center for patients. However, there is need for equipment; system policies and procedures and work ethics in order to link the two.

CHAPTER THREE: METHODOLOGY

3.1. Introduction

This chapter described the procedures that have been followed in conducting the study. Patient's information system also indicates the limitations of the study.

3.2. Research design

The study employed a descriptive approach that looked at patients' information management systems and service delivery at Emmanuel Medical Center. This approach was preferred because it describes the characteristics that are inherent in and outside an organization that may affect the service delivery at Emmanuel Medical Center despite employing a process orientation approach. According to Gronroos and Christin (2006), descriptive studies tries to highlight and find out, who, what, where, when or how much. They further argue that descriptive studies try to understand the happenings in the society by measuring the frequency of an activity by a particular individual. Descriptive studies assist in identifying and comparing the relationships between variables. The study used a cross sectional study design and this because the researcher wants to gather data once over a period of time in order to answer the research questions.

3.3. Study Population

The study population included 42 patients, 5 nurses, 2 doctors, 1 cashier , 2 records management 2 laboratory department, 5 Cleaners, 2 Reception, 2 Scanning, and 1Radiography hence a total of 64.

3.4. Sample size determination

The study sample size was 55 respondents, Sekaran (2003) contends that, a sample size larger than 30 but less than 500 is appropriate for most studies and this is in agreement with the current study.

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

Where, N is the target population,
n is the sample size

e, is the level of statistical significance which will be 0.05 for purpose of this study.

$(e)^2 = 0.0025$

For this case:

N = 64

$$n = \frac{64}{1+64(0.0025)}$$

$$\frac{64}{1.116}$$

$$n = 55$$

Also Rose (2000) who says that for a large population a sample size of 30 and above was adequately considered to be a large sample. The distribution of the population and sample size is indicated in the table 3.1:

Table3.1. Sample size and sampling techniques

Position	Population	Sample size	Sampling technique
Patients	42	36	Simple random
Scanning	2	2	Census
Radiography	1	1	Census
Reception	2	2	Census
Cleaners	5	2	Simple random
Doctors	2	2	Census
Nurses	5	5	Census
Cashier	1	1	Census
Laboratory department	2	2	Census
Records management	2	2	Census
Total	**64**	**55**	

Source; Primary data (2018)

3.5. Sampling procedure

The following sampling procedures were used by the researcher to select the sample while in the field:

3.5.1. Census Sampling

A census is a study of every unit, everyone or everything, in a population. It is known as a complete enumeration, which means a complete count Sekran (2003). When a population has been identified a decision needs to be made and taking a census sample is a more suitable option. This method was used because it provides a true measure of the population (no sampling error). It also provides a benchmark data that may be obtained for future studies, and further provides detailed information about small sub-groups within the population that would have been neglected.

3.5.2. Simple random sampling

Random sampling was used to select respondents from the study population by chance. In this process every respondent had an equal chance of being included in the sample and this was applied to accessible beneficiaries.

3.7. Data collection methods

3.7.1. Interviews

Interviews are one-on-one question and answer sessions and provide much information from a small number of people besides being useful when one wants to get an expert opinion on a subject. The researcher assumes that in one on one interview, people discuss their ideas openly. The researcher carried out face to face interviews with the respondents and this helped to obtain data that could not be collected by the use of questionnaire**.** The researcher carried out interviews with management and as they manage patients, therefore they were the best people to discuss the contribution of Integrated Patients' Information Management Systems model to service delivery. The researcher was able to get more subjective answers to the questions, which would not be possible with questionnaire forms.

3.7.2. Questionnaire

A questionnaire is a series of questions designed to obtain statistically useful information about a given topic (Groonos, 2007). Questionnaire was preferred because it was an appropriate instrument for any survey research and is popular with researchers because information can be obtained fairly, easily and the questionnaire responses are easily coded.

3.8. Data collection Instruments

The self administered questionnaire and interview guide were the major primary data (2018) collection instrument;

3.8.1. The self-administered questionnaire (SAQ)

The self-administered questionnaires with questions reflecting on the study objectives containing questions on Integrated Patients' Information Management Systems model and service delivery was forwarded to respondents. A pilot test of the questionnaire was conducted prior to administration using key staff with experience in the service delivery.

The self administered questionnaire is preferred because it is an appropriate instrument for any survey research. The questionnaire contained statements requiring the respondents to opt for one answer out of five which was designed using the likert scale. Questionnaires were appropriate for this study because respondents filled them at their own convenience and they were also appropriate for the large sample. All questions were close-ended. However, the major weaknesses of questionnaires was that they do not provide detailed information to the problem and this is why there were substantiated with documentary reviews on available literature on Integrated Patients' Information Management Systems model and service delivery.

3.8.2. Interview guide

The researcher used interview guide to collect data from respondents of Emmanuel Medical Center. The interview guide was preferred because most respondents have no fixed places where questionnaires could be delivered and picked later. This method was also preferred because

Integrated Patients' Information Management Systems model gives the subject a wide range of responses and thus allows the collection of rich data.

3.9 Validity and Reliability of research instruments

3.9.1. Validity

Mugenda (1999) defines validity as the accuracy and meaningfulness of inferences, which are based on the research results. Validity of instruments was ascertained by discussing the questionnaire drafts with the supervisor. The study also provided the possibility to answer the questionnaire anonymously.

3.9.2. Reliability

Reliability is a measure of the degree to which a research instrument yields consistent results or data after repeated trials (Mugenda, 2009). The reliability of instruments was established basing on the preliminary results derived from the pilot study. The study instruments were set for the pilot run. Results realized were discussed with the supervisor before the content reliability of the instrument was accepted. The research was conducted early enough and the survey was handed out to respondents for at least three weeks. This time-period was long enough to collect reliable results.

3.10. Data Collection Procedure

A supporting letter from the school signed by dean was attached to the questionnaire explaining the objectives of the research. The cover letter assured the respondents of confidentiality of the data that they provided.

3.11. Data analysis and processing

3.11.1. Analysis of quantitative data

The relationship between Integrated Patients' Information Management Systems model and service delivery in Emmanuel Medical Center was evaluated using Pearson's regression analysis and this helped to determine the strength of the association between two variables. Data from

questionnaires was presented in form of frequency tables and percentages using Statistical Package for Social Scientists (SPSS). The method for calculating the correlation coefficient standardizes the variables and therefore any changes in scale or units of measurement does not affect its value.

3.11.2. Analysis of qualitative data

Qualitative data was descriptive and obtained from interviews, open ended questions and review of documents. The data was presented in accordance with the objectives of the study and helped to substantiate findings from quantitative data. For the case of the qualitative data, the responses obtained were categorized into common responses.

3.11.3. Data Processing

Data collected from the field was put together, carefully examined, organized, sorted, edited, coded and tabulated with the aim of checking errors to enable reliable analysis.

3.11. Ethical consideration

The researcher assured the respondents of confidentiality of the information obtained from the field. The researcher submitted an introduction letter to the respondents to re-assure them of confidentiality of the information they will provide.

3.12. Limitations of the study

i). Time

The study required a lot time to conduct the research yet the researcher has other commitments like work, tests and examinations during the same period. However, this was handled by making and strictly following a time table.

ii). Secrecy

The area of study was perceived as sensitive by many organizations because Integrated Patients' Information Management Systems model involves matters of secret information that could not be revealed. This was overcome by assuring the respondents of their anonymity and proving to them that the study was strictly for academic purposes. Most respondents were busy because of the nature of their work. This was solved by scheduling appointments with them at their own most appropriate time.

iii). Finance

The researcher incurred a lot of expenses, collecting data from the field yet there were limited financial resources at his exposure for example some respondents demanded some money from him so that they give him data.

