Use of Medical Health Records, Institutional Support and Health Services Delivery in Teaching hospitals in Ogun State

Nureni Olufemi OLABODE
LCU/PG/001928

Being A MSc Post field Presented to the Department of Information Management, Faculty of Information & Communication Management, Lead City University, Ibadan, Oyo State

In partial Fulfilment of the Requirements for the Award of Masters (MSc) Degree in Health Information Management.

2023

Certification

This is to certify that this thesis was carried out by **Nureni Olufemi OLABODE** with Matric No **LCU/PG/001928,** a student in the Department of Information Management under my supervision in the Faculty of Communication and Information Science, Lead City University, Ibadan, Nigeria.

……. ……

Dr. Oluwabunmi D. BAKARE Date

Supervisor

…….... …….

Dr. Sophia V. ADEYEYE Date

Head of Department

Dedication

This thesis is dedicated to God Almighty for His sufficient grace over my life.

Acknowledgement

My appreciation goes to the management and staff of Lead City University, Ibadan for their support and for providing an enabling environment during the course of my study and for carrying out this research. I also want to appreciate the staff and management of all the universities that provided data for this study.

I want to express my profound gratitude to my supervisor, Dr. Oluwabunmi Bakare for her encouragement, thorough review of the manuscript and her constructive criticisms which greatly contributed to the quality of the final work. Special thanks to the Head of Department of Information Management, Dr. Sophia Adeyeye for her guidance and support. I also appreciate the Provost, Lead City Postgraduate College, Prof. Oredein A.O. and all staff of the Postgraduate College. I appreciate the Dean, Faculty of Information and Communication Sciences, Prof. Ihebuzor L. and all staff of the Faculty. My gratitude also goes to the PG Coordinator, Dr. Tunmibi, S. and other Lecturers in the Department of Information Management; Dr. Abd Lateef, K. Dr. Adebare, Mrs. Popoola, K. Mrs. Ologbosere, O. Mrs. Ahamze, O. Mr. Olaniyan, O. Mr. Adeleke, A. and all other staff in the department

Even though the above-mentioned institutions and persons have assisted in the process of this research work, I alone stand responsible for the errors, if any, found in the work.

Abstract

Service delivery of health information management practitioners is highly important because it is the difference between accurate healthcare decision making on one hand and uncoordinated error-prone health services on the other. However, scholars rarely examine service delivery of health information management practitioners. This study therefore examined the influence of the use of electronic records management (EMR) and institutional support on service delivery among health information management practitioners in teaching hospitals in Ogun state. Descriptive survey research design was adopted for the study. A structured questionnaire was adopted as the instrument for data collection. The study population consist of 137 health information management practitioners from three teaching hospitals in Ogun state. The entire population was included in the study due to the small size of the population. The quantitative data collected was analyzed using both descriptive and inferential statistics. The study found a high level of service delivery in the teaching hospitals (Mean =3.56). The study also found a high level of EMR use (Mean =3.01) among the respondents. Similarly, results indicate that practitioners perceive strong support from their institutions (Mean =3.40) The test of hypothesis showed that both EMR use (Adj. R^2 = 0.424, $p<0.05$) and institutional support (Adj. R^2 = 0.649, $p<0.05$) individually have significant influence on service delivery of the respondents. Multiple regression analysis also revealed a significant combined influence of both variables on service delivery of the respondent. The study concluded that the use of electronic medical records and institutional support are essential in enhancing service delivery by HIM practitioners in Ogun State teaching hospitals. It was therefore recommended that there is a need for capacity development and reorientation for HIM practitioners to ensure that all of them are properly suited to assigned tasks.

Keywords: Electronic Medical Records, Healthcare, Health Information, Institutional Support, Service Delivery, Teaching Hospitals, Ogun State.

Word Count: 287

Table of Contents

List of Table

List of Figure

Chapter One

Introduction

1.1 Background to the Study

The delivery of high-quality service is the key to success in service industries including teaching hospitals that are at the forefront of healthcare delivery in the society. Teaching hospitals are viewed as apex hospitals in their environments and beyond so they are expected to provide the highest quality of services that other health facilities in the country would aspire to. As a result, service delivery is always a matter of interest, both to teaching hospitals and other stakeholders such as government and the general public whose health depend on the effectiveness of the services delivered by teaching hospitals.

Service delivery is basically the process of rendering a service expected from an organisation. It is similar to a manufacturer delivering the item ordered by a customer. In the service sector, service delivery has to do with the quality of the contact between service providers and the client. Indeed, the concept of service delivery was borne out of the need to evaluate the quality of services delivered by service providers[1]. As a result, service delivery is often used to represent the quality, relevance and satisfactory level of services provided by service providers to their clients. In term of health information management, service delivery has to do with the quality and level of services provided by health information management professionals [2]. It is a measure of the effectiveness and efficiency of the information management services provided by health information management professional in relation to the expected and promised level of services.

For instance, patients and healthcare professionals rely on accurate, easily accessible information to make critical decisions. Service delivery this context therefore pertains to the collection, organisation, preservation, processing and dissemination of health information to various stakeholder in way that yields the highest level of satisfaction for all concerned. Service delivery in healthcare, particularly in the area of health information management has proven difficult to conceptualise. However, scholar have suggested that service delivery in healthcare and by extension, health information management can be measured by human resources outcome and organisational outcome.

Human resource outcomes are related to staff health information managers' physical and mental well-being, safety (e.g. injuries, violence), and profession (e.g. autonomous practice, work satisfaction)[2]. This construct focus on what it cost the health information managers to deliver the level of service demanded by the hospital and the patients. It is concerned with the atmosphere in which they work, the condition under which they work, the freedom they have to do their jobs and the level of emotional labour they have to put in in order to get the job done. All of these are important to their mental and physical well-being.

The consideration for the mental and physical well-being of health information managers is what distinguishes service delivery from service quality[3]. While service quality is a snapshot of a patient's perception of services rendered in the course of his/her interaction with the hospital, service delivery takes a holistic approach to consider the whole aspect of the services. considering the health information managers' outcomes ensure the sustainability of the level of services desired by the hospital. Thus, hospitals that seek to maintain high level of service delivery must ensure that their employee's providing the

services do not suffer emotional and physical burnout in the course of providing the services. This when we can the talk of organisational outcome.

The evaluation of organisational outcomes focuses on service quality, efficiency, and resource use. This means that, after considering the human resources outcome, service delivery also concerns itself with the quality of services rendered by health information managers based on specific benchmarks and analysis of work reports and feedback from patients. Organisational outcome also considers the efficiency of health information managers like how many patients are attended to over a given period, what is the length of time it takes to retrieve a particular document; how accurate is the information retrieved. In addition to this, organisational outcome evaluate how the available resources are being used. In essence, it focuses on how many health information managers it takes to achieve a given service objective, what is the unit cost of providing a certain level of services etc.

Service delivery of health information managers in teaching hospitals is highly important because of the high expectation place on teaching hospitals as a place where people can get access to high-caliber tertiary healthcare. However, service delivery is an output or a product of various inputs. This means that service delivery of health information management practitioners may be affected by factors such as the use of electronic medical records (EMR) systems. The level of service delivery in of health information management practitioners in teaching hospitals can be influenced by various factors which include the use of electronic health records and institutional support available to in managing the health records in the hospitals[3].

The electronic medical record (EMR), often known as an EMR system or an electronic medical record, is one example of these digital tools used to properly manage medical information in a way that allows teaching hospitals to overcome the challenged associated with the traditional manual records management systems[4]. New digital technologies are constantly being developed to support clinical practises, which will bring many advantages to the healthcare sector. An additional critical role, a teaching hospital must play in the healthcare system is the coordination of essential medical research. Therefore, accurate and timely recording of these interdependent processes is required. Teaching hospitals have a lot riding on the accuracy and efficiency of their patient recordkeeping systems. A lack of efficient patient record management might make it challenging, if not impossible, to make sound clinical decisions. It was on this note that medical experts started considering switching to digital patient records. This will allow for optimal coordination and effective healthcare service delivery in teaching hospitals and expansion in the healthcare industry.

Electronic health records (EHR) are a computerised health information system that includes a patient's demographic information, encounter summaries, medical history, allergies, intolerances, and lab test histories[5]. Given that the manual health record management system has been found wanting in the provision of quality healthcare services in the modern era, experts have suggested that all the shortcomings that could arise from these dimensions of quality of service can be solved by the use of electronic health records. Electronic health records are basically the computerised version of the paper document health records that have been in existence since the 18th century[6]. An Electronic Medical Record (EMR) system is described as a computer-based system that

allows health information to be shared across multiple health care settings by being embedded in network-connected facility-wide information systems. A typical electronic information record systems contain data and information relating to the demographics, medical history, medication and allergy information, vaccinations, laboratory results, radiology images, vital signs, personal stats like age and weight, and billing information of each patient[7]. With the integration of these records, the EMR system has become a rich trove of information that can enhance service quality in any healthcare facility.

In addition to improving patient care, the widespread use of EMR systems has been reported to facilitate unparalleled opportunities for increased access to health records for effective patient treatment. It also has a secondary use in that it can be used as a quality assurance tool, public health management, and as a database for medical research[8]. The advantages offered by EMR systems also include the security of patient record due to authentication of those who have access to the records, and the preservation of medical records from traditional hazards such as fire outbreaks, flooding and pests which often attacked paper documents[9].

The electronic health records system (EHR) is the electronic equivalent of the paper medical chart. Information on a patient's demographics, medical history, medications, test results, and other sorts of clinical information, as well as the associated costs, are collected, created, and stored electronically within the health record. Furthermore. an electronic medical record (EMR) system is an electronic record of a patient's health-related information that can be created, gathered, managed, and consulted by health professionals and staff within a single health care organisation.The EMR facilitates evidence-based recommendations for specific medical conditions. It is able to achieve

this by keeping records of appointments and other reminders; billing records; advanced directives, and health powers of attorney; and multi-media (e.g. video, audio) files.

The use of EMR systems also has the potential to reduce medication errors by improving, accurate, and clear medical records. Healthcare professionals can easily access patient health records thanks to EHRs. When the physician is writing the prescription, they can also alert the physician to potential drug interactions and drug allergies. They can also highlight out-of-range test results and eliminate medication errors caused by illegible physician handwriting. Despite the potential offered by electronic medical record systems for the improvement in quality healthcare delivery there seems to be little interest in their use among health professionals in Nigeria. The researcher's preliminary studies and the reviewed literature show that the broad use or acceptance of EMR is believed to be low despite these benefits[10].

Researchers often measure the use EMR with metrics such as frequency of use and purpose of use. In this study, frequency of use refers to the regularity and consistency of use of EMR for various information management activities. Researchers in Nigeria often found that, while there is a daily need for information in hospitals, not all the healthcare professionals make use of EMRs daily. An example can be found in a study in which, while majority of respondents use the EMR system daily, there are still many who only use the systems less frequently such as three times a week, once a week and some could not even remember the last time they make use of the system[11]. Similarly, another study conducted in Ethiopia found that a significant number of health practitioners do not make use of the available electronic medical records in their hospitals[12]. However, studies have shown that there are numerous purposes for which EMRs can be used.

Researchers recorded health information management practitioners and other personnel in hospitals as using EMRs for various purposes such as patient data recording, report generating, data processing and communication purposes. Another scholar summarized the purposes for which EMRs are used in hospitals to include, recording, storing, retrieving and reporting of medical records[13]. From these, it can be deduced that EMRs is an improvement on the manual records which focused on the record recording and basic use of medical records. The purpose of use has been expanded with EMRs has the records can be easily collected, organized, preserved and retrieved for use. This has provided greater impetus for effective service delivery in teaching hospitals as well as other types of health facilities.

Researchers have pointed out that purpose of an electronic medical record (EMR) system is to enhance the quality of care delivered to patients by enhancing the timeliness and accuracy of information retrieval at the point of care delivery; streamlining billing processes; decreasing the likelihood of records being misplace Electronic alerts, guideline reminders, and automatic monitoring of quality of care indicators are all elements that can be integrated into electronic health record systems to improve clinical outcomes. In light of the preceding, it is reasonable to infer that EMR use has great potential, as indicated by its ability to reduce morbidity and mortality rates, improve continuity of treatment, boost efficiency, lessen the occurrence of adverse medication reactions, and lower health care costs[14, 15]. While the use of EMRs can enhance service delivery in of health information management practitioners in teaching hospitals, another factors that can equally contribute is institutional support.

Institutional support generally refers to all the form of supports provided by the organisation to enhance the ability of employee to deliver optimal services and help achieve the objectives of the organisations. This means that institutional support in the context of service delivery of health information management practitioners in teaching hospitals refers to the financial and technical support provided for health information management practitioners in teaching hospitals towards the performance of their assigned tasks. Institutional support is multifaceted and it is context based. A group of Nigerian scholars posited that institutional support has to do with the organisational active encouragements in the form of policies, regulations, financial and non-financial assistance that propel employees to perform their responsibilities in a very effective and productive manner[16]. Institutional support also refers to an employee's perception or belief that the institution values his or her contribution to the success of the organization and cares or have concern about his needs. It has to do with the role an organization play towards its employees to show the extent to which the institution values their contributions and cares about their well-being. In this study, institutional support is measured by technical and financial support for health information management practitioners in teaching hospitals.

Technical support involves the provision of the necessary infrastructures to support the use of EMRs and the training that will make it easy for the healthcare professionals in the state to make deliver quality and effective services. It also has to do level of awareness created about the imperative of effective service delivery and the strategies to achieve it. This is in line with the view of experts who noted that availability of infrastructure such as computers and Internet facilities, awareness and skills needed for

information resource retrieval play an essential role in the modern information management processes[17]. However, what is found in the Nigerian health sector is a lack of technical support for the health care sector with doctors and nurses, and other healthcare workers going on strike for a long period of time. This and other issues must be resolved if the quality of service delivery is to be improved. Another form of support is financial support.

Effective service delivery depends greatly on adequate financial support by hospital management for health information management practitioners to do their jobs properly. Financial support includes adequate and regular wage payment. The availability of overtime allowance, release of fund for capacity development and the acquisition of necessary equipment and overall maintenance of the records management unit to make it conducive for work. As service delivery considered factors such as employees outcomes covering condition of work, efficiency and cost of service provision, adequate financial support can go a long way an making the job satisfactory and easier for the practitioners.

In view of the importance of effective access to health records as a result of various health emergencies and the need to ensure that teaching hospitals maintain the leadership and pace-setting role in the health industry, it is important that the service delivery among health information managers is at the highest level possible. However, this may not be possible without the use of electronic medical record systems. It has also been established that without the right amount of institutional support, it may be impossible to achieve effective service delivery. In line with this, researchers have often shonw interest in evaluating service delivery of various stakeholders in the health sector.

However, few have shown interest in investigating service delivery among health information management practitioners. Given the importance of effective medical records management to positive patients outcome and overall effectiveness of the healthcare system in any country, this study examines the influence of the use of electronic medical records management and institutional support on service delivery by health information management practitioners in teaching hospitals in Ogun state Nigeria.

1.2 Problem Statement

Service delivery of health information management practitioners is highly important because it is the difference between accurate healthcare decision making on one hand and uncoordinated error-prone health services on the other. The poor quality of patient outcome, misdiagnosis, delay in accessing treatment, and unnecessary mortality in teaching hospital has been blamed on poor service delivery by health information management practitioners. Various factors have been identified as responsible for affecting the level of service delivery in Nigeria in general and teaching hospitals in particular. Among the factors that have not received wider consideration in literature is the use of electronic medical records management and institutional support for health information management practitioners

The use of electronic medical records management systems has been identified as a factor capable of preventing medical errors, instituting better communication in health facilities and providing more easily accessible patient data, and also enhance management activities such as process monitoring and report writing. However, in spite of the fact that the use of electronic medical records management is very beneficial, preliminary investigations by the researcher and literature reviewed show that the use of electronic

medical records management is not widespread among teaching hospitals in Nigeria. Closely related to the use of electronic medical records management systems is the institutional support provided in terms of providing the funding and facilities to needed by health information management practitioners to discharge their duties effectively. Again, personal observation and available literature also suggests lack of or inadequate institutional support for health information management practitioners in Nigerian health sector. In line with the perceived dearth of studies to this effect, this study therefore investigates the influence of the use of electronic records management and institutional support on service delivery among health information management practitioners in teaching hospitals in Ogun state.

1.3 Aims and Objectives of the Study

The aim of this study is to examine the influence of the use of electronic records management and institutional support on service delivery among health information management practitioners in teaching hospitals in Ogun state. The specific objectives are as follow;

1. ascertain the level of service delivery among health information management practitioners in teaching hospitals in Ogun state.
2. identify the level of use of electronic medical records by health professionals in Teaching hospitals in Ogun State
3. determined the level of institutional support available to health information management practitioners in in teaching hospitals in Ogun state.
4. ascertain the influence of electronic medical records use on the service delivery of in teaching hospitals in Ogun state.

5. ascertain the influence of institutional support on the on the service delivery of in teaching hospitals in Ogun state.
6. determine the combined influence of electronic medical records use and institutional support on the service delivery of in teaching hospitals in Ogun state.

1.4 Research Questions

The following research questions will guide the study:

1. What is the level of level of service delivery among health information management practitioners in teaching hospitals in Ogun state?
2. What is the level of use of electronic medical records among health information management practitioners in teaching hospitals in Ogun state?
3. What is the level of institutional support for health information management practitioners in teaching hospitals in Ogun state?

1.5 Research Hypotheses

The following hypotheses will be tested at 0.05 level of significance:

$H_0$1 There will be no significant influence of electronic medical records use on service delivery of health information management practitioners in teaching hospitals in Ogun state.

$H_0$2: There will be no significant influence of institutional support on service delivery of health information management practitioners in teaching hospitals in Ogun state.

$H_0$3 There is no combined influence of electronic medical records use and institutional support on service delivery of health information management practitioners in teaching hospitals in Ogun state.

1.6 Scope of the Study

The focus of the study is on the influence of the use of electronic medical records (EMR) and institutional support on the service delivery of health information management practitioners in teaching hospitals in Ogun state. Service delivery will be measured by constructs such as; human resources outcomes and organisational outcomes. Institutional support will be measured by financial and technical support while the use of EMR will be measured by frequency of use and purpose of use. The population scope of the study includes all health information management practitioners in teaching hospitals in Ogun state. The geographical scope will be limited to Ogun state. All the information management practitioners are included in the study because they are expected to make daily use of medical records in the course of their duties. As a result, they are all concerned with any issues surrounding the use of medical records, particularly electronic medical records. Teaching hospitals in Ogun state are also selected because of their known use of electronic medical records and will laid out organisational structures. In addition, the choice will provide adequate access to obtain the necessary data for the research.

1.7 Significance of the Study

The study findings would be of relevance to policy makers in the health sector, health professionals, hospital patients, the society also serve as a contribution to knowledge.

Policymakers in the health sector would find the recommendation useful in formulating strategic policies that will enhance service delivery in hospitals and other healthcare facilities.

Health professionals would also benefit from the study because its findings are expected to highlight various issues surrounding the use of electronic information resources and the strategies that can be adopted to ensure effective use of electronic medical records. In addition, by showing the link between institutional support for electronic medical records use and quality of healthcare service delivery, the study would also provide empirical evidence for health professionals to advocate for more support for the use of electronic medical records.

The study would also be of relevance to hospital patients. This is because the major concern hospital patients are to receive quality healthcare services that will solve their health challenges. Therefore, if the study is able to contribute to effective use of electronic medical records and improve quality if healthcare services, the patients would be the biggest beneficiary.

The study would also be a significant addition to existing knowledge in the field of health information management. The focus of this study has not been widely researched, especially in the context of teaching hospitals in Ogun state. This study would therefore fill an existing gap in knowledge

1.8 Operational Definition of Terms

Healthcare Service Delivery: this measures the extent to which the services rendered by health professionals at on Ogun state meets the expectation of the patients and the benchmark set global health authorities. It can also be taken as the extent to which patients are satisfied with the services rendered the hospital.

Human Resouce Outcome: this measures the impact of service delivery by on the physical and mental wellbeing of health information management practitioners in teaching hospitals in Ogun state.

Organisational Outcome: This measure the quality of services and the resources required to provide quality services by health information management practitioners in teaching hospitals in Ogun state.

Use of Electronic Medical Records: this refers to the retrieval, consultation, exchange, sharing and acting on the information obtained from electronic medical records by health information management practitioners in teaching hospitals in Ogun state.

Frequency of use: this refers to consistency of using electronic medical records by health information management practitioners in teaching hospitals in Ogun state in the course of their duties.

Purpose of Use: this refers to various purposes for which health information management practitioners in teaching hospitals in Ogun state make use of electronic medical records in the course of their duties.

Institutional Support: this refers to all the form of supports provided to health information management practitioners in teaching hospitals in Ogun state in order to enhance their ability to deliver optimal services and help achieve the objectives of the organisations

Technical Support: This refers to the provision of the necessary machineries by tertiary hospitals in Ogun state to enhance the service delivery of health information management practitioners in teaching hospitals in Ogun state.

Financial support: This refers to the provision of adequate funding by teaching hospitals in Ogun state to enhance the service delivery of health information management practitioners in teaching hospitals in Ogun state

Endnotes

1. R., Jessup, P., Putrik, R., Buchbinder, J., Nezon, K., Rischin, S.,Cyril, ... & D. O'Connor, A. *Identifying Alternative Models of Healthcare Service Delivery to Inform Health System Improvement: Scoping Review of Systematic Reviews*. **BMJ Open**, 10(3), 2020. E036112.

2. L.O., Olanipekun, *Manpower Planning, Work Environment and Service Delivery in Ogun State Hospital Management Board*. **Texas Journal of Medical Science**, *1*(1), 2021. Pp.13-33.

3. B. B. Amole, E.O. Oyatoye, & S. I. Kuye, *Determinants of Patient's Satisfaction on Service Quality Dimensions in The Nigeria Teaching Hospitals,* **Scientific Journal of Organization and Management / Silesian University of Technology**, 79 (6*)* 2016

4. L. A., Baumann, J., Baker, & A. G. Elshaug, *The Impact of Electronic Health Record Systems on Clinical Documentation Times: A Systematic Review*. **Health Policy**, 122(8), 2018. 827-836.

5. D., Spatar, O., Kok, N., Basoglu, & T. Daim, *Adoption Factors of Electronic Health Record Systems*. **Technology In Society**, 58, 2019, 101144.

6. R.S. Evans, *Electronic Health Records: Then, Now, And in The Future*. **Yearbook of Medical Informatics**, *25*(S 01), 2016. Pp. S48-S61.

7. Shehu, I. *Acceptance of Electronic Health Records for Improving Quality of Health Service Delivery: A Case Study of Aminu Kano Teaching Hospital Kano State, Nigeria* (Doctoral Dissertation, School of Computing and Information Technology). 2016.

8. D.A. Hanauer, Q. Mei, J. Law, R. Khanna, And K. Zheng, *Supporting Information Retrieval from Electronic Health Records: A Report of University of Michigan's Nine-Year Experience in Developing and Using the Electronic Medical Record Search Engine* (EMERSE). **Journal Of Biomedical Informatics**, *55*, 2015. Pp. 290-300.

9. F.A.O. Agbese, & C.N. Ikonne, *Electronic Health Records (EHRS) Use and Quality Healthcare Delivery by Physicians in Tertiary Hospitals in Federal Capital Territory, Nigeria*. **Library Philosophy and Practice,** 2021 Pp.1-12.

10. P., Gatiti, E., Ndirangu, J., Mwangi, A., Mwanzu, & T. Ramadhani, *Enhancing Healthcare Quality in Hospitals Through Electronic Health Records: A Systematic Review*. **Journal Of Health Informatics in Developing Countries**, 15(2), 2021, 1.

11. S. M. A., Babale, H. A., Taiwo, A. A., Olasinde, & I. Joshua, *Knowledge, Attitude and Perception of Healthcare Workers on Use of Electronic Medical Records in Ahmadu Bello University Teaching Hospital, Zaria, Kaduna, Kaduna State Northwest Nigeria*. **Journal Of Medical and Basic Scientific Research**, 2(1), 2021. 1-12.

12. B., Berihun, D. D., Atnafu, & G. Sitotaw, *Willingness to Use Electronic Medical Record (EMR) System in Healthcare Facilities of Bahir Dar City, Northwest Ethiopia*. **Biomed Research International,** 2020.

13. M. Elghriani, A., A. Alabbar, A., M. Maatuk, A., & A. Elfallah, E. *Health Care Workers' Use of Electronic Medical Information Systems: Benefits and Challenges***.** In International Conference on Data Science, E-Learning and Information System**s**, 2021, 2021, Pp. 35-39.

14. O. S. Ayanlade, *Electronic Medical Record System as A Central ICT Tool for Quality Healthcare Services: Nigeria as A Case Study*. **African Journal of Science, Technology, Innovation and Development**, 10(2), 2018, 147-157.

15. C., Sungur, L., Sonğur, A. Ç., Çiçek, & M. Top, *Correction of Patient Medical Record Errors Through a File Control Method*. **Health Policy And Technology**, 8(4), 2019. 329-336.

16. P. Adedeji, O. Irinoye, R. Ikono, & A.Komolafe, *Factors Influencing The Use Of Electronic Health Records Among Nurses In A Teaching Hospital In Nigeria*, **Journal Of Health Informatics In Developing Countries**, 12(2), 2018, 1-20.