CHAPTER FOUR: DATA PRESENTATION, INTERPRETATION AND ANALYSIS

4.0. Introduction

This chapter presents the data presentation, interpretation and analysis

4.1. Background information of respondents

The background information of respondents include: Gender, marital status, age group of respondents, highest qualification attained and period of service

4.1.1 Gender of the respondents

Respondents were asked to state their gender and the responses are presented in the table 4.1:

Table4.1: Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	26	47.3	47.3	47.3
	Female	29	52.7	52.7	100.0
	Total	55	100.0	100.0	

Source: Primary data (2018)

From the table 4.1, majority of the respondents 52.7% were generally female and 47.3% were male. The female were generally more than male although the male were adequately represented. This is so because women tend to be more effective and efficient while doing their work, thus making Emmanuel Medical Center to employ more females than males. In addition, females were accessible and willing to participate in the study.

4.1.2 Marital status

Respondents were asked to state their marital status and the responses are presented in the table 4.2:

Table4.2: Marital status?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Married	19	34.5	34.5	34.5
	Single	24	43.6	43.6	78.2
	Divorced	12	21.8	21.8	100.0
	Total	55	100.0	100.0	

Source: primary data (2018)

From the table 4.2, majority of the respondents 43.6% were single. However, 34.5% were married and 21.8% were divorced. This implies that, the employees of Emmanuel Medical Center are equally and relatively distributed.

4.1.3 Age group of respondents

Respondents were asked to state their age group and the responses are presented in the table 4.3

Table4.3: Age group

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	20-29 years	23	41.8	41.8	41.8
	30-39 Years	16	29.1	29.1	70.9
	40-49 Years	8	14.5	14.5	85.5
	50 years & above	8	14.5	14.5	100.0
	Total	55	100.0	100.0	

Source: primary data (2018)

The table 4.3, 41.8% of the respondents were between 20 to 29 years, 29.1% were between 30-39 years, 14.5% Were between 40 to 49 years and 14.5% were 50 years and above of age. Generally most employees of Emmanuel Medical Center were under the age bracket of 20-29 years. This implies that, Emmanuel Medical Center employs young men and women because people in this age bracket tend to be more focused and energetic to work harder which enhances organizational performance.

4.1.4 Highest qualification attained

Respondents were asked to state their highest qualification attained and the responses are presented in the table 4.4

Table4.4: Highest qualification attended

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	PhD	-	-	-	0
	Masters	5	9	9	9
	Bachelor's	8	15	15	24
	Diploma	10	18	18	42
	Certificate	12	22	22	64
	Below a certificate	20	36	36	100.0
	Total	55	100.0	100.0	

Source: primary data (2018)

From the table 4.4, majority of the respondents 32.7% were bachelor's holders. However, 0% were PhD holders, 9% were master's holders, 15% were bachelor's, 18% were diploma holders, 22% were certificate holders and 36% were below certificate. This implies that, Emmanuel Medical Center employs qualified employees to run the Emmanuel Medical Center operations. This indicates that, the respondents have the necessary skills and knowledge to provide this study with the necessary information needed.

4.1.5 Period of service

Respondents were asked to state their period of service and the responses are presented in the table 4.5;

Table4.5: Period of service

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 year	3	5.5	5.5	5.5
	2-5 years	24	43.6	43.6	49.1
	5-10 years	15	27.3	27.3	76.4
	10 years & above	13	23.6	23.6	100.0
	Total	55	100.0	100.0	

Source: primary data (2018)

The above 4.5 shows the length of employment of respondents at Emmanuel medical center. The results indicate that 5.5% of the respondents had worked for 1 year of service, 43.6% for 2-5 years, 27.3% for 5-10 years and 23.6% had worked for 10 years and above. The results indicate that most of the respondents involved in the study had worked for 2-5 year at Emmanuel medical center. This duration of service is enough for the respondents to be familiar with the operation and culture of Emmanuel Medical Center and they are to give relevant information on the organization.

4.2. THE PATIENTS INFORMATION SYSTEM USED BY EMMANUEL MEDICAL CENTER

4.2.0. Introduction

This section presents findings on the patients information system used by emmanuel medical center

4.2. 1. Patient's records are taken on admission

Patient admission records are part of a medical record that documents the patient's status, reasons why the patient is being admitted for inpatient care to a center or other facility, and the initial instructions for that patient's care.

The study asked respondents whether patients' records are taken on admission to the center. The results are shown in the table 4.6.

Table4.6: Patients records are taken on admission to the center

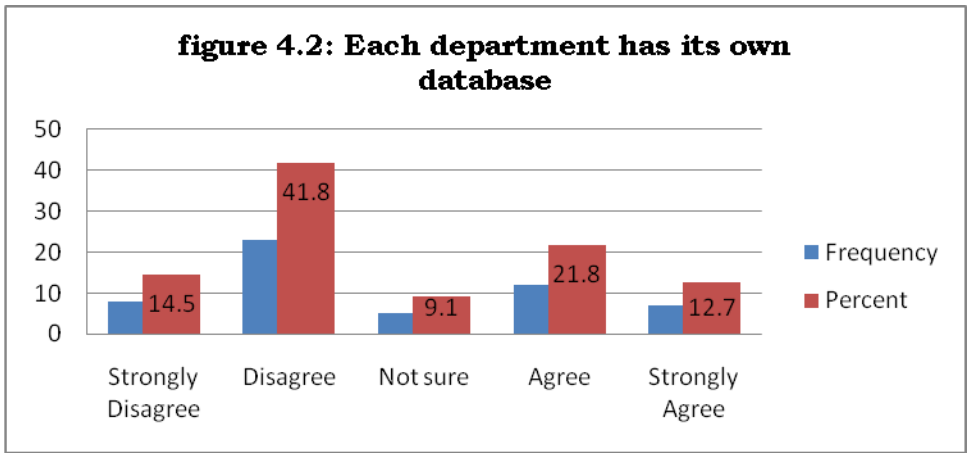
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	21	38.2	38.2	38.2
	Not sure	4	7.3	7.3	45.5
	Agree	26	47.3	47.3	92.7
	Strongly Agree	4	7.3	7.3	100.0
	Total	**55**	**100.0**	**100.0**	

Source: primary data (2018)

According to the table 4.6, 21(38.2%) disagreed, 4(7.3%) were not sure, 26(47.3%) agreed and 4(7.3%) strongly agreed. Majority of the respondents 54.6% generally agreed that patients' records are taken on admission to the center. This implies that, Emmanuel Medical Center records all information about new entrants/ inpatients in to the medical center. However, 38.2% of the respondents disagreed. Therefore, the Emmanuel Medical Center should register all inpatients while naming why a patient is being admitted for inpatient care or other facility, the patient's baseline status, and the initial instructions for that patient's care.

4.2.2. Departmental data base

A database is an organized collection of data. The data are typically organized to model relevant aspects of reality in a way that supports processes requiring this information. The study asked respondents whether each department has its own data base. The results are indicated in the figure 4.2:



Source: primary data (2018)

Figure4.2 each department has its own database

According to the table 4.7 and figure 4.2, 14.5% strongly disagreed, 41.8% disagreed, 9.1% were not sure, 21.8% agreed and 12.7% strongly agreed. Majority of the respondents 56.3% generally disagreed with the statement that there is no departmental data base for patients' information. It was revealed that Emmanuel Medical Center has no single computerized data base where patients' records can be recorded and stored. However, 9.1% of the respondents were not sure and 34.5% agreed, therefore, Emmanuel Medical Center should implore each department to design a data base for all records attained. It should be noted that, data and information management isn't just the responsibility of the organization IT department; it affects everyone in an organization. It determines how well a particular department of individual communicates with the patients, how safe and secure data is, how safe the customers are, and how efficiently everyone can meet their goals and achieve performance metrics.

4.2.3. Soft and hard copies data base

Databases are created to operate large quantities of information by inputting, storing, retrieving, and managing that information. The study asked respondents whether the data base exists in both the soft and hard copies. The results are indicated in the table 4.7:

Table4.7: The data base exists in both the soft and hard copies

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	10	18.2	18.2	18.2
	Disagree	20	36.4	36.4	54.5
	Not sure	9	16.4	16.4	70.9
	Agree	10	18.2	18.2	89.1
	Strongly Agree	6	10.9	10.9	100.0
	Total	55	100.0	100.0	

Source: primary data (2018)

According to the table 4.7, 10(18.2%) disagreed, 20(36.4) disagreed, 9(16.4%) were not sure, 10(18.2%) agreed and 6(10.9%) strongly agreed. Majority of the respondent 54.5% generally disagreed that, the data base exists in both the soft and hard copies. This implies that, to a big extent Emmanuel Medical Center data base is in hard copy. However, 29.1% agreed. Therefore, Emmanuel Medical Center should adapt to soft copy record keeping such as videos because, it is cheap in terms of accessibility. Training should be done to all employees so to enable them understand how they can properly manage the documents or records in this technological environment.

4.2.4. Provides patients records on request

Keeping it all in one place is useful because it allows for easier updating no need to run to different places to make sure all the info is current. The study asked respondents whether patients' records are provided on request. The results are indicated in the table 4.8:

Table4.8: Patients' records are promptly provided on request

	Frequency	Percent	Valid	Cumulative Percent

				Percent	
Valid	Strongly Disagree	8	14.5	14.5	14.5
	Disagree	17	30.9	30.9	45.5
	Not sure	12	21.8	21.8	67.3
	Agree	11	20.0	20.0	87.3
	Strongly Agree	7	12.7	12.7	100.0
	Total	55	100.0	100.0	

Source: primary data (2018)

According to the table 4.8, 8(14.5%) strongly disagreed, 17(30.9%) disagreed, 12(21.8%) were not sure,11(20%) agreed and 7(12.7%) strongly agreed. Majority of the respondents 45.5% generally disagreed that, patients' records are provided on request. This implies that, in most cases patients' records are misplaced. The fact that, the Emmanuel Medical Center has no computerized data base, information is easily misplaced, hence data is lost. However, 32.7% agreed. Therefore, the management of Emmanuel Medical Center should properly keep its records in both soft and hard copies so as to enhance efficiency and effectiveness in providing information on request.

4.2.5. Regularly updating the data base

The updating of a customer database is a priority, but the problem is in who should be allowed to do that. Larger organizations can set it up such that different personnel or departments have varying degrees of access. The study asked respondents whether the data base is regularly updated. The results are indicated in the table 4.9:

Table4.9: The data base is regularly updated

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	16	29.1	29.1	29.1
	Disagree	18	32.7	32.7	61.8
	Agree	18	32.7	32.7	94.5
	Strongly Agree	3	5.5	5.5	100.0
	Total	55	100.0	100.0	

Source: primary data (2018)

From the table and figure 4.9, 16(29.2%) strongly disagreed, 18(32.7%) agree, 18(32.7%) agreed, and 3(5.5%) strongly agreed. Majority of the respondents 61.8% generally disagreed that the data base is regularly updated. This implies that, Emmanuel Medical Center has no specialist to operate the data base and make it run effectively. Therefore, the management of Emmanuel Medical Center should regularly update its data base so as to make sure that the database is backed-up regularly, so that if the main one is damaged or disappears, the center doesn't need to start from scratch.

4.2.6. Professional preparation of the data base

Data Preparation involves checking or logging the data in; checking the data for accuracy; entering the data into the computer; transforming the data; and developing and documenting a database structure that integrates the various measures. The study asked respondents whether the data base if professionally prepared. The results are indicated in the table 4.10:

Table4.10: The data base is professionally prepared

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	11	20.0	20.0	20.0
	Disagree	14	25.5	25.5	45.5
	Not sure	5	9.1	9.1	54.5
	Agree	16	29.1	29.1	83.6
	Strongly Agree	9	16.4	16.4	100.0
	Total	55	100.0	100.0	

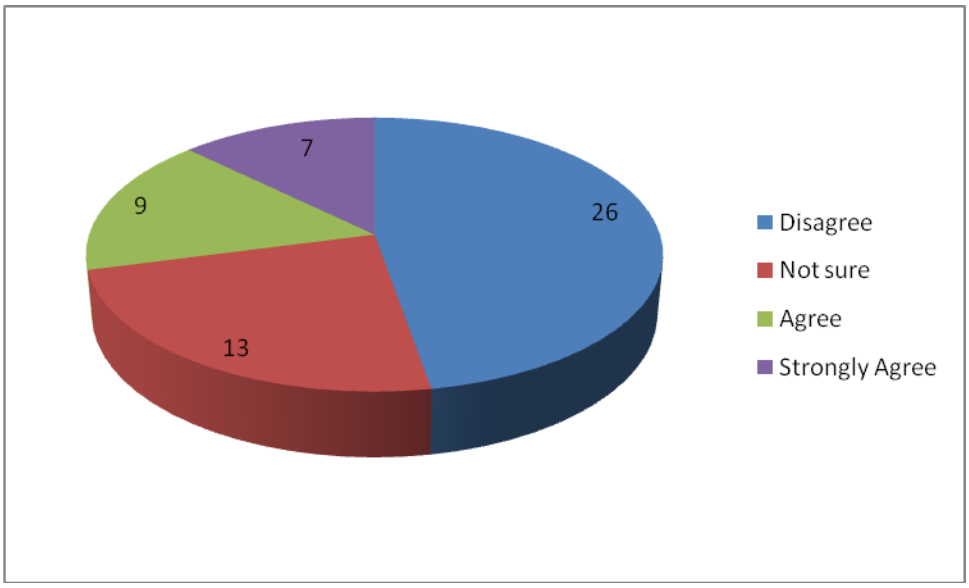
Source: Primary data (2018)

Form the table and figure 4.10, 11(20%) strongly disagreed, 14(25.5%) disagreed, 5(9.1%) were not sure, 16(29.1%) agreed and 9(16.4%) strongly agreed. Majority of the respondents 45.5% generally disagreed that, the data base is professionally prepared. This implies that, the data is not kept in professional programs like SPSS, SAS, Minitab, Data desk and running simple descriptive analyses to get reports on data status. However, 45.5% of the respondents generally agreed. The management of Emmanuel Medical Center needs to set up a procedure for logging in the information and keeping track of it until it is ready to do a comprehensive data analysis. Therefore, the Emmanuel Medical Center needs to set up a database that will enable it you to assess at any time what data is already in and what is still outstanding.