17. O.A. Ogundele, C.N. Ikonne, E Madukoma, *Institutional Support and Use of Electronic Health Records by Medical Doctors in Teaching Hospitals in South-West, Nigeria*. **International Journal of Academic Library and Information Science** 9(4): 2021, 149-157

Chapter Two

Literature Review

This chapter provides an overview of the existing literature related to the use of electronic medical records and institutional support as factors in the level of service delivery in hospitals. The chapter also examined the empirical studies showing the factors that have been identified in previous studies as significant predictors of service delivery in hospitals. The review is done to highlight research trends, methodologies, and relevant findings with the aim of showing the gap in the literature that justifies the current study. This chapter is discussed under the following subheading

2.1 Conceptual Review

The concepts reviewed in the study are based on the study variables. Therefore, the conceptual review will cover the interpretations and issues relating to electronic medical records use, institutional support, and healthcare service delivery which will be examined in the context of this study.

2.1.1 The Concept of Service Delivery in Teaching Hospitals

Service delivery is a complex concept that encompasses all the processes followed in ensuring that services are rendered to their targeted beneficiaries in line with the laid down criteria. The phrase is used in various fields such as public administration, business management, development agencies and, more recently, the health industry[1]. For instance, service delivery is conceptualised as providing services to citizens and businesses by government and its agencies. Administrative services, such as the issuance of permits and licences, fall under the purview of administrative law and must adhere to the same standards as other publicly provided goods and services. Whenever individuals, residents, or businesses interact with the government in order to obtain information, take care of business, or perform their responsibilities, the government is delivering a service to them.

From one perspective, service delivery entails a wide variety of discrete steps that services providers usually take to provide services that meets the expectations of their clients when it comes to delivering goods and services. This definition incorporates literature from multiple fields such as economics, the social sciences, and engineering. This is considered necessary as a strategy to offer a more holistic understanding of service delivery than would be possible from a single perspective. Effective, predictable,

reliable, and user-friendly service delivery is essential in any service-oriented organization and this is not different for hospitals that provide healthcare services for various categories of patients.

This is necessary for no other reason that we are in an age of enlightenment where people demand quality services delivered promptly and in the best possible manner. Society has become intolerant of poor service delivery and this has consequences for any service provider be it government, businesses, or even non-profit organisations. Any government observed to lack good governmental service delivery would attract international scrutiny and may even be voted out in democratic settings.

For business organizations, the existence of several alternatives has made effective service delivery important. Even for hospitals, patients can simply seek their healthcare services elsewhere when they experience poor service delivery. Losing customers, clients, or in the case of hospitals, patients is not an acceptable option for any service provider as it threatens their continued existence hence the interest in evaluating service delivery and instituting mechanisms to ensure effective services delivery. The widespread adoption of ICTs has made possible the efficient delivery of services electronically, saving public and private organisations and the client time and money.

To guarantee high-quality services, organisations are expected to ensure that policy goals are consistently implemented via a variety of regulatory and other methods. All citizens will be able to access healthcare services. Service delivery is so important to organisations that there are various multilateral agencies dedicated to the promotion of effective services delivery in both developed and developing countries. These agencies are providing knowledge and experience in quality control methods. Some of them are

also acting as watchdogs to detect poor service delivery and advocate for necessary changes, offering diagnostic resources to track, evaluate, and adjust service delivery methods.

However, not all of the activities going on in an organisation should be categorised as service delivery. Service delivery deals with the core mandate of organization. That is, it defines the level at which the services for which an organization is known are being provided to the intended beneficiaries. Beneficiaries of these services or goods must be able to get their hands on them, and the services or goods themselves must be up to the standards expected by those citizens. Policies, managers, providers, and recipients of services all need to take responsibility for outcomes.

Goods and services can be provided in a variety of ways, including through private provision, public-private partnership provision, citizen-directed provision, and centralised or decentralised government provision or contracting[2]. Each of these configurations is unique to its setting and is based on systems that have been crafted by humans. Patient care, or "service delivery," is the aspect of a healthcare system in which individuals actually receive the services they have paid for, or in the case of public health facilities, by the virtue of their citizenship[3]. It is the provision of goods and services to the people efficiently and effectively to meet their needs for affordable and preventable healthcare. Healthcare service delivery is the most visible aspect of the health system, both to patients and the general public. It concentrates on patient flows as well as the organization and delivery of all services ranging from diagnosis and treatment of diseases, promotion, maintenance and restoration of health. It also covers the main areas of service provision such as public health, primary care, specialized care (often divided into

secondary and tertiary care), urgent and emergency care, pharmaceutical care, rehabilitation/intermediate care, long-term care, services for informal carers, palliative care, mental health care and dental care[4].

In the modern day, service delivery in the healthcare sector have taken on a more complex dimension. It is no longer adequate to look at service delivery as the provision of wholesome and satisfactory healthcare service. Scholars and practitioners in the health sectors are not looking at service delivery as an input and output process; a holistic approach which ensures that effective service delivery becomes a culture and not simply something of chance. Today the focus is on how to consistently and sustainably deliver quality services over a long period of time instead of in the short term. In line with this, service delivery is seen as the outcome of various inputs and processes which affects both those who provide and those who enjoy the services. As a result, service delivery is measured by human resources outputs and organizational output.

Human resources output is focus on the effect of service delivery on those who deliver the services. This is considered necessary because hospitals needs to ensure that they retain the services of those staff who will deliver the level of services required and keep them in good physical and mental health so that they can continue to provide services[5]. As a result, scholars suggests specifically tracking the physical and mental wellbeing of services providers by considering the impact of service delivery on their health, safety and professional development. For instance, a study reported that staff burnout and turnover in mental health services are expensive and may reduce quality of care for patients. The study used the Job Demands-Resources model as a framework to investigate

the connections between burnout, intention to leave, and satisfaction with one Australian mental health service's clinical staff's unique job demands and resources.

The focus on human resources outcome as an integral part of service delivery is based on the emotionally taxing nature of healthcare services provision which studies have linked with the risk of burnout, which is in turn linked to lower levels of job satisfaction and higher rates of turnover intention (the desire to leave one's job). Poorer service user outcomes and a "contagion effect" among workers are linked to high levels of employee burnout and unhappiness. Managing high personnel turnover is expensive for services because of the time and money spent on recruitment, training, and the inevitable loss of institutional expertise. What this means is that when hospitals are aiming for improved services delivery, they must be ready for those who will deliver the services[5].

Although the effects of burnout on the healthcare workforce have been extensively discussed, less research has been conducted to identify the factors unique to healthcare work that increase the risk of burnout, along with other variables of interest such as turnover intention and job satisfaction. Burnout, job satisfaction, and intention to leave have all been linked in the mental health care workforce, which is consistent with findings from studies of other workforce populations. When staff are overworked and put under constant stress in order to achieve certain level of service delivery, they are likely to become tired, irritable and their productivity may become reduced. This would then impact on service delivery. At the extreme, such staff may decide to leave the organisation thereby putting more pressure on those who remain[6].

In a bid to achieve high level of service delivery, management often put pressures on employees. Making them work extensive work-hours attending to multiple patients a

while earning below average wages. The result is burnout, mental stress and general dissatisfaction with the job. The result is intention to leave one's current job. More specific elements that have been linked to burnout include less perceived support from coworkers and supervisors, greater workload pressure, less perceived autonomy, and factors connected to clients[6]. Although research investigating the links between specific job characteristics and intention to leave has been conducted less frequently, what little research has been done suggests that lower levels of autonomy, greater perceptions of high emotional demands, and more negative views of management and supervisors are all associated with higher levels of turnover intention. Staff and management encouragement and a manageable workload have both been linked to greater job satisfaction[7].

According to the Job Demands-Resources (JD-R) paradigm, burnout can be broken down into two main categories: tiredness and disengagement. Exhaustion is a state of having one's physical, emotional, or mental reserves depleted as a result of prolonged stress. Disengagement occurs when an employee becomes emotionally detached from their work and develops a negative outlook on their duties, their customers, and their careers. The JD-R also suggests classifying job characteristics as job demands or job resources. Workplace obligations, while necessary, can be a source of tension. The term "job resources" refers to the positive features of a job that aid workers in various ways. According to the JD-R model as originally conceived, high job demands lead to high levels of tiredness, whereas inadequate job resources lead to high levels of disengagement. More research on the possible links between burnout, turnover intent, and job satisfaction in the mental health field could be guided by the JD-R. Mental health professionals haven't looked into this before.

Despite the large quantity of literature on mental health worker burnout, there are still many unanswered questions about mental health workers' experiences. There hasn't been a comprehensive look at how different mental health professionals' perspectives vary. There has been a request for further research that compares the different experiences of professional groups because most research focuses on one profession or combines numerous professional groups. As an added bonus, it would be interesting to look into whether or not there are any notable disparities in the experiences of management versus non-management or community versus inpatient workers[8]. The main concern however should not be restricted to making employee remain in the hospital and committed to their jobs. The attention should also be focused on the capacity development for the employees.

Along with taking ensuring employees' physical and mental well-being, managements have also found that enhance capacity and skills of workers is also key to effective service delivery. This was demonstrated in the area of health information management. It was found that, in as much as hospitals are willing to improve service delivery in the area of information management, the effort may be undermined by lack of the required skills in health information system management. Achieving universal health coverage is a top objective around the world, and this goal can be furthered by investing in health information management systems[9]".

Schorlars opined that producing and making use of high-quality health data in a timely manner is a cornerstone of every effective health care delivery system. In order to maximise the effective use of limited resources, boost performance, and monitor development towards goals, executives in the health sector want high-quality data.

Decision-makers can only put so much trust and value in data before it loses its credibility and becomes irrelevant. Many health care systems are unable to adequately respond to pressing health care requirements because they do not adequately relate evidence to decisions. There is a strong case to be made for the systematic use of data for decision making due to the positive effects it can have on operational efficiency, health care delivery quality, and patient equality[9, 10].

Health information systems (HIS) in poor and middle-income nations have undergone significant improvements during the past 20 years. For instance, in 2016, the Government of Ethiopia unveiled the Information Revolution (IR) Roadmap as a core strategy of the Health Sector Transformation Plan, in recognition of the potential of routine health information to influence advances in the delivery of high-quality health care (HSTP). By digitising and scaling up top HIS initiatives and fortifying HIS governance, the IR is working to foster the development of a culture based on the free and open exchange of information. The Ministry of Health (MOH) has been hard at work, thanks to the IR, to standardise and digitise indicators, data collecting and transmission tools, and processes that help with data generation, handling, and usage at the point of service and in management settings. The country has thus made significant progress toward its goal of developing an efficient, streamlined, and unified HIS. The study however recognized the need for capacity building among health information managers to ensure the proper use of the system[11]. Scholars in Nigeria observed that the rate of adoption of electronic medical record systems adoption in developing countries is on the rise. However, majority of the systems are either low or underutilised, despite the potentials of these solutions to improve healthcare quality in places like Nigeria. This is

because to issues including lack of technical knowledge, infrastructure problems, and doctors who are resistant to change.[12]

When employee issues have been sorted out, the organizational outcomes should also be a thing of interest to ensure effective service delivery.

Organisational outcome is defined by the effectiveness of the resources and materials invested for quality service delivery. In the context of this study, the resource is the electronic medical records system. The organizational outcome is measured by the quality of the system in use, its efficiency and the attendant costs of operating the EMR. This technology is an essential tool that improve quality of healthcare service delivery in hospitals. However, the objectives of implementing the systems may not be realized unless the system meet certain system quality requirements. In evaluating similar systems, scholars have often used system success indicators such as service quality, information quality, and system quality[13]

High-quality EMR helps its users feel more in charge and makes their work more efficient and faster. The technical and design quality of the electronic medical records is of high importance. System quality is the user's opinion of the system's technical and aesthetic merits. In evaluating the quality of EMR systems, users should consider features such as: utility, cost-effectiveness, availability, timeliness, customer service, capacity, user-friendliness, adaptability, tractability, auditability, and security[14]. In addition to this, it has been suggested that EMRs should be evaluated in terms of interoperability, adaptability, usability, standardisation, and a wealth of media. It is also stated that intuitive system features, sophistication, and response time are hallmarks of high-quality EMRs. Furthermore, ease of use, system flexibility, reliability, and learnability are also

important. This is to keep in mind those employees who are expected to make use of the system to enhance service delivery.

The quality of the EMR is also defined by features such as accessibility, adaptability, system integration, and response time as indicators. This is logical in the sense that information systems in the hospital environment are often accessed by different categories of users with varying needs and capabilities. This is supported by other scholars who suggested that the quality evaluation should be based on things like a stable interface, well-written documentation, and low maintenance code. However, accessibility seems to be the most sought after quality of information systems as another scholar outlined the criteria by which web-based system quality can be judged, including ease of access, adaptability, integration, reaction time, sophistication, reliability, accessibility, stability, system speed, usability, ease of use, navigation, and network speed. Indicators of system quality employed by another scholar also included reliability, adaptability, accessibility, integration, and response time[15]. Scholars have also added that the system quality must also be complemented by information quality.