4.2.7. Data base security

Database security concerns the use of a broad range of information security controls to protect databases against compromises of their confidentiality, integrity and availability. The study asked respondents whether the data base is carefully safeguard against intrusion and hacking. The results are shown in the figure 4.3:

Figure 4.3: The data base carefully safeguards intrusion and hacking



According to the figure 4.3, 26(47.3%) disagreed, 13(23.6%) were not sure, 9(16.4%) agreed and 7(12.7%) strongly agreed. Majority of the respondents 47.3% generally disagreed that the data base is carefully safeguard against intrusion and hacking. This implies that, Unauthorized or unintended activity or misuse by authorized database users, database administrators, or network/systems managers, or by unauthorized users or hackers is witnessed at Emmanuel medical center. However, 29.1% agreed, therefore, Emmanuel Medical Center should ensure maximum security to its databases from hackers through network security measures such as firewalls, and network-based intrusion detection systems which can be provided by integrated patients' system.

4.2.8. Data capturing

Data Capturing involves the transforming of written or typed data from hard copies to computerized media. The study asked respondents whether the data in the Emmanuel Medical Center is captured using a cauterized system. The results are indicated in the table 4.11:

Table4.11: The data in the center is captured using a computerized system

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	18	32.7	32.7	32.7
	Disagree	24	43.6	43.6	76.4
	Not sure	1	1.8	1.8	78.2
	Agree	12	21.8	21.8	100.0
	Total	55	100.0	100.0	

Source: primary data (2018)

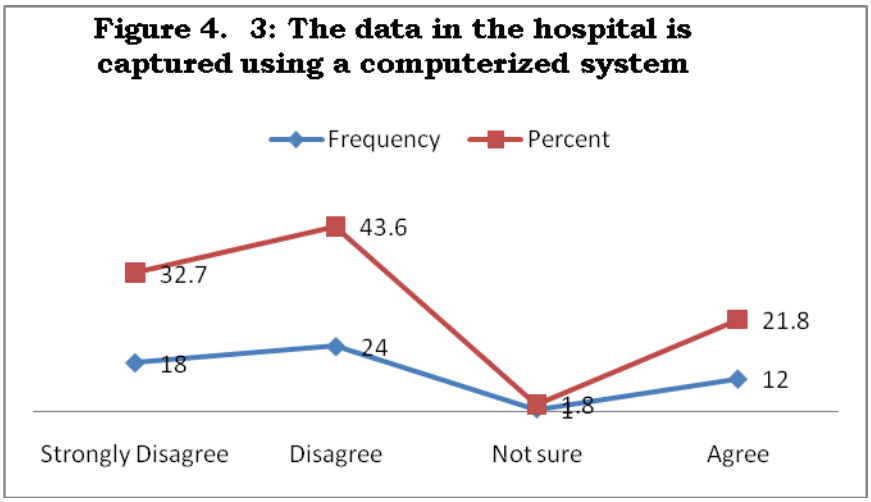
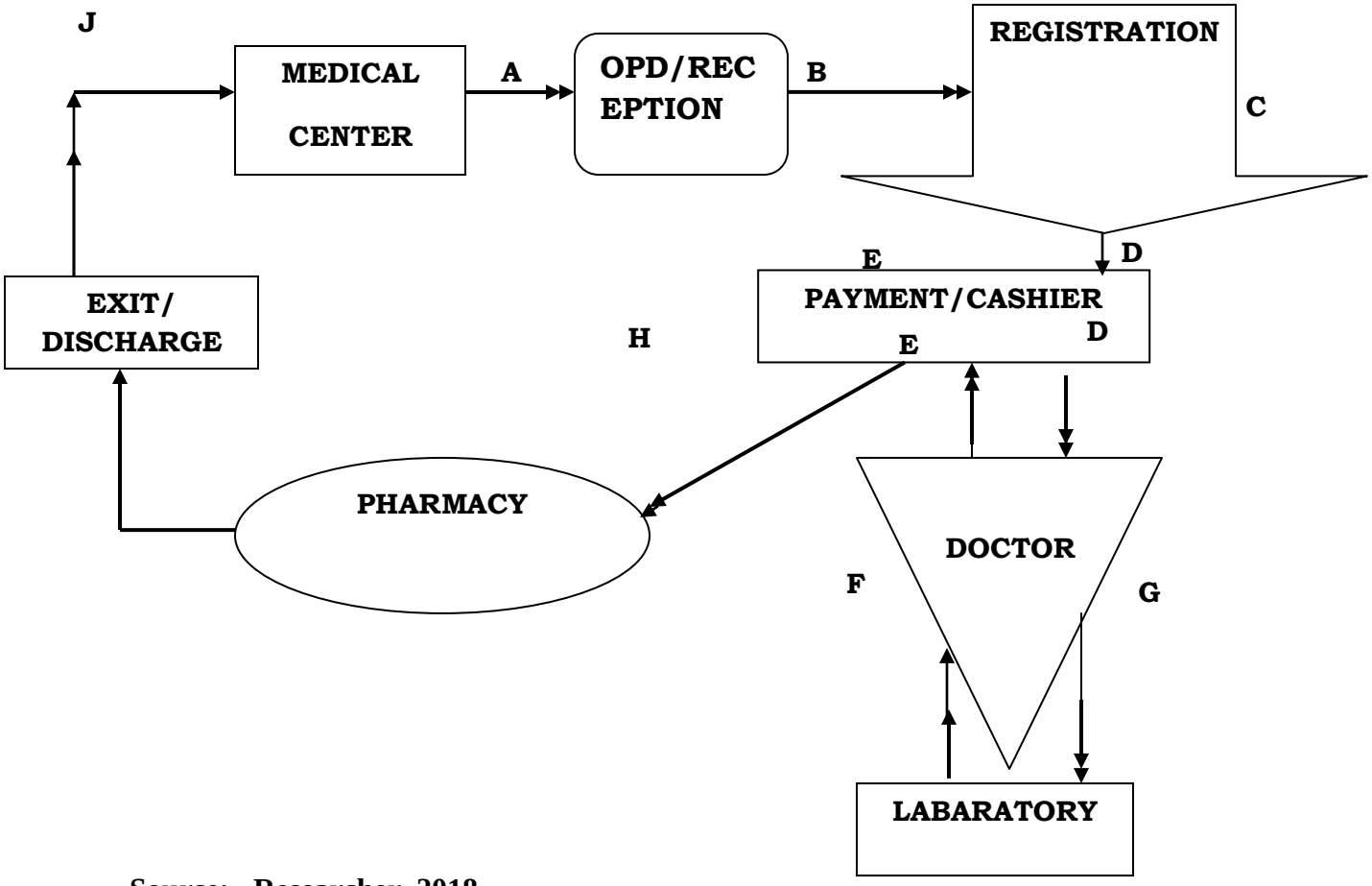


Figure4.3. The data in the hospital is captured using a computerized system

From the table 4.11 and figure 4.3, 18(32.7%) strongly disagreed, 24(43.6%) disagreed, 1(1.8%) were not sure and 12(21.8%) agreed. Majority of the respondents 76.4% generally disagreed that; the data in the Emmanuel Medical Center is captured using a computerized system. This implies that, Emmanuel Medical Center uses off line capturing services. Therefore, Emmanuel Medical Center should employ the use of computers when capturing data, because the captured data can be presented to the client virtually using the same storage medium, including stifles, compact disc, or by using e-mail, direct data communication, dial-up connection and File Transfer Protocol (FTP).