In order to encourage adoption and maximise user satisfaction, electronic medical records must be made up of high quality information. In order to provide meaning and aid in decision making, medical data must be properly organised and processed into information. Health professionals require high-quality data that exhibits the features and qualities of useful information in order to deliver quality healthcare services and any quality EMR must be able to provide it. The success of any type of hospital depends on the decisions its health professionals make based on the data at their disposal[16].

Quality of information can be measured in terms of its precision, timeliness, comprehensiveness, applicability, and consistency. To measure the quality of data, scholars look at its precision, depth, freshness, and structure. In order to evaluate the quality of information, it is suggested that we should consider content indicators, correctness, and format. The qualities of information that makes it helpful are its pertinence, accuracy, completeness, timeliness, clarity, and verifiability. Comparatively, other scholars list the following characteristics of information: effectiveness] efficiency, confidentiality, integrity, availability, compliance, reliability. Information is most valuable when it had the following qualities: timeliness, accuracy, completeness, summary, and relevance[17].

Other qualities of high-quality data include being timely, accurate, comprehensive, and relevant. Relevance, completeness, accuracy, brevity, fullness, currency, timeliness, and usability are all desirable qualities in a system's output. From the perspectives of other scholars, indices of information quality include both content (how accurate, comprehensive, succinct, valuable, and relevant it is) and structure (format, consistency, and easy to understand).

For health care delivery, quality information is of the most importance. This is why the quality of EMR is one of the determinants of organisational outcomes in service delivery. The hospital care setting is a prime example of the widespread use of many aspects of health information systems. Health information systems (HIS) are one branch of health informatics that place special emphasis on meeting hospitals' administrative needs. Paperless environments for clinical, administrative, and financial processes are the goal of this system's creation. The sheer volume of patients' records that hospitals and clinics

must manage every day necessitates a large number of administrative tasks, such as the entry of test data and the checkout of treated patients.

The continuous flow and access to the patient records is so important to hospitals that it must not be impeded by anything even during peak hours when there is much demand on the system. At peak times in hospitals, translation of medical data may be impeded, and the development of EMRs may be slowed by a decrease in computer response rate. This has led scholars to consider harnesing the Internet of Things (IoT) to ensure free flow and undisrupted access to information for both patients and health practitioners. Smart wearables, smart homes, smart mobility, and smart cities are all examples of how the Internet of Things is helping people transition away from centralised, computer-based systems and into decentralised, natural settings. Researcher have explored the benefits in healthcare by examining the IoT eHealth ecosystem as a whole.

A variety of uses, from assisted living to mobile health to e-medicine to implants to early warning systems and population monitoring in smart cities, are possible with this fog-driven IoT architecture[18]. A lot of work has gone into making hospitals more efficient administratively, cutting expenses, and improving the quality of care they give to patients. As a result, most healthcare facilities are moving toward EMR systems hosted on the cloud.

In Healthcare, the use of EMRs has become more popular as a strategy to enhance insight, decision making, and process automation. The traditional database management system has been increasingly replaced by big data applications, which allow for more efficient management and analysis of enormous data sets[19]. Data collection, cleaning, classification, modelling, and delivery are the five main steps of the big data life cycle.

Medical big data, or big data in healthcare, is increasingly important to the decision-making process in many healthcare facilities, including hospitals and clinics[20].

Healthcare data resources allow medical institutions to generate information assets with high volume, velocity, value, and diversity. In order to improve decision-making, this information should be handled using appropriate methods. The many different kinds of medical big data, which are often unstructured and complex, necessitate a reliable management system that can maximise the benefits of these data[20].

A quality EMR system with well orgniased information can address the medical diagnosis and healthcare choice dilemma for medical professionals and patients[21]. Due to its scale and complexity, typical data processing methods have trouble dealing with "big data." Big data's data mining technique can glean useful information from massive databases. Furthermore, association rule mining can develop a set of association rules for identifying the association between things, which is helpful in the datamining process. In order to process indeterminacy, membership, and non-membership functions of items, the paper presents a new algorithm of neutrosophic association rule. The results of the study show that the novel algorithm can improve the quality of decisions by increasing the number of generated association rules[22].

Many groups hope to use big data to help people and find solutions to issues including rising healthcare expenses, high unemployment, natural catastrophes, and terrorist attacks.

Novel algorithms in the field of machine learning (ML) provide up exciting new possibilities for use in areas such as recommender systems, speech recognition, and autonomous cars. However, there are significant obstacles to the advancement of

healthcare information due to the dearth of high-quality big data in the healthcare area. The benefits of reinforcement, preference, and active learning in interactive ML (iML), however, can mitigate the shortcomings of low-quality huge data. Even though iML is not yet fully adapted, it can be educated by either agents or humans. Therefore, with the help of a human agent, even extremely computationally demanding issues can be addressed using the human-in-the-loop approach.

In addition, there are several complications, threats, and privacy concerns associated with big data. Humans can help solve computationally tough problems based on human-in-the-loop, even though autonomous ML can solve decision problems without them. This research offers novel experimental insights for enhancing iML computational intelligence by leveraging human intelligence. To further understand multi-agent techniques that involve human beings, the ant colony optimization (ACO) paradigm is provided. As a concept, ACO has healthcare applications as well[22].

Computational intelligence can be included into the visualisation technology to mimic medical imaging and to accomplish gene and protein simulations for cancer development and immunity. These studies have shown that computational intelligence, by use of simulations and visualisation, can speed up healthcare studies. Data analytics and visualisation tools allow doctors to mimic the growth of dangerous tumours and pinpoint potential weak points. These authors argue that visualisation tools can be used to spot abnormal cells in genes, bring malignant tumour simulations to life, and assess their progression. This shows adequate information provided by quality electronic medical records can help improve service delivery in healthcare.

2.1.2 Electronic Medical Records Use in Healthcare

Electronic medical records have been represented by various other terms in literature. Scholars have used terms such as Electronic Health Records (HER), Electronic Medical Records Systems, Computerized Patient Information Systems (CPIS)[23,24,25]. Another scholar also added that some of the numerous acronyms used for EMR include; Electronic Patient Record (EPR), Computerized Medical Record (CMR), Computer-Based Patient Record (CPR), and Electronic Health record (EMR)[26]. However, irrespective of the term applied, these systems seem to perform a range of related tasks. There are only minor differences in the meanings depending on the defining country of origin, health sector, professional discipline, and period of time. Their main feature is that they have all come to replace the manual method of keeping patients records that have been used for many decades now.

The traditional paper-based medical record management systems developed in the 19th century as from the laboratory journals maintained by physicians in which they record their observations and treatment plans so that they could be reminded of important details when they next saw the same patient. With the establishment of bigger hospitals and the subsequent increase in the number of patients handled by each doctors, the task of keeping patients' records could no longer be properly handled by physicians themselves so there arose the need for health information managers. The patient records however continued to be managed manually with paper records based on some sophisticated systems requiring indexing and other skills. While the manual record keeping system served its purpose, it had various shortcomings which were further highlighted by the invention of the computer[27].

The traditional paper-based approach to clinical documentation has become overwhelmed by information exchange demands among health care providers, financial and legal complexities of the modern health care environment, the increasing rate of biomedical knowledge, growing chronic care needs from an aging population, and medical errors associated with handwritten notes[28]. Furthermore, the manual method comes with other challenges such as inadequate physical space to keep the cards in case of high number of patients, inconsistency in handwriting of individuals as well as vulnerability to t attacks from chemical, biological and environment agents of paper deterioration. In addition, retrieval of patient information often takes a longer time and patients and other unathorised individuals often get access to confidential information in situations where they must take these paper-based records from one unit of the hospital to another[29].

Also, the manual records made it near impossible to share medical data and information, even between related health facilities. There are certain patients who are patients of of several healthcare providers and these patient records are never shared with other physicians, laboratories and hospitals even when it became critical to their care. Hence information becomes fragmented causing disruption, delay and error in patient care. Patients most times do not have access to their accurate and reliable information which could be used by them to meet their need. Studies revealed that patients who understand their condition and are involved with doctors in making decisions are better able to deal with their illness or diseases[30]. This makes a compelling case for the adoption of electronic methods of health records management systems.

Some researchers have described EMR as simply the application of information technology as a means of delivering high quality care through rapid information retrieval

and data management. Based on this, electronic medical records system have come to replace the traditional paper-based health information system due to the superior advantages it offer such as flexibility of information management, cost reduction and effectiveness in terms of timely delivery of health care services[31].

EMR can be defined as an integrated system that supports the comprehensive information requirement of hospitals; including patient, clinical, ancillary and even financial management functions. It is an instance of a holistic health information system which has been designed to collect store, organise, and retrieve clinical and administrative information[32]. Studies have shown that the use of EMR will make the management of comprehensive medical records easier; and has significant potential to improve patient safety, patient satisfaction and hospital efficiency, thereby improving health outcomes for patients[33],[34]. Another scholar traced the origin of EMR to the application to technology to medical practices.

The advent of technology has enable hospitals in developing countries such as Nigeria to follow in the footstep of other countries in the developed world to adopt the use of Electronic Health (eHealth) system. This requires the use of; electronic medical records, Health Information System, decision support system, telemedicine, etcetera, in healthcare services because of the numerous advantages it has over the manual medical records keeping system. In line with this, EMR was defined as a digital form of the paper-based medical records for individuals. This suggests that the new system has the same function as the manual system. However, further analysis of the functions of EMR revealed that it is far more broader than the most sophisticated manual medical records management systems[35].

EMR is application software that entails the pharmacy, computerised provider order entry, controlled medical vocabulary, clinical decision support, clinical data repository, and clinical documentation applications. This application software supports the patients' electronic medical records across inpatients and outpatient sections and it is used by health information managers to capture, document, monitor and maintain healthcare delivery within a healthcare delivery organisation. There are various types of EMR such as Cranium Hospital Management System, Swiftpractice EMR, Care 360, Cerner EMR, Optum Physician EMR, Epic Care EMR, Kareo Clinical, Praxis EMR, Open EMR, Nextech EMR, and many others[36].

The ideal EMR is generally considered as one that captures data from any number of computer systems in the healthcare organization and is used at the point of care to support clinical decision making. This is both demonstrated and supported by the International Organization for Standardization's (ISO's) definition of EMR as "a repository of patient data in a digital form, stored and exchanged securely, and accessible by multiple authorized users. It contains retrospective, concurrent, and prospective information, and its primary purpose is to support continued, efficient, and quality integrated health[37]. This definition by a world recognized body embodies the main function EMR are expected to perform in hospitals.

Experts have identified a set of eight core care delivery functions that electronic medical records systems should be capable of performing in order to promote greater safety, quality and efficiency in health care delivery. These functions include Health information and data management. An EMR must contain certain data about patients as health professionals and other care providers require this information to make sound clinical

decisions. Systems with defined dataset that includes such items as, medical and nursing diagnoses, a medication list, allergies, demographics, clinical narratives, and laboratory test results, can therefore ensure improved access to at least some types of information needed by care providers when they need it[38]. The system can also be used to manage treatment or test results.

A functional EMR is expected to have systems for the management of medical results. Something like a database of treatment outcomes which can guide health professionals on the efficacy of different treatment options. Computerized results can be accessed more easily by the provider at the time and place they are needed; the reduced time lag increases both efficiency and patient safety by allowing for quicker recognition and treatment of medical problems. Electronic results can also allow for better interpretation and for easier detection of anomalies[39].

This is an interface that allows system users to enter orders (e.g. for drugs, laboratory tests, radiology, physical therapy) into a computer rather than doing so on paper. The use of computerized order entry, in conjunction with an electronic health record, has been shown to demonstrate a positive effect on clinician productivity. This functionality can improve workflow processes by eliminating lost orders and ambiguities caused by illegible handwriting, generating related orders automatically, monitoring for duplicate orders, and reducing the time to fill orders[40].

The EMR is also designed as an enterprise system which can make it serve as a clinical decision support system. By integrating specific clinical knowledge, patient information, and other health information, a clinical decision support system (CDSS) aims to elevate healthcare provision. It is able to assist health professionals in making decisions with

regards to patient care through provision of the latest information about a drug, cross-referencing a patient allergy to a medication, and alerts for drug interactions and other potential patient issues that are flagged by the computer.

Clinical decision support systems have traditionally consisted of software developed to directly aid clinicians in making decisions about individual patients by matching their characteristics to a computerised clinical knowledge base and generating personalised assessments and recommendations. Today's most common application for is at the point of care, when the physician can integrate their own insights with those of the system. Nonetheless, EMRs and their clinical decision support systems are increasingly being developed with the capacity to use data and observations that would otherwise be inaccessible or unintelligible to humans.