4.3. THE INTEGRATED PATIENTS' INFORMATION MANAGEMENT SYSTEMS MODEL MODEL (IPIMS)

Fig 4.4. The model illustrates the integrated patients' information system that is needed by Emmanuel medical center. This will help to capture patients' information as they arrive at the medical centers and in return it will increase speed and accuracy. Perhaps this will need skilled and professional staff to handle the system.



Source: Researcher, 2018

Figure4.4: Integrated Patients' Information Management Systems model for Emmanuel medical center

KEY:

A - Queue of patients

B - Patients are directed to go and pay for registration in the Daily patient's records

C - Nurse/ Registrar then send the Patients to Cashier to pay for Consultation fee before they see the Doctor.

D - Patients report to the doctor after payment of consultation fee.

E - After consultations from the doctor, Patients are there after Sent back to the

F - Cashier to pay OR to the

G - Laboratory fee or to proceed

H - To the pharmacy for medication

I - Patients are then Discharged after being given medication and Can either remain at their homes since they are Ok or

J - Return to Emmanuel Medical Center for review or for other consultations.

The above recommended model once adopted, will reduce the time patients spend at Emmanuel medical center, patients' information will be easily retrieved and even the operational efficiency will be improved thus improving service delivery.

4.3. Harmonization of patients' information system and service delivery

4.3. 0. Introduction

This chapter seeks to examine Harmonization of patients' information system and service delivery

4.3.1 The patients' information system used by Emmanuel medical center

The study revealed that patient's information system at Emmanuel Medical Center is both in the in-patient and out-patient departments. On arrival at the medical center, patients first visit the unit for registration and issuance of medical cards. Medical cards issued at the records are brought to both in-patient and out-patient departments so as to be sent to the consulting rooms. This unit also saves as the front desk where enquiries are made. All cases that are brought to the Emmanuel Medical Center are first seen and triaged at the patients' general room. Emergency cases are sent to the emergency room and the other cases are sent to the consulting rooms to be seen and treated.

The study further found out that Emmanuel Medical Center has a particular office that keeps information. It has a data base for all the operations in the medical center. Data and information management isn't just the responsibility of the IT department; it affects everyone in an organization. It determines how well individuals communicate with the patients, how safe and secure data is, how safe the clients are, and how efficiently everyone can meet their goals and achieve performance metrics.

According to the study, it was revealed that, the data base exists in both the soft and hard copies at Emmanuel medical center. All information about patients is registered in both manual and computerized but lacking integrations. According to International Organization for Standardization (2001), Records and information management (RIM) is the field of management responsible for the efficient and systematic control of the creation, receipt, maintenance, use, and disposition of records, including processes for capturing and maintaining evidence of and information about business activities and transactions in the form of records. Records, therefore, have value and add to the intrinsic worth of the organization. Records need to be managed in a meaningful way so they can be accessed and used in the course of daily business functions

throughout the organizational environment. Therefore, Emmanuel Medical Center should adapt to soft copy record keeping because, it is cheap in terms of accessibility. Training should be done to all employees so to enable them understand how they can properly manage the documents or records in this technological environment.

The study reveals that Emmanuel Medical Center does not update its data base, as the data base is no professionally prepared. The data kept in professional programs like SPSS, SAS, Minitab, Data desk and running simple descriptive analyses to get reports on data status should be used (Wagner, 2010).The management of Emmanuel Medical Center needs to set up a procedure for logging the information and keeping track of it until it is ready to do a comprehensive data analysis. Therefore, the Emmanuel Medical Center needs to set up a database that will enable it to assess information at any time.

It further revealed that, financial transactions at Emmanuel Medical Center are done using a computerized system leaving out patients data. Therefore, Emmanuel Medical Center should employ the use of computers when capturing patients, data, because the captured data can be presented to the client on virtually any storage medium, including stifles, compact disc, or by using e-mail, direct data communication, dial-up connection and File Transfer Protocol (FTP).

4.3.2. The challenges faced by the current records information system

The study revealed that, low levels of confidentiality affect data management. Clients Data is not properly managed in Emmanuel medical center. Emmanuel Medical Center has no professional individual to operate the data base. Prince (1848) Confidentiality is commonly applied to conversations between doctors and patients. Legal protections prevent physicians from revealing certain discussions with patients, even under oath in court. This physician –patient privilege only applies to secrets shared between physician and patient during the course of providing medical care. Therefore, the management of Emmanuel Medical Center should ensure proper record management because Records management is primarily concerned with the evidence of an organization's activities, and is usually applied according to the value of the records rather than their physical format.

The study revealed that the Emmanuel Medical Center does not have well prepared ledger books. Patients' records are kept in well prepared accounting books. Emmanuel Medical Center should emphasize the keeping of patients' records in ledger books because the entries recorded in the journal are referenced into ledger the possibility of errors of defalcations are reduced to the minimum. Therefore, view its data base on a regular basis as it is a way to make more marketing endeavors at a later time. Database management provides the control over particular pieces of data that result in creating a detailed report for the end user, by manipulation the stored data to the requirements.

Majority of the respondents 56.4% generally agreed that the Emmanuel Medical Center should use better and modern integrated system. *Alexis* (nd) states that, Computers allow the application of different types of software that can help businesses keep track of their files, documents, schedules and deadlines. Computers also allow businesses to organize all of their information in a very accessible manner. The ability to store large amounts of data on a computer is convenient and inexpensive, and saves space. A computer's ability to allow medical centers to organize its files efficiently leads to better time management and productivity. Emmanuel Medical Center should employ the use of computers because they are cheap in terms of record management and time management.

4.3.3. Testing Hypothesis

In order to establish whether there is a relationship between Patient's information system and service delivery, Pearson correlation and regression analyses were performed.

Table4.12 Testing Hypothesis

		Types of patients information system	The challenges faced	Strategies that to improve service delivery	Results
Types of patients information system	Pearson Correlation	1	.969(**)	.986(**)	.953(**)
	Sig. (2-tailed)	.	.000	.000	.000
	N	100	100	100	100
	Pearson Correlation	.969(**)	1	.959(**)	.929(**)
	Sig. (2-tailed)	.000	.	.000	.000
	N	100	100	100	100
The challenges faced by the current records information system	Pearson Correlation	.986(**)	.959(**)	1	.970(**)
	Sig. (2-tailed)	.000	.000	.	.000
	N	100	100	100	100
Model	Pearson Correlation	.953(**)	.929(**)	.970(**)	1
	Sig. (2-tailed)	.000	.000	.000	.
	N	100	100	100	100

Correlations

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

Results of the correlation analysis revealed that there is a significant and positive relationship between Patient's information system and service delivery (r=0.000 P<0.976). This analysis is summarized in table below. This implies that the employees and employers of private health centers ensure high quality service delivery in their medical centers. This implies that when integrated patients information systems are used, high quality services are delivered.

Table4.13 ANOVA (b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	83.754	3	27.918	1505.522	.48
	Residual	1.780	96	.019		
	Total	85.534	99			

a Predictors: (Constant), integrated patients information management system

b Dependent Variable: service delivery.

ANOVA results also revealed that both suggestions on patients information system, challenges faced and by the suggest strategies that have been put in place to improve service delivery are all relevant with F=1505.522. The significant level of 0.48 means that integrated patients' information system contributes 48% to service delivery.

Table4.14 Coefficients (a)

Model	Standardized coefficient B Std Error	Standardized coefficient Beta	t	sig
1 (constant)	0.669	0.035	0.7165	0.000
Types patients' Information management Systems	0.200	0.63	0.57	0.000
The challenges faced by current system				
Strategies that have been put in place	0.602	0.59	0.748	0.000

4.3.4. Independent Variable: Patients' information system

Types of patients information management system (ß=0.299, t=0.716, P<0.000), the challenges faced information system (ß=0.748, t=0.57, P<0.000), Strategies, (ß=0.050, t=0.748, P<0.405).

Results from the table above indicates that, the t = values are positive (0.716, 0.57 and 0. 748) meaning that the null hypothesis was rejected.

4.4 The challenges faced by the Emmanuel Medical Center

4.4. 0 Introduction

Records management is the practice of maintaining the records of an organization from the time they are created up to their eventual disposal. This chapter seeks to examine the challenges faced by the current records information system

4.4.1. Data management

Data management is the development and execution of architectures, policies, practices and procedures in order to manage the information lifecycle needs of an enterprise in an effective manner. The study asked respondents whether low levels of confidentiality affect data management. The results are indicated in the table 4.16:

Table4.16: Low levels of confidentiality affect data management

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	16	29.1	29.1	29.1
	Disagree	5	9.1	9.1	38.2
	Agree	20	36.4	36.4	74.5
	Strongly Agree	14	25.5	25.5	100.0
	Total	**55**	**100.0**	**100.0**	

Source: primary data (2018)

From the table 4.16, 16(29.1%) strongly disagreed, 5(9.1%) disagreed, 20(36.4%) agreed and 14(25.5%) strongly agreed. Majority of the respondents 61.9% generally agreed that low levels

of confidentiality affect data management and this means that patients' data is not properly managed in Emmanuel medical center. However, 38.2% of the respondents disagreed. Therefore, the management of Emmanuel Medical Center should ensure proper record management because Records management is primarily concerned with the evidence of an organization's activities, and is usually applied according to the value of the records rather than their physical format.

4.4.2. Proper management of the data base

Data base management is a powerful resource tool for storage, retrieval, and evaluation of the business data, which permits large scale analysis of data for research purposes. The study asked respondents whether the data base is properly managed. The results are indicated in the table 4.17 and figure 4.5:

Table4.17: The data base is properly managed

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	15	27.3	27.3	27.3
	Disagree	15	27.3	27.3	54.5
	Not sure	6	10.9	10.9	65.5
	Agree	3	5.5	5.5	70.9
	Strongly Agree	16	29.1	29.1	100.0
	Total	**55**	**100.0**	**100.0**	

Source: Primary data (2018)

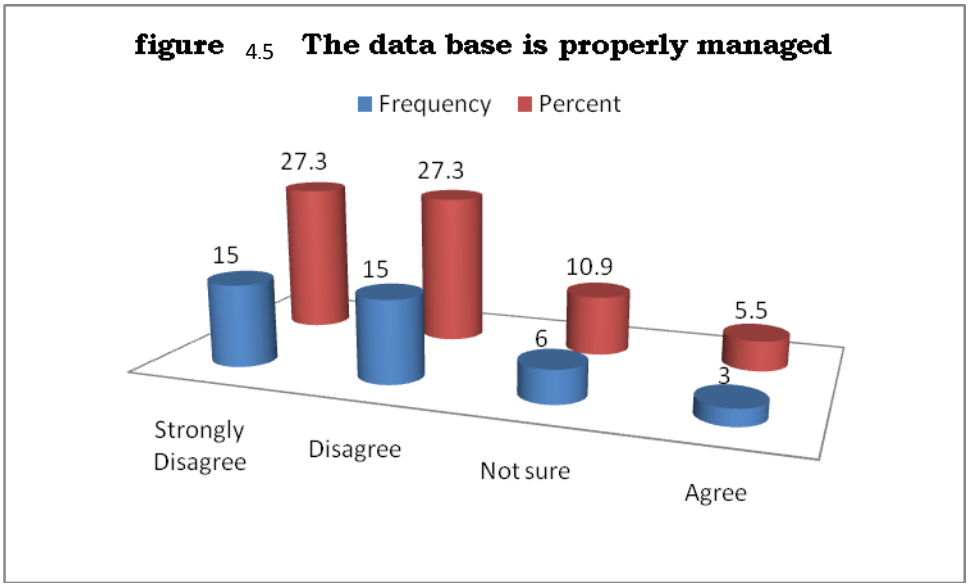


Figure4.5. The data base is properly managed

According to the table 4.17 and figure 4.5, 15(27.3%) strongly disagreed, 15(27.3%) disagreed, 6(10.9%) were not sure, 3(5.5%) agreed and 16(29.1%) strongly agreed. Majority of the respondents 54.5% generally disagreed that the data base is properly managed. This implies that, Emmanuel medical center has no professional individual to operate the data base. However, 34.6% agreed, therefore, view its data base on a regular basis as it is a way to make more marketing endeavors at a later time. Database management provides the control over particular pieces of data that result in creating a detailed report for the end user, by manipulation the stored data to the requirements.

4.4.3. Record capturing

An essential step in managing agency's business records is to capture them into a system which will appropriately manage the records and support their use over time. The study asked respondents whether patients' records are captured using exercise books. The results are indicated in the table 4.18:

Table4.18: Patients records are captured using medical cards

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	9	16.4	16.4	16.4
	Disagree	15	27.3	27.3	43.7
	Not sure	6	10.9	10.9	54.6
	Agree	20	36.4	36.4	81.9
	Strongly Agree	5	9.1	9.1	100.0
	Total	55	100.0	100.0	

Source: primary data (2018)

From the table 4.18, 9(16.4%) strongly disagreed, 15(27.3%) disagreed, 6(10.9%) were not sure, 20(36.4%) agreed and 5(9.1%) strongly agreed. Majority of the respondents 45.5% generally agreed that patients' records are captured using medical cards. However, 43.7% of the respondents disagreed and this implies that, Emmanuel Medical Center records data using both manual and computers. The study revealed that regarding capturing patients' data it does not use computers as it has no patients' data base. It was revealed that, it is mostly the financial transactions that are computerized recorded. Emmanuel Medical Center should document all changes to information made over time through metadata to reflect the state of the record at any point in time.

4.4.4. Provision of electronic health alerts

The study asked respondents whether health cards are not provided to the patients. The results are indicated in the table 4.19.

Table4.19: Electronic health alerts are not provided to patients

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	-	-	-	-
	Disagree	13	23.6	23.6	23.6
	Not sure	3	5.5	5.5	29.1
	Agree	17	30.9	30.9	60
	Strongly Agree	22	40	40	100.0
	Total	55	100.0	100.0	

Source: primary data (2018)

From the table 4.19, 13(23.6%) disagreed, 3(5.5%) were not sure, 17(30.9%) agreed and 22(40%) strongly agreed. Majority of the respondents 70.9% generally agreed that, electronic health alerts are not provided to the patients. However, 23.6% of the respondents disagreed and 5.5% were not sure. Therefore, Emmanuel Medical Center should provide electronic health alerts to its patients so as to assure them life insurance.