Historically speaking, CDSSs that rely on computers date back to the 1970s but they have not been so effective due to poor system integration. In addition, ethical and legal concerns were voiced regarding the role of computers in medicine, the independence of doctors, and the responsibility for following the advice of a flawed recommendation system. Many modern CDSS use web-based applications or integrate with other health information systems to improve healthcare delivery. Desktop computers, tablets, smartphones, and even biometric monitoring and wearable health technology can all be used to provide these treatments. These gadgets might have in-device or cloud-based outputs, or they might be connected to electronic health records[41].

It is possible to further categorise and subdivide clinical decision support systems based on factors such as the timing of interventions and whether they are delivered actively or passively. Clinical decision support systems are often categorised as either knowledge–

or non–knowledge based. Rules (IF-THEN statements) are developed using literature-based, practice-based, or patient-directed evidence, and the system then retrieves data to evaluate the rule and generates an action or output. Non-knowledge based CDSS also rely on a data source, but in this case the choice is made with the help of artificial intelligence (AI), machine learning, or statistical pattern recognition rather than pre-programmed medical expertise. Although the use of AI in medicine for non-knowledge based CDSS is on the rise, there are still many obstacles to overcome, such as a lack of transparency into the AI's decision-making process (black boxes) and a lack of relevant data. It will be some time before they are widely used[42]. In the meantime, EMRs still has a wide range of roles to play in healthcare.

For instance, it has been observed that EMR systems should enable communication among care partners, such as laboratory, pharmacy and radiology. Effective communication among health care team members and other care partners and with patients is critical to quality health care while its lack can contribute to the occurrence of adverse events. This means that there should be various modules which interlinks into each other to enable each unit of the hospital to carry out their tasks in full awareness of what other departments are doing that may affects its tasks.

Another functionality is to use the EMR as an administrative tool. EMR systems should have electronic scheduling systems for hospital admissions, inpatient and outpatient procedures, and appointments. This will increase the efficiency of health care organizations and provide better, more timely service to patients. With an oversight of admissions, various ailments, bedspace etc, the hospital administrator can be guided in allocating resources to each unit of the hospital. In addition, patient data can help

determine peak periods which can then be planned for so that the hospital does not become swamped with patients. Indeed, scholars have expressed hope that the use of EMRs can help reduce waiting time and enhance patient satisfaction in hospitals[43,44].

EMRs also offers the hospital the opportunity to improve reporting and surveillance by making it easier to collect standardized, systematic data in a form that can be shared across multiple health care organizations. This can assist Public health organizations to better monitor, prevent, and manage disease thereby improving population health outcomes. In New York City, for example, public health officials designed a program that leverages EMRs to deploy public health alerts to health professionals[45]. Judging by the functions expected of EMR, experts have also outlined three main structures.

Every effective EMR system possess three structures namely; direct care functions, supportive function and Information Infrastructure. Direct care functions are employed in the provision of care to individual patients and it is basically associated with general clinical tasks. Tasks under the this structure include care management, clinical decision support, and operations management and communication. The principal users of these functions are expected to be health professionals as doctors. The functions include diagnosis, goal setting on patient management, planning and carrying out interventions, examination and evaluation of results. It also includes alerts which prompts for contraindications and wrong prescription of medication to patients as well as past medical history, referral, treatment, medication and discharge[19]

Supportive functions are functions that support the delivery and optimization of care, but generally do not impact the direct care of an individual patient. These functions assist with the administrative and financial requirements associated with the delivery of

healthcare, provide support for medical research and public health, and improve the global quality of healthcare. The principal users of this function are the support staff but, under certain circumstances, the Healthcare professionals might be expected to perform certain administrative functions. Examples of these support functions are optimizing patient bed assignments, provision of health guidelines and resources available, administrative and financial coding assignments, electronically query local immunization registries to ensure that a child is currently registered and determine the child's immunization status, as well as the provision of providers' location in the facility[19].

Information Infrastructure function defines the heuristics of a system necessary for reliable, secure and interoperable computing. These functions are not involved in the provision of healthcare, but are necessary to ensure that the information system provides safeguards for patient safety, privacy and information security, as well as operational efficiencies and minimum standards for interoperability. These functions are expected to be performed transparently by EMR system applications on behalf of the end users. The system administrator is expected to be involved in all operations related to configuring and managing the EMR system operation. The functions for this section include security, health record information and management, registry and directory services, standard terminologies and terminology services, standards-based interoperability, business rules management, workflow management [19]

The use of EMR offer several advantages over paper records which have driven its wide acceptability in developed nations and other countries astute enough to recognize the importance of quality health care services. These include: the opportunity for healthcare organizations to improve the quality of patient care and safety, potential to reduce cost

and improve efficiency of the workplace, enabled access to medical records from remote locations, improved speed and ease of retrieval of records, avenues to flag abnormal results and elimination of handwritten prescriptions which reduces the occurrence of prescription errors, simultaneous access to patient records by multiple users and the ability to perform data queries to inform decision making.

EMRs have the potential to improve quality of care. Research indicates that EMR is linked to improved outcomes including better infection control, improved prescribing practices and improved disease management in hospitals. Similarly, the EMR can specifically result in improved patient safety through the reduction in medication errors in hospitals by utilizing computerized prescription entry, predicting drug interactions and displaying a warning for health-care provider, assisting health professionals in reconciling patient medications, and maintaining a detailed and legible medical record. The EMR can help health professionals identify root causes of adverse events in hospitals and outpatient settings after they occur. Moreover, EMR can enable providers to rapidly identify and notify individual patients about important changes in drug therapy. Also, the EMR alert system ensures that proper dosage and drug utilization are administered to patients[46]

Implementation of EMR increases the opportunity for enhanced productivity and efficiency. For example, EMRs help to eliminate the manual task of extracting data from charts or filling out specialized datasheets. EMR use can improve medical staff relations by increasing physicians' workflow efficiency and satisfying the information needs of practicing health professionals. The scheduling systems can greatly improve hospital and clinic efficiency and provide more timely service for patients[20].

The EMR allow a patient to be seen sequentially by different providers with up-to-date information immediately available to all providers. It gives the healthcare provider instant access to other health professionals' evaluations, as well as diagnostic tests. With an EMR, health professionals can more easily coordinate and track patient care across practices and facilities. Health professionals across specialties and disciplines also collaborate on patient outcomes as a team to ensure better care overall, and specifically for chronic care management. The system also make it possible for the services a patient needs - office visits, testing, surgery, hospital visits - to be coordinated and scheduled over the course of a single visit, rather than time-consuming multiple visits[20]

Additionally, the email feature built into many EMRs can result in improved communication by allowing staff the ability to message each other from any workstation. The built-in email feature also allows for real-time communication regarding shared responsibility among health professionals. This provides the ability to simultaneously accomplish tasks and may yield significant time savings[47].

A cost-benefit-analysis study performed by researchers over a 5-year period by aggregating data from their installed EMR, other published studies, and from expert opinion demonstrated a positive return on investment with the primary areas of savings including reductions in drug expenditures, improved utilization of radiology tests, improvement in charge capture, and decreased billing errors. Similarly, another study to examine the economic effect of implementing a commercial EMR showed that the system was associated with direct reductions in spending and increases in revenue during the study period. A first-year savings of almost $1 million directly attributable to the EMR was reported. The savings were realized from reduction in transcription expenses,

improved coding, elimination of need to develop new patient charts, lower space requirements and cost avoidance due to no increase in chart room full-time-employees while patient volume had doubled[48].

The use of EMR allows for increased security of data and enhanced patient confidentiality through controlled provider. Regulations for patient record privacy place stringent demands on healthcare providers to protect patient information while implementing electronic methods for sharing with other caregivers and patients. Therefore, access to patients' information is highly restricted as it allows only authorized users access to all patient information available within an organization. Moreover, the EMR provides resilient security to protect patient record information across the entire wired and wireless environment.

Electronically available data for EMR systems will allow for improved ability to quantitatively analyse trends and identify evidence based best practices more easily. For example, the data needed for a study can often be derived directly from the EMR, thus making much of what is required for research data collection simply a by-product of routine clinical record keeping. Data from EMRs could be de-identified and integrated into larger data repositories where research can be conducted to improve patient safety, medical knowledge, and public health. In view of these, it is interesting to find the level of EMR use by hospitals.

Various studies have been conducted by scholars to understand the influence of various factors relating to institutional support on the use of electronic medical records systems. These studies have yielded various findings capable of providing an understanding of

what needs to be done to improve and sustain the use of electronic health information systems by health information managers and other personnel in the heath sector.

In Nigeria, researchers examined the factors influencing the use of electronic health records among nurses in a teaching hospital. The researchers attempted to determine the level of knowledge of the respondent, access to electronic recording devices, awareness of Nigerian made EMR called the Primary Healthcare and Hospital Information System (MINPHIS) and the use of the system by the respondents. The study adopted a cross-sectional design and a structured questionnaire was used as the instrument for data collection. The study population included nurses working in a teaching hospital. Systematic random sampling was used to select 230 nurses, out of which 206 participated in the study. Data analysis was done with descriptive and inferential statistics.

The results showed that majority of nurses had never used MINPHIS despite a significant percentage willing to use electronic health records. Only a third of the respondents claimed they were provided with MINPHIS computer system in their workplace, while majority had never been trained. All the nurses that were trained claimed it lasted for few days while many affirmed it had no impact on their ability to use the system. Consequently, the study found that paper documentation remained dominant. Statistically, there was significant relationship between use of the EHR (MINPHIS) and availability of computer system, and training of users.[49] This study shows that institutional support are significant in the use of EMR. This was further highlighted in another conducted in Nigeria

Researchers examined the level of use of EMR in a general hospital in Minna, Nigeria. The study was conducted to determine, among other things, what factors are affecting the

use of the electronic information systems. The study adopted the descriptive survey design. The study population consist of medical staff and Laboratory Technologists. Total enumeration was adopted for the sample and a structured questionnaire was adopted for the purpose of data collection. The result of data analysed in the study showed that majority of the respondents that their institution considers the cost of installation very high. In addition, majority of the respondents also reported that system failure due to lack of maintenance often hinder the use the digital record management system. More so, the respondents reported that one of the constraints to the application of digital record management system is lack computers operational skill of the record management staff.[50].

In another study conducted by researchers from south-west Nigeria to examine the factors determining the successful implementation of electronic medical records systems in Nigerian Teaching Hospitals. The study was also an empirical study. The study adopted a survey research design. The population of study comprised 442 health information management personnel in five teaching hospitals that had implemented EMR in Nigeria. A self-developed questionnaire was used as an instrument for data collection. The findings revealed that there is a positive, close relationship between all the identified factors and EMR's success: technical factors; social factors; institutional support (r = 0.621, P , 0.05); financial factors; and political factors. The researchers concluded that consideration of all the identified factors was highly significant for the success of EMR in Nigerian teaching hospitals[51]. This study is more significant in that it focused in health information managers which makes its findings directly related to the current study

Researchers also examined the factors influencing electronic medical record systems success in selected tertiary healthcare facilities in South-West, Nigeria. The study adopted survey research design using stratified random sampling to select two hundred and forty-five (245) respondents. The research instrument used was a structured questionnaire. The result from the study revealed that there was a positive significant correlation between adoption factors and EMRS systems' success and there was a strong positive correlation between usage evaluation and system success of EMRS in the two healthcare facilities. More so, findings showed that adoption factors jointly and significantly affect EMRS system success. The study concludes that electronic medical record systems have become a standard for every healthcare facility for improvement in the efficiency and profitability of the organisations. The study therefore recommends that, all healthcare facilities in Nigeria should adopt the electronic medical record systems, and all healthcare providers should be given thorough training on the use of EMRS[52]. Other study have however suggested that effort are being made to ensure that institutional support work in support of EMR use in health institutions.

This was shown in a study which focused on factors influencing the adoption of electronic health records in public health facilities in Kisumu county, Kenya. The study a cross-sectional design where it targeted 12 public hospitals with a sample size of 132 health care workers. Out of 132 health care workers who were sampled out from 12 public health facilities, 108 consented to take part in the study. Questionnaires with both structured and semi-structured questions were administered. Qualitative data was analyzed using descriptive statistics to summarize the data while inferential statistics applied Chi-square to test for the association between the dependent and independent

variables. It was found that majority of hospitals with 83% EMR are providing training to their employees. This study therefore concluded that training support by the hospital management is a significant predictor of EMR use (X2 (1,108) = 10.144, p<0.05).

It was also found that 74% of the hospitals that have implemented EMR have employed, at least one IT personnel to provide technical support. The respondent also reported that this technical support improved their use of EMR. Hence, there was a significant statistical association between the availability of technical support and EMR use, (X2 (2,108) = 9.724, p<0.05). the same goes for users involvement as 75% of respondent from hospitals with EMR implementation reported that they were involved in decision making during the introduction of the system. The results established a strong significant relationship between users' involvement and EMR use among the respondents, (X2 (1,108) = 5.105,p<0.05)[3].

In another study conducted by a researcher from Kenya, various challenges to electronic medical record management systems adoption was examined. A descriptive survey

research design was used. A sample size of 141 was used out of a population of 473 employees working at the Coast Province General Hospital (CPGH). Stratified random sampling technique was used based on categories of staff establishment. Data was collected using structured questionnaires and analyzed using SPSS version 20 and Microsoft Excel 2007. the study found that the use of EMR was affected by the institutional support such as; lack of computers/hardware (mean = 3.89); lLack of technical training and support (mean = 3.69), lack of computer skills among the staff with (mean =3.60), Limitation of the system with (mean =3.23), complexity of the system (mean =3.24). This is a clear indicator that technical barriers significantly

influence EMR usage in the selected institution[53]. The finding corresponds to what has been reported in other studies

In a study conducted in to determine the factors affecting effective use of digital medical records management in Tanzania and Nigeria, proper planning, good managerial skills, top management commitment, leadership styles and end-user consideration were considered as institutional support necessary to ensure EMR success. Furthermore, many systems fail because of issues related to the organization itself. In developing countries, this means that issues like the national and organizational culture play a big role in EMR implementation. Researchers opined that the success rate of a technology project as 80 percent dependent on the development of the social and political interaction skills of the developer and 20 percent or less on the implementation of the hardware and software technology.

The impact of institutional support on the use of EMR is more pronounced across Africa as shown in a study by a group of scholars. The scholars submitted that healthcare systems in Africa suffer from neglect and underfunding, leading to severe challenges across the six World Health Organization (WHO) pillars of healthcare delivery. The study was conducted as part of a recent African Epidemiological Association Meeting in Maputo, Mozambique with participants drawn from 11 African countries, Cuba, Portugal and the United Kingdom. Participants were divided into 10 groups, consisting of 7 to 10 persons each. Brainstorming approaches were used in a structured, modified nominal group process exercise to identify key challenges and strategies to mitigate healthcare service challenges in Africa.

The first three challenges identified were inadequate human resources (34.29%), inadequate budgetary allocation to health (30%) and poor leadership and management (8.45%). The leading solutions suggested included training and capacity building for health workers (29.69%), increase budgetary allocation to health (20.31%) and advocacy for political support and commitment (12.31%)[54]. This shows that the institutional support affecting the use of EMR in African health institutions runs deep and studies are necessary to identify the depth of the challenge so that useful solutions can be proffered

Also, a formative evaluation study of EMR conducted by researchers in Norway concluded that concentrating on technological issues (i.e. hardware and software) to the detriment of human ware is a risky strategy for implementing and sustaining EMR. However, there are challenges related to understanding and optimizing the complex interaction between people (healthcare professionals, patients and laypeople) and computer systems. While efforts have been made to implement EMR in the nation's health sector, there are issues challenging its continuous use and overall use. It is therefore crucial that this system is successfully implemented and continuously used over time if it is to bring about any of its intended benefit to healthcare delivery.

Technological factors determine how the operations within a hospital setup is maintained and fast tracked using IT resources like EMR for improved service delivery. These EMR related infrastructure (hardware, software, network and related equipment) are key determinant to successful implementation and adoption of the system since they improve the general work performance output of the healthcare workers who interact with it frequently. The study conducted on the use of EMRs in Nigerian health institutions have

been hampered by low level of implementation in the hospitals. This has limited researchers to focus on intention to use instead of actual use.

The results of a study on the intention to use EMRs by the doctors at the Lagos University Teaching Hospital found out that majority were enthusiastic about the possibility of an EMR. Indeed, nearly all of them were ready to take computer training to help them use EMRs. While it was found that half of the respondents had very strong IT abilities, more over two thirds of the respondents were also willing to spend their own money on personal laptops or computers for more training. These results are comparable to those of a study done in Norway, where a large portion of participants had strong computer abilities, but they contrast with those of a study involving 106 physicians in Saudi Arabia, where just 21% of participants had strong IT expertise. This can be as a result of the absence of supporting infrastructure in those environments.

The study's participants all had positive opinions on using EMRs. Similar research was done in Kuwait, Eastern Arabia, where nurses tended to view computerised health information systems favourably. Additionally, a survey carried out in Ethiopia revealed that more than half of the participants had positive attitudes. According to a study conducted in Ekiti, Nigeria, the majority of doctors had a favourable attitude toward the use of technology in healthcare. Studies also revealed a high level of readiness to use electronic medical records at the Lagos University Teaching Hospital as well as a perfect attitude toward their utilization.

The majority of survey participants who indicated their willingness to adopt electronic medical records were between the ages of 20 and 39. The majority of the respondents who were willing in a similar study conducted in a semi-urban area of Nigeria were also

young. This demonstrates that a population's willingness to try new things increases with age. What is suggested in these studies is that health professionals have developed positive attitude towards the use of EMRs[55]. While the necessary skills is still not widespread among the professionals, majority are showing the necessary willingness to acquire the needed skills which shows a great prospect for the use of EMRs in the hospitals whenever it is implemented[56]. The problem therefore is lack of implementation and not attitude towards use or ability to use EMRs among the health practitioner.

Another group of researchers from Nigeria also examined the factors affecting the use of EMR in hospitals. The study adopted a survey research method. A sample size of three hundred and ninety-seven (397) was determined using krejcie and morgan models, comprising of strategic managers, and the operational staff drawn from a population of 2889 in the selected hospitals. Questionnaires were used for data collection. The study adopted a descriptive statistical analysis method to describe the existing medical records systems. The result showed that majority of the respondents (67%) confirmed lack of availability of key ICT resources such as computer compatible medical devices, connectivity of internet, availability of ICT support staff, availability of electronic records managers. From the foregoing results, the researcher submitted that existing ICT infrastructure and resources of the hospitals understudy was grossly inadequate due to the fact that most of the indices such as availability of electronic record managers, availability of ICT support staff, computer compatible medical devices among others, were found to be poor.

In addition , majority of the confirmed that staff were not trained on the use of EMR software and troubleshooting the system. Also, a large section of the heathcare

professionals claimed that users were not involved in planning and that management selected a few of the employees to learn about the use of EMR. The import of this is that healthcare staff in selected hospitals unanimously submitted that staff readiness for EMR implantation in the selected hospitals was grossly inadequate[57]. This was further confirmed in a related study.

Further studies conducted in Nigeria have also shown that institutional support often exist in a way that negatively affect the use of EMR. This was further shown in a study conducted to examine the role of electronic medical record system as a central ICT tool for quality healthcare services. The study adopted mixed methods to evaluate the benefits and challenges of implementing the Electronic Medical Record System (EMRS). Using Southwestern Nigeria as a case study, the study focuses on the factors that have been delaying the introduction of EMRS; the perception of both the staff and patients and the risks associated with the implementation of the EMRS in the Nigerian health sector. The results reveal that the majority of the hospitals in the study area still engage in manual record-keeping which is time consuming and keeps the patient waiting, and is very frustrating, especially in emergent conditions. The results show that 99% of participants in the study survey perceived that EMRS would bring better effectiveness to healthcare services in Nigeria. This is evident from the representativeness that about 67.2% of respondents strongly agreed that EMRS would bring fast and efficient healthcare services while 96.7% believed that improved power supply would aid its effectiveness. Thus, the key finding of this study is that erratic power supply is an important challenging factor in the introduction and implementation of EMRS in Nigeria. Over the past decades, healthcare providers have been under pressure to provide medical services in a complex

and challenging settings with increasing population of patients. This seems unattainable with organization failing to provide basic infrastructure such as electricity and internet.[58]

Internet connectivity is an important factor for progress of any nation. It is gradually improving in many parts of Africa . Access to information can improve the quality of health care, communication among health care team members and other care partners (e.g., laboratory, radiology, and pharmacy) as well as with patients. Unfortunately, internet access is not evenly distributed across the globe and the penetration levels seems relatively low while even basic connectivity is still lacking in many developing regions. In fact, global statistics reported in 2011 that only 26% of individuals in developing world were connected to the internet[59].

EMR incompatibility occurs when the system components cannot operate satisfactorily within the same computer or different computers linked by a common network. It is likely that the system component can be compatible in a given hardware and incompatible in another. Therefore, the implementation of EMR is totally dependent on the complex and compatible working components of the hardware and software as the operability requires additional functional devices to complement the system.

The challenges experienced with EMR implementation in developed countries is somewhat different from those experienced in developing countries. By reason of the research objectives of this study, the focus of this section will be restricted to the challenges peculiar to public hospitals in developing countries like Nigeria. The availability of EMR in Sub-Saharan Africa has increased over the last decade, but it has not been without challenges[60]. And while some private hospitals in Nigeria have fully functional EMRs, Government institutions appear to be slow in implementing EMR and

other appropriate ICTs which are required to improve healthcare delivery. Government policy and strategy; lack of ICT infrastructure; lack of basic ICT skills/knowledge; poor internet connectivity; financial issues/constraints; and inadequate electric power supply were identified as the major challenges that hinder the successful implementation of EMR systems in developing countries like Nigeria[61].

It has been suggested that government policies might constitute the major barriers hindering the adoption of electronic patient record in Nigeria. The World Health Organization identified the need for a robust government policy on healthcare technologies in Nigeria to facilitate the implementation of e-health initiatives. Successive governments have strived to improve the health status of Nigerians through series of national developmental plans and annual budgets, however, only modest progress was made in the past.

The current plan termed National Strategic Health Development Plan (NSHDP) was developed through an elaborate collaborative process involving all major stakeholders and actors towards delivery on a shared results framework, to which each and every one will be held accountable for achieving the goals and targets as contained in the results framework. National Health Management Information System is one of the 8 strategic priority areas. Among other things, it aims to provide infrastructural support and ICT of health databases, strengthening of the use of information technology on Health Information Systems, establishment of public-private partnerships in the management of data warehouses as well as deployment of acquisition systems for database software at all levels. Since monitoring is imperative towards achieving this targets, a monitoring and evaluating system was proposed to provide accurate, reliable and timely information on

progress made by the NSHDP and provide regular reporting on the performance indicators[62].

Lack of ICT infrastructure. The ease of adoption of EMR is dependent on existing infrastructure in a hospital or healthcare organization. A previous study had identified inadequate ICT infrastructure as one of the barriers for electronic health information implementation. Unlike the developed countries that boast of robust healthcare infrastructures with ample financial support from their governments, the reverse is the case in most developing countries. Thus, limited access to computers and other ICT facilities remain a challenge to the successful implementation of EMR in developing countries such as Nigeria.

Training is considered central to any healthcare delivery system but little information is available on the level of training and utilization of IT among healthcare professionals in developing countries. While health professionals in developed countries are currently being trained by means of cutting edge technologies like 3D simulations, virtual reality, and robotics, their counterparts in developing countries lack such exposure. This lack of exposure to advanced concepts in medical training tend to widen the gap between health professionals on the two sides of the divide which may reflect in the efficiency and success of EMR implementation in developing countries. Although medical doctors in Nigeria, because of their formal training and access to personal computers and other devices, may be able to quickly adapt to the EMR system, the same cannot be said of other support staff who have had little access to computers and other ICT facilities.

Internet connectivity can transform the flow of information in the health sector through effective data management systems, picture archival, and communication systems, and is

specifically important for running of radiological information systems and teleradiology. Access to the internet has dramatically improved in the last 10 years, and all countries in Africa now have direct access to the internet. But the low speed and expensive internet bandwidth in Nigeria will hinder the implementation of the EMR because a high bandwidth is required for transmission of large images between institutions and as well as accessing the EMR itself especially if they contain videos and images.

The implementation of the EMR comes with huge financial responsibilities in the form of purchasing necessary software and hardware, installation, training hospital staff and maintenance which may deter governments and institutions from embarking on such projects. However, as EMR technologies have become more commonplace over the past decade, the initial cost of systems has come down dramatically. The cost of EMR adoption, implementation, and ongoing maintenance are compounded by the fact that many financial benefits of the EMR generally do not accrue to the provider (who is required to make the upfront investment) but rather to the third-party payers in the form of errors averted and improved efficiencies, which translate into reduced claims payment. This misalignment of incentives for health care organizations, along with high upfront costs, creates a barrier to adoption and implementation of an EMR, especially for smaller practices

Any country that finds it difficult to provide Uninterrupted Power Supply (UPS) to its citizens will definitely have problems with deployment of good ICT services like the EMR. An uninterrupted power supply is a prerequisite for adoption of hospital information systems (EMR) and ensures avoidance of unintended shutdowns that could lead to loss of data or permanent system damage. The power supply is erratic or non-

existent in many regions of the Sub-Saharan. For example, only few cities and towns in Nigeria have stable and reliable electricity for ten consecutive hours a day. This has resulted in most internet facilities in Nigeria suffering frequent downtime and equipment damage due to power interruptions.