4.4.5. Data management is costly

Data management involves synchronizing huge quantities of variable, heterogeneous data resulting from internal legacy systems that vary in data format. The study asked respondents whether data management id costly to the medical center. The results are indicated in the table 4.20:

Table4.20: Data management is costly to the medical center

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	12	21.8	21.8	21.8
	Disagree	17	30.9	30.9	52.7
	Not sure	2	3.6	3.6	56.3
	Agree	24	43.7	43.7	100.0
	Total	55	100.0	100.0	

Source: primary data (2018)

From the table 4.20, 12(21.8%) strongly disagreed, 17(30.9%) disagreed, 2(3.6%) were not sure and 24(43.7%) agreed. Majority of the respondents 43.7% generally agreed that, data management is costly to the medical center. This implies that, the Emmanuel Medical Center faces challenges in the data management. Therefore, the management of Emmanuel Medical Center should set realistic expectations so as to minimize on the costs of data management. Legacy data must be cleaned up prior to conversion and integration, or an agency will almost certainly face serious data problems later. Legacy data impurities have a compounding effect; by nature, they tend to concentrate around high volume data users.

4.4.6. Wrong details entry

Wrong data can be entered in record books or data bases if wrong information is given. The study asked respondents whether sometimes wrong details are entered in the records system. The results are indicated in the table 4.21:

Table4.21: Sometimes wrong details are entered in the records system

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	26	47.3	47.3	47.3
	Not sure	5	9.1	9.1	56.4
	Agree	15	27.3	27.3	83.6
	Strongly Agree	9	16.4	16.4	100.0
	Total	55	100.0	100.0	

Source: primary data (2018)

From the table 4.21, 26(47.3%) disagreed, 5(9.1%) were not sure, 15(27.3%) agreed and 9(16.4%) strongly agreed. Majority of the respondents 47.3% generally disagreed that, sometimes wrong details are entered in the records system. This implies that, professional data entrants are employed in the medical center. However, 9.1% of the respondents were not sure and 43.7% agreed. Therefore, more training should be done to the data entrants so as to equip them with skills and knowledge on how to enter data in new data base software.

4.4.7. Records sometimes do not match

When wrong information is entered in to a record data base, in most cases it does not responded or match. It is referred to as forged data or information. The study asked respondents whether the records sometimes do not match with the drug and medicine dispensation and medical operations. The results are indicated in the table 4.22:

Table4.22: The records sometimes do not match with the drug and medicine dispensation and medical operations

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	11	20	20	20
	Not sure	14	25.5	25.5	45.5
	Agree	30	54.5	54.5	100.0
	Total	55	100.0	100.0	

Source: primary data (2018)

According to the table 4.22, 11(20%) disagreed, 14(25.5%) were not sure and 30(54.5%) agreed. Majority of the respondents 56.4% generally disagreed that the records sometimes do not match with the drug and medicine dispensation and medical operations. This implies that, the data entrants are careful when entering data into the computer so as to minimize on the number of chances to enter false and wrong information. The management of Emmanuel Medical Center should monitor the data entered into the computer so as to ensure accuracy.

4.4.8. Data handling

To ensure accuracy and efficiency, professional should be employed to enter data into the system. Therefore, the study asked respondents whether data in handled by inexperienced staff. The results are indicated in the table 4.23.

Table4.23: Data is handled by in experienced staff

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	29	52.7	52.7	52.7
	Not sure	5	9.1	9.1	61.8
	Agree	16	29.1	29.1	90.9
	Strongly Agree	5	9.1	9.1	100.0
	Total	55	100.0	100.0	

Source primary data (2018)

From the table 4.23, majority of the respondents 52.7% generally disagreed that data is handled by inexperienced staff. This implies that, Emmanuel Medical Center employs does not specialist in data entry so as to ensure accuracy and efficiency. However, 5(9.1%) of the respondents were not sure, 5(9.1%) strongly agreed and 16(29.1%) agreed. The majority of respondents making 61.8% agreed. Therefore, Emmanuel Medical Center should train and employ specialist in data entries so as to make them more skilled in data entry.

4.4.9. Delays in data processing

When processing data, it is checked, edited, coded and reduced into tables and figures for validation. The study asked respondents whether there are delays in data processing. The results are indicated in the table 4.24:

Table4.24: There are delays in data processing

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	17	30.9	30.9	30.9
	Disagree	-	-	-	30.9
	Not sure	10	18.2	18.2	49.1
	Agree	28	59.1	50.1	100.0
	Total	55	100.0	100.0	

Source: primary data (2018)

According to the table 4.24, 17(30.9%) strongly disagreed, 10(18.2%) were not sure and 28(59.1%) agreed. Majority of the respondents 59.1% generally agreed that there are delays in data processing. This implies that, the data entrants take long in checking, editing, coding and tabulating them. However, 17(30.9%) of the respondents disagreed. Therefore, modern software like tally should be used when presenting data. This program is user friendly and it is appropriate for handling standard deviation and inferential statistics.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Introduction

This chapter looks at the research overview and summary of the findings, conclusions, recommendations and areas of further research. The chapter presents a summary of all the study findings obtained from the field and conclusions in comparison with the literature. The summary of the findings were discussed according to the study objectives and recommendations given in accordance with the gaps identified.

5.1.1 Summary of findings

The patient's information system used by Emmanuel medical center

The study found out that, Patients on arriving at the medical center, they first visit the unit for registration and issuance of attendance cards. It should be noted that Good records helps the organization to monitor the progress of the business, prepare the financial statements, identify source of receipts, keep track of deductible expenses, prepare tax returns, and support items reported on tax returns.

The study further found out that, Emmanuel Medical Center has a particular office that keeps record. It has a data base for all the operations in the medical center. In relation to the above, Emmanuel Medical Center data base is both hard copy and softcopy but lacking integration. All information about patients is registered using medical cards. Data and information management is not just the responsibility of the organization IT department; it affects everyone in an organization. It can determine how well a particular department of individual communicates with the patients, how safe and secure data is, how safe the customers are, and how efficiently everyone can meet their goals and achieve performance metrics.

The study further found out that, in most cases patients' records are misplaced. The fact that, the Emmanuel Medical Center has no data base, information is easily misplaced as papers can easily get lost, hence data is lost. Emmanuel Medical Center does not properly keep its records in fully integrated computerized system so as to enhance efficiency and effectiveness in the organization. In relation to the above, it was found out that, Emmanuel Medical Center has no specialist to operate the data base and make it run effectively. Emmanuel Medical Center does not regular update its data base so as to make sure that the database is backed-up regularly, so that if the original database is damaged or disappears, the center doesn't need to start from scratch.

The challenges faced by the current records information system

The study discovered that, low levels of confidentiality affect data management. Clients Data is not properly managed in Emmanuel medical center. Records management is the practice of maintaining the records of an organization from the time they are created up to their eventual disposal.

It further found out that, Emmanuel Medical Center has no professional/technical individual to operate the data base. It should be noted that, review of the data base on a regular basis is a way to make more make services better at any time. Database management provides the control over particular pieces of data that result in creating a detailed report for the end user, by manipulating the stored data to the requirements. The study further found out that patients' records are captured using medical cards and financial transactions by computers. This implies that, Emmanuel Medical Center it does not use computers as it has no patients' data base. It should be noted that, all changes to information made over time through metadata should be documented to reflect the state of the record at any point in time.

It further found out that, the Emmanuel Medical Center uses proper data management strategies. Realistic expectations should be set so as to minimize on the costs of data management. Legacy data must be cleaned up prior to conversion and integration, or an agency will almost certainly face serious data problems later. Also Storbacka (2014) states that, legacy data impurities have a compounding effect; by nature, they tend to concentrate around high volume data users.