The increasing dependence of healthcare delivery on the internet has increased the likelihood of individuals or organizations conducting cyberattacks through the internet that will cause physical and/or psychological harm. Cyberterrorism is defined as the convergence of terrorism and cyberspace. It is generally understood to mean unlawful attacks against computers, networks, and the information stored therein when done to intimidate or coerce a government or its people in furtherance of political or social objections. Attacks that result in violence against persons or property, or at least cause enough harm to generate fear qualify as cyberterrorism. Examples include attacks that lead to death or bodily injury, explosions, plane crashes, water contamination, or severe economic loss[63].

Cyberattacks in healthcare may include bringing down a hospital computer system or publicly revealing private medical records which in turn compromises patient care and diminishes trust in the health system. Areas of particular concern to healthcare- related facilities include the potential for cyberterrorism-related events to erase or alter computerized medical, pharmacy, or health insurance records.

The risk is more acute in larger healthcare organizations such as hospitals, which have moved away from stand-alone workstations to more tightly integrated platforms that are attached to networks. The ability to deliver healthcare would be crippled if terrorists disabled crucial parts of a nation's IT system using cyber methods to alter, delete, or steal

vital health information. These attacks can result in substantial cost implications in the form of payment of ransoms and disruption of services.[64]

There is evidence to suggest that cyber threats are increasing and the healthcare system is ill equipped to deal with this daunting challenge. Healthcare organizations should therefore prepare themselves by ensuring they have appropriate measures in place to secure important systems that could be potential targets for terrorists[26]. The effect that all of these challenges have on the use of EMR in an organization would depend on some organisatonal factors peculiar to that organisations.

2.1.3 The concept of Institutional Support

Institutional support are internal influences that describe the characteristics of health care practice within a given health care facility. Institutional support is a wide concept with various aspects which can be explored by researchers. From the perspective of public administration, institutional support is the assistance or support provided by governent and its agencies provide to businesses as a way to lessen the negative consequences of weak institutional infrastructure. Implemented policies, programmes, financial assistance, and information are among the supports. Due to the weak legal framework, dysfunctional competition, which reflects managers' perceptions of the application of legal protection against opportunistic, unfair, or criminal activities, is one of the key factors that influences enterprises' innovation behaviour[65]. However, organisations are also referred to as ‘institutions’, so institutional support can also be viewed in the context of various organisations.

The term "institutional support" in this sense refers to organisational active encouragements in the form of rules, policies, financial aid, and other forms of assistance that motivate personnel to carry out their duties in a highly effective and fruitful manner[66]. Some researchers have focused on aspects of organizational factor such as the size of the organization, financial resources available, human resources available and the leadership style being used in the organizations. Some researchers have also identified good managerial skills, management commitment, leadership styles and users' involvement as institutional support necessary to ensure EMR use[67]. This has led some researchers to conclude that organisations with large and stable human, organizational and financial would be able to sustainably manage technological projects. From this perspective, it would be expected that all teaching hospitals and large public hospitals in Nigeria will be able to afford EMR while smaller hospitals would find it difficult[68].

However, available evidence from most hospitals in Nigeria has shown that bigger is not always better due to certain organizational barriers that contribute to low EMR adoption by even the largest health facilities in the country. This goes to show that, all these are relative and they can be measured differently by researcher in different circumstance. While they may influence the use of EMR in some instance, majority of scholars have examined other factors that are considered more measurable and capable of directly influencing the use of EMR.[69]. Researcher have identified various elements that characterized institutional support such as financial resources, training support, technical expertise and human workforce, user involvement in the designing stage of technology, harmonized legal standards enforcement and social proximity.

These metrics speaks more to the character and orientation of the organization; something like organizational culture or organisational attitude. This is highlighted in the submission of a scholar who opined that national and organizational culture play a big role in EMR implementation. The author asserted that institutional support accounts for 80 percent of the successful of implementation and use of EMR while the remaining 20 percent can be attributed to the strength of the hardware and software deployed in developing the implementation of the system. Also, a formative evaluation study of EMR concluded that concentrating on technological issues (i.e. hardware and software) to the detriment of human ware is a risky strategy for implementing and sustaining EMR. It means that some organizations are more likely to excel in the adoption of EMR while others would struggle. Organizational factions are therefore expected to influence the use of EHMIS. These factor relate to the strategies and policies that can be deployed by to ensure effective use of technology including the use of electronic medical records systems[70].

However, there are challenges related to understanding and optimizing the complex interaction between people (healthcare professionals, patients and laypeople) and computer systems. While efforts have been made to implement EMR in the nation's health sector, there are issues challenging its continuous use and overall use. From, the review conducted so far, it can be seen that all of the types or form of relevant institutional support can be grouped under management support, technical support, and financial. While the availability of these supports are crucial to the effective use of EMR, the situation in developing countries such as Nigeria, the opposite is often the case whereby many of these supports are either not adequate or generally not available. This is shown in the way in which many scholars discuss the issues in literature.

The management of any organization is responsible for driving innovation and development in the organization. Management support for projects such as the electronic medical records systems start with the provision of clear cut guidelines; establishing policies that makes the use of technology an integral part of the organization and showing willingness to confront issues affecting the implementation and use of technology. Management support therefore does not stop at setting up the new system and support its routine maintenance; it also encourages all members to see the new system as some beneficial that they have to use. In addition to management support, providing training support for the health information manager sand others who may have course to make use of the new system. For instance, the low level of technology adoption in the Nigerian health sector means that many hospitals seeking to implement EMR often has to start from scratch; investing on hardware, software and other relevant equipment at a significant amount of money[71].

This is where financial support comes in. The cost of implementing an EMR project in hospitals in developing countries is considered to be one of the major challenges to its adoption in most health facilities. The cost of EMR implementation has been cited as one of the most frequently identified factors that limit EMR adoption[72]. Studies have shown that low adoption of EMR in Sub-Saharan Africa has been associated with high cost of implementation due to hardware, software and training costs. The cost of acquiring the hardware and software needed to set up EMR in most hospitals in developing countries tend to be more prohibitive and to those who can afford them, they often let the system collapse due to lack maintenance culture[73]. This become more problematic when the management does not believe in providing the necessary financial

support in form of spending a significant part of their lean budget on new technology or to continue spending more money on routine maintenance[74].

Financial support is therefore important for the use of EMR in hospitals as the support are necessary to keep the system running through routine maintenance, mandating every member to make use of the system and generally showing that the management recognized the new system as an integral part of the hospital which every members of the hospital must be ready to embrace.

The introduction of a new technology innovation like EMR has various repercussions for potential users in health facilities. Studies have shown that hospitals with the foresight of providing training opportunities for health managers and other personnel relevant to the use of EMR, record a relatively high acceptance and actual use of EMR[75]. This is because training increases awareness and confidence level as potential users are able to overcome technophobia while relating usage to expected benefits.

Training has been found to of high importance in the use of EMR in developing countries such as Nigeria due to the issue of limited staff expertise and availability of trained health information managers. The numbers of staffs with desired level of IT literacy in EMR are not adequate; yet, the few who have undergone IT training are not involved in mainstream ICT related activities like EMR design and implementation because the existing human resource post does not have a structure for ICT professionals. On the other hand, recruiting and retaining full-time health information managers with experience is quite difficult. In most cases, hospitals may lack health IT staff without any justifiable reason and if available, they end up being overworked due to the multiple responsibilities that they are engaged in, preventing them from fully engaging on the

implementation of any new technology implementation. Therefore, in order to meet the efficiency and effectiveness of EMR system use, health care facilities need to provide sufficient staff expertise and workforce that are reliable and full of capabilities, otherwise, the issue of low adoption of EMR system will persist[76].

2.2 Theoretical Review

This section examines the theories in which the study is based. The linking of empirical studies to a relevant theory has been approved by scholars who opined that theories provides an undisputable structure for research works by providing the clear metrics for measuring the study variables and guiding the research in following the systematic and effective path that have been laid by previous scholars. The use of theory therefore provides equal basis for comparing similar studies. The current study is based on three theories namely; Nursing Service Delivery Theory, Technology Acceptance Model (TAM), and Institutional Support Model.

2.2.1 Nursing Service Delivery Theory

The nursing service delivery theory was proposed by Meyer, M and O'Brien, L in 2010[5]. According to the theory, the general work demands on nursing work groups at the point of care are determined by the interplay between input, throughput, and output parameters in production subsystems (figure 2.1). In the context of the current study, the output is of the most concern. The output is divided into human resources outcome and organisational outcome.

Positive outcomes in each of these domains ensure that members of the community continue to use the organization's services, that staff are retained to give the services, and

that the organization's accreditation and funding are sustained, so these energising outputs give feedback and reactivate the system in a cyclical manner. The theory recognized that there must be a balance in the service delivery system in which the hospital does depleted itself and its human resources in the course of rendering quality services. One of the issue identified is staff entropy. This is when staff being to lose focus or interest after performing the same task over and over again.

There are a few approaches that can be taken to reduce the effects of entropy on health information managers. The hospital can create Negentropy or negative the entropy by training existing staff or recruitment of new ones. It can also ensure the conservation of employee energy through the use of capacity buffers such as shift rotation and) the creation of slack resources through the relaxation of performance targets to decrease the number of exceptions, the increase of financial resources, or the extension of lead times by ensuring that more staff are on duty during each shift or changing from two to three or four daily shifts.

The other aspect of output is organisation or system outcome. This involves the evaluations of service quality, efficiency, and resource utilization. The organisational outcome focuses on the success rate like how many time was the records unit able to retrieve the appriate information for those who need and how often does the record unit contribute to quick service delivery. It also focuses on the level of efficiency in the records unit. That is how many staff and manhour does it takes to achieve a particular information processing task. The last on the item is the focus on the resource utilization in term of staffing stability, the cost of providing the information management services etc.

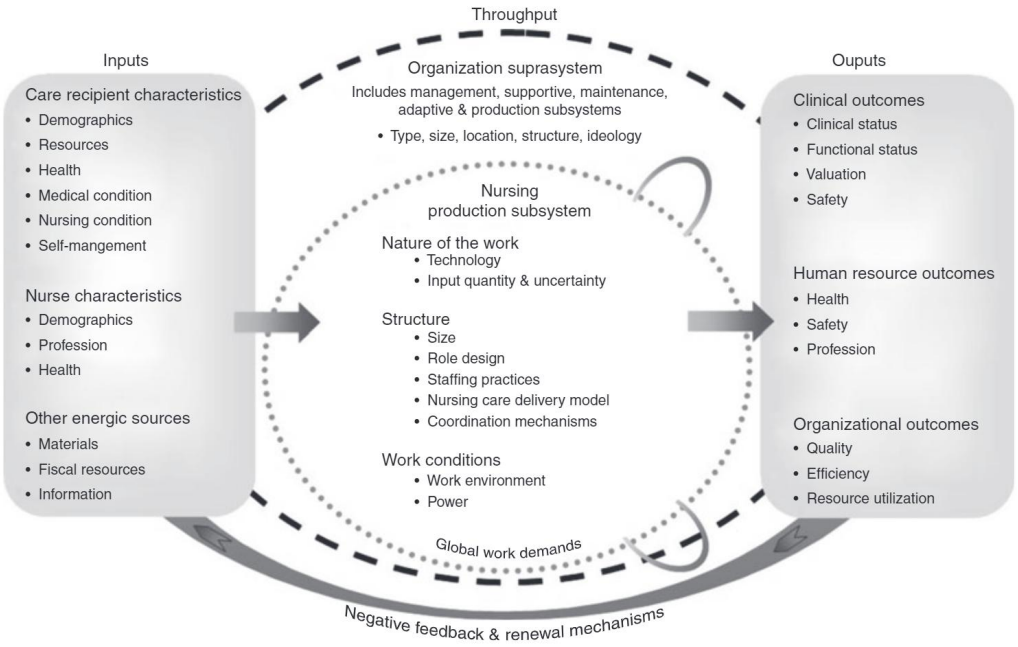

Figure 2.1: Nursing Service Delivery Theory (Source: Meyer and O'Brien-Pallas, 2010)

2.2.2 Technological Acceptance Model

The technology acceptance model, (TAM) was created by Davis in 1989. The model holds that a technological system's likelihood of being adopted by its intended users is contingent on two factors: (1) the system's perceived usefulness, and (2) the system's perceived ease of use. This model's distinguishing characteristic is that it centres on the viewpoint of the target audience. To put it another way, the inventor of a piece of technology might think it's great and easy to use, but that doesn't mean anyone else will. Users' active willingness, as opposed to merely passive tolerance, is what is meant by "acceptance" when discussing the purchase or implementation of an information system and its subsequent long-term use[77]. Many models have been created over the past 30 years to define and relate individuals, organisations, and external contexts that may affect

the adoption of information technology. The Technology Acceptance Model (TAM) is the most widely used, well-tested, and practically implemented strategy.