The integrated patients' information system model

The study discovered that, refresher courses and training of the staff who handles the data base is regularly done. This implies that, the Emmanuel Medical Center sponsors its staff to acquire further education. By training the staff on new technologies equips them with new skills which enable them to provide effective, efficient and accurate work. This implies that, Emmanuel medical center uses tries to improve on its patients' information management. It should be noted that, the use of computers is cheap in terms on record management and time management.

The study further found out that, there is employment of people who are qualified to handle medical details in the data processing. This implies that, people who handle patients and health of people are qualified to carry on the given task. It should be noted that, employment of individuals who are qualified in all departments of the Emmanuel Medical Center is important so as to ensure high quality service delivery in the medical center. It further found out that there is a strong internal and external audit of the functions of the medical center.

The study discovered that, employees of Emmanuel Medical Center do what they think is right as there is no strict supervision by the managers. It should be noted that, in order to ensure accuracy and efficiency in the medical center, strict supervision of employees should be done. It further found out that there are no clear and well spelt templates used in patients information management at Emmanuel medical center.

5.1.2 Conclusion

This study focused on Patients' information system and service delivery in private health centers. It based on a case study of Emmanuel medical center.

A sample of 55 staff of Emmanuel medical center was used. The methodology used in this study was both qualitative and quantitative. The questionnaire, interview, were the major tools of data collection. In testing the hypothesized relationship, regression and correlation analysis were employed.

Integrated Patients' information system and service delivery in Emmanuel Health Center were related with significant level of $r^2 = 0.48$ and this means that adopting an integrated patients' information system improves 48% to service delivery. In addition in this study, it was found out that increasing and developing the patients information system, is associated with the quality service deliveries in private health centers in Entebbe.

5.1.3 Recommendations

Developing a Model - The researcher came up with a new model for patients' information system that has been recommended for Emmanuel medical center and this is reflected under figure 4.4

Emmanuel Medical Center should provide training to staff on new technologies such as Integrated Patients' Information Management Systems model and this will equips them with new skills to provide effective, efficient and accurate work. More training should be done to the data entrants so as to equip them with skills and knowledge on how to enter data into new data base software.

Emmanuel Medical Center should move from manual system to fully integrated system and this means that it should employ the use of computers in all its work. Therefore it should adopt the model developed by the researcher in figure 4.4. This will make the easier in terms of record management, time management and thus quality service deliveries to the patients.

5.1.4 Areas for further Research

i. The integrated patients' information system and client satisfaction Emmanuel Medical Center

ii. The information system and the performance of Emmanuel medical center

iii. The role played by information system in Government centers

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APPENDICES

APPENDIX I. QUESTIONNAIRE

Dear respondent;

The researcher is a student of Nkumba University carrying out a research on integrated patients' information management systems model and service delivery in private health centers, a case study of Emmanuel Medical Center, as a partial requirement for the award of a Master of Business Administration Information Technology of Nkumba University

Please feel free to answer all questions below with utmost confidentiality and the responses you will give shall be used for academic purposes only.

SECTION A: BACKGROUND INFORMATION

Pleas tick in the appropriate box where applicable

1). Gender i) .Male ☐ ii) . Female ☐

2). What is your marital status?

i. Married ☐
ii. Single ☐
iii. Divorced ☐
iv. Separated ☐

3). Age Group

i) 20-29 Years ☐ ii) 30-39 Years ☐
ii) 40-49 Years ☐ iv) 50 Years and Above ☐

4). Highest qualification attended

i) PhD ☐ ii) Masters ☐ iii) Bachelors ☐

iv) Diploma ☐ v) Certificate ☐ vi) non ☐

5). For how long have you been in your current position?

i) 1 year ☐ ii) 2-5 years ☐

iii) 5-10 years ☐ iv) 10 years and above ☐

6. Which Department do you belong?

i) Patient ☐

ii) Nurse ☐

iii) Doctor ☐

iv) Top management ☐

v) Information Technology ☐

You are required to respond to each item in subsequent sections using the following scale by ticking the appropriate option.

Strongly Disagree (SD) = 1 Disagree (D) = 2, Not Sure (NS) = 3,

Agree (A) = 4, Strongly Agree (SA) = 5,

SECTION B: THE INTEGRATED PATIENTS' INFORMATION MANAGEMENT SYSTEMS MODEL USED BY EMMANUEL MEDICAL CENTER

For the questions in this section state your response rate according to he scale provided; strongly disagree=1, Disagree=2, Neutral=3, Agree=4, strongly agree=5

No.	Question	SD	D	NS	A	SA
7	Patients information is taken both in the In-patient and Out-patients departments					
8	Patients information is taken on admission to the Emmanuel Medical Center					
9	Each department has its own information system					
10	The information exists in both the soft and hard copies					
11	Patients information is promptly provided on request					
12	The system is regularly updated					
13	The Emmanuel Medical Center information system is open to the public domain					
14	The information system is professionally prepared					
15	There is a definite department tasked with handling information/ data management					
16.	The data base is carefully safeguarded against intrusion and hacking					
17.	High social esteem and ethical conduct is maintained in handling patients data					
18.	The Database system helps in procurement for Medical and non-medical supplies					
19						
20.	The data in the Emmanuel Medical Center is captured using a computerized system					

SECTION C: THE CHALLENGES FACED BY EMMANUEL MEDICAL CENTER

For the questions in this section state your response rate according to the scale provided;

Strongly disagree=1, Disagree=2, Neutral=3, Agree=4, strongly agree=5

No.	Question	SD	D	NS	A	SA
21	Low levels of confidentiality affects data management in the Emmanuel Medical Center					
22	The data base is not properly managed					
23	Patients records are captured using exercise books					
24	The Emmanuel Medical Center does not have well prepared ledger books					
25	Health cards are not provided to the patients					
26	Data management is costly to the Emmanuel Medical Center					
27	Sometimes wrong details are entered in the records system					
28	The records sometimes do not match with the drug and medicine dispensation and medical operations					
29	Data is handled by inexperienced staff					
30	There are delays in data processing					

SECTION D: THE STRATEGIES TO IMPROVE SERVICE DELIVERY

For the questions in this section state your response rate according to the scale provided; Strongly disagree=1, Disagree=2, Neutral=3, Agree=4, Strongly agree=5

No.	Question	SD	D	NS	A	SA
31	Refresher courses and training of the staff who handle the data base is regularly done					
32	The Emmanuel Medical Center uses better and modern computerized system					
33	The data base is professionally handled in the Emmanuel Medical Center					
34	There are 24-hour service in the Emmanuel Medical Center					
35	Data is handled by an autonomous department to check its fairness					
36	There is a strong internal and external and Integrated Patients' Information Management Systems model of the functions of the Emmanuel Medical Center					
37	There is employment of people who are qualified to handle medical details in data processing					
38	There are clear and well spelt templates used in data proc					
39	The different departments of the Emmanuel Medical Center share information on administration, procurement and patients details					

THANK YOU FOR CORPORATION

Appendix II: Interview guide

What type of Integrated Patients' Information Management Systems model is used by Emmanuel Medical Center in providing services to its patients?

……..

…….

……..

What are the Challenges faced in using patient's information system at Emmanuel Medical Center?

……..

……..

……..

What strategies can be used to improve on the Integrated Patients' Information Management Systems model on service delivery at Emmanuel Medical Center?

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