The TAM provides a cognitively grounded rationale for why the EMR has been so widely adopted. What is meant by "cognitive factors" is how well users think the EMR serves their needs and how simple its interface is to use. Perceived usefulness is the user's evaluation of how the adoption of a given IT application enhances the performance of work activities within a given organisational acceptance scenario. When evaluating an information system, its perceived ease of use refers to how quickly and easily its features can be mastered. If a EMR has a lot of useful features and is simple to navigate, health information managers will be more inclined to adopt it. Perceived usefulness and perceived ease of use interact in the Technology Acceptance Model (TAM) to create a user's intention to use the technology in question (behavioural intention to use), which can lead to actual system use[78].

Both the perceived usefulness and the perceived simplicity of use are significant indicators of EMRs adoption and utilisation. However, both aspects are influenced by external elements such as culture, job position and function, data quality, and system security[79]. Perceived usefulness appears to be more essential in influencing intentions and actual use in Western cultures, as evidenced by a number of research, whereas ease of use appears to be the key in non-Western cultures.

There may be some resistance to adopting a EMRs among those information managers who are used to the manual method of data entry and records management. This is to be

expected as every community views with scepticism any effort to introduce novel approaches to established practises and routines. Concerns about loss of control or evaluation, privacy, or ethics can all contribute to a lack of trust in new situations or ways of doing things. Some information may feel helpless, lose control, or lack the necessary abilities when confronted with a EMR project; furthermore, they "must come to grips with the function of repositories within the new system in order to remain relevant in their field[80].

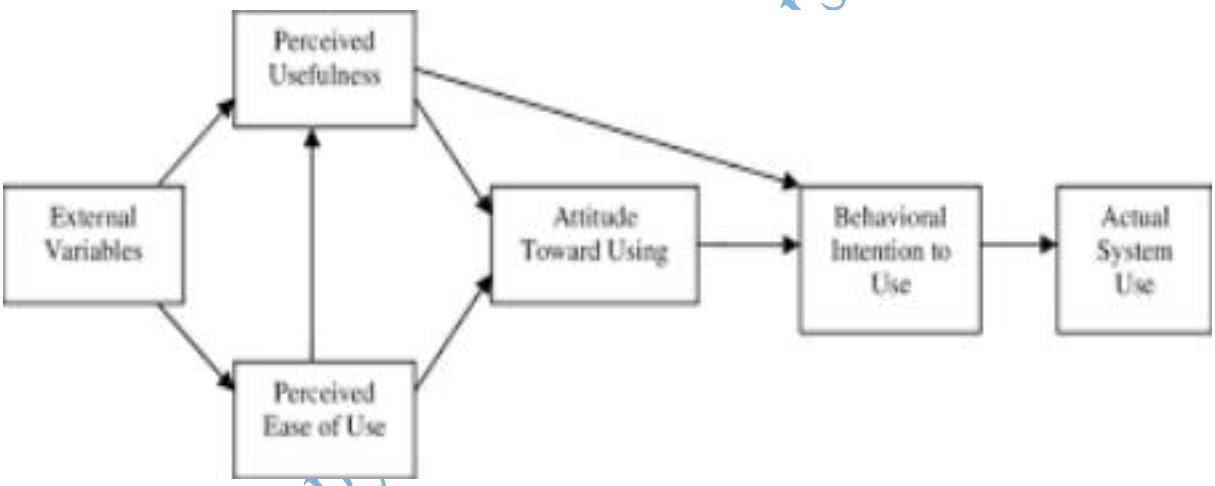

Figure 2.2: Technology Acceptance Model (Source; Rahimi, 2019)

2.3 Review of Empirical Studies

This section reviews empirical studies that have been conducted in relation to the subject of healthcare service delivery and associated factors that make it effective. The review is carried out to compare methods, populations, and findings that have been reported by previous authors.

2.3.1 Use of Electronic Medical Records and Healthcare Service Delivery

Service delivery in the modern era has benefited a lot from the implementation of various automation projects and the integration of technology in the activities of service providers. The healthcare industry has also found technology useful for various reasons and the adoption of technology is above average among healthcare providers. One of the applications of technology in healthcare delivery is the use of medical records which is the transformation of the manual records system to digital and computer-based information systems. As a project that comes with significant costs, scholars have examined the role of electronic medical records in the effectiveness or quality of service delivery in the healthcare sector.

Researchers in the United States examined the importance of electronic medical record (EMR)-derived information in helping doctors to effectively predict critical outcomes in patients. The study was on longitudinal study which lasted for a period of seven years. A total of 9502 Medicare-enrolled patients with HF from 2 healthcare provider networks in Boston, Massachusetts were included in a prognostic study with a 1-year follow-up period. Logistic regression, least absolute shrinkage and selection operation regression, classification and regression trees, random forests, and gradient-boosted modeling were used to model all-cause mortality, HF hospitalization, top cost decile, and home days loss larger than 25%. (GBM). All the models were trained on data from Network 1, and then evaluated in Network 2. The area under precision-recall curves (AUPRCs) and net benefits estimates from decision curves were constructed to focus on the differences between employing claims-only vs claims + EMR predictors after the most effective modeling strategy was selected based on discrimination, Brier score, and calibration. The

study found that the use of electronic medical records helped to reduce the cost of healthcare mortality among home-based patients[81]. As shown in a related study, the use of electronic medical records has even wider impact on healthcare service delivery.

Many hospital administrators have yet to find a solution for hospital-wide implementation of Electronic Medical Records (EMRs). EMRs have been widely recognised as an essential tool for enhancing healthcare quality and safety, saving costs, streamlining procedures, enhancing clinical research, and achieving top clinical performances. However, hospitals still face pushback from experts when implementing EMRs. Institutional and individual factors are combined in this study to shed light on what influences the adoption of electronic medical records (EMRs) in healthcare settings and what levers can be pulled by managers to influence clinicians' actions. A survey was given to doctors and nurses at a university hospital in Rome, Italy, to gather this information. The 114 responses submitted were all of a high enough quality to be considered. The findings showed that both physicians and nurses anticipate significant advantages from EMR adoption. It is expected that EMRs will improve several aspects of healthcare, including the quality, efficiency, and efficacy of care; better communication between healthcare staff; education, tutoring, research, and greater control over your own business. It is clear from the data that there is a reciprocal relationship between individual and institutional factors: normative factors directly affect perceived usefulness (C = 0.30), perceived ease of use (C = 0.26), and intention to use EMRs (C = 0.33), while regulative factors affect the intention to use EMRs (C = -0.21). The results of the study demonstrate that perceived usefulness acts as a mediator between normative variables and desire to use EMRs, and that peer influence and individual characteristics are the primary

determinants of EMR adoption. Therefore, management can use these influential users as a resource for driving, sustaining, and controlling change[82].

Researchers also considered how electronic medical records help in drug administration to patients. The study was based on the premises that, medication should be prescribed at the most appropriate time and interval. Medication that is taken for the correct amount of time can have a greater therapeutic effect while also reducing the risk of negative reactions and bad side effects. This research presents a data-driven strategy for extracting normative treatment duration trends for evidence-based drug usage from electronic medical records (EMRs). The study conceptualised drug-used duration statistics (DUDS) as a five-fold for each drug, and utilised a DUDS vector to represent DUDS for each treatment record (DUDSV). Then, to determine the degree of similarity between treatment data, a similarity measure approach was used. Meanwhile, all patient treatment records are clustered using a clustering algorithm to extract typical treatment duration patterns, such as typical drug sets, effective drug usage day sets, and the DUDSs of each typical drug. Specifically, the study found that using data provided by electronic medical records can lead to a 14% reduction in hospital mortality rate[83].

In another study, the focus was on how to map the trend of birth rate in the US using data mined from electronic medical records. The data was used to find the influence of the COVID-19 pandemic on fertility rates. The study was motivated by the need to plan for increase or decline in birth rates in order to help health services providers and government agencies to accurately estimate the rate of population growth and the necessary interventions. The researchers used projection modeling based on electronic

health care records in a tertiary institution's medical center to estimate changes in pregnancy and birth rates prior to and after the COVID-19 pandemic societal lockdowns.

Interrupted time series analysis was used to assess the degree to which COVID-19 societal changes may have factored into pregnancy episode volume. Potential reasons for the changes in volumes were compared with historical pregnancy volumes, including delays in starting prenatal care, interruptions in reproductive endocrinology and infertility services, and preterm birth rates. This cohort study documented a steadily increasing number of pregnancy episodes over the study period, from 4100 pregnancies in 2017 to 4620 in 2020 (28 284 total pregnancies; median maternal [interquartile range] age, 30 [27-34] years; [66.2% White women, [13.4%] Black women; 21 77 [7.7%] Asian women). A 14%reduction in pregnancy episode initiation was observed after the societal shutdown of the COVID-19 pandemic (risk ratio, 0.86; 95%CI, 0.79-0.92; P < .001). This decrease appeared to be due to a decrease in conceptions that followed mandated COVID-19 pandemic societal shutdown. Prospective modeling of pregnancies currently suggests that a birth volume surge can be anticipated in summer 2021. This cohort study using electronic medical record surveillance found an initial decline in births associated with the COVID-19 pandemic societal changes and an anticipated increase in birth volume[84].

Researchers also examined whether the use of electronic medical records (EMR) can help hospitals and patients reduce the rate of readmission which means that patients are helped to remain healthy even after they have been discharged from the hospital. The study adopted predictive modeling of data to predict 30-day hospital readmission among the patients. Seventeen models predicted the risk of readmission for all patients and 24

developed predictions for patient-specific populations, with 13 of those being developed for patients with heart conditions. The study found that using the information obtained from electronic medical records to make informed decisions by health practitioners helped reduced the readmission rate significantly.

This is the point of view of scholars who explored various strategies to assist primary care physicians in improving patient care with the use of medical records in primary health care. The study reported that the inability to effectively collaborate and communicate information in the care of complex patients has been linked to a lack of interoperability and standardisation of interfaces across these systems. The study, therefore, submitted that the establishment of regional and national health policies to guarantee the standardisation and interoperability of systems is crucial.

The dispersed nature of the health information landscape is a direct result of lack of interoperability between various EMR systems. Electronic medical records (EMRs) are a game-changing innovation with the potential to completely transform the healthcare system. When used correctly, the EMR has been found to increase the consistency and quality of patient treatment. The study concluded that the most important thing with electronic medical record deployment and use is the importance of paying close attention to the EMR's effect on clinical processes in order to maximise the EMR's ability to enhance patient care[85]. The use of electronic medical records has also been found useful in pediatric healthcare.

Research assessed the usability of an electronic health record created to aid healthcare service delivery in the treatment of children and youth with complex behavioural health issues, as well as the EHR's effect on service procedures, integrity, and proximal results

of healthcare. The study was experimental research. A total of 34 health workers across 2 programmes in 2 states were randomly assigned to two groups with one group use the EMR while the other used the manual method of record keeping. In all, 211 children and young people who were referred to services during a period of eight months were included in the analysis. The study enrolled 83 of the 211 patients, with 49 participants in the EHR condition and 34 in the SAU condition after deleting those who were ineligible and those who declined to participate.

Online surveys and, when appropriate, phone interviews were used to gather data from facilitators. The result showed that those who use electronic medical records spent much less time overall (P=.04) issuing reminders to youth/families and significantly more time (P=.03) monitoring client progress in supervision. It was also discovered that they tended to spend less time on administrative duties (P=.098). There was minimal evidence of an effect (positive or negative) on overall service quality, fidelity, or client happiness, but the results support the proposal that EHR systems can promote the utilisation of client progress data and enhance efficiency[86].

Researchers in Bangladesh also examined the impact of electronic medical records on health services in the country. Specifically, the study used an expanded version of the Unified Theory of Acceptance and Use of Technology to determine what elements are most important for doctors to consider when deciding whether or not to use electronic health records (EHR) in Bangladesh's healthcare. The study adopted a survey research method. Three hundred people were surveyed using a cross-sectional questionnaire at public and private hospitals in Dhaka, the Bangladeshi capital. This research employed a statistical methodology called partial least squares (PLS) that is based on structural

equation modelling (SEM) to decipher the information gathered. The study found that; Social Influence ($\beta = 0.19$, $P < 0.05$), Facilitating Conditions ($\beta = 0.19$, $P < 0.05$), and Personal Innovativeness in Information Technology ($\beta = 0.19$, $P < 0.05$) were found to significantly influence physicians' Behavioral Intention to adopt the EHR system, while Performance Expectancy ($\beta = 0.08$, $P < 0.05$) was found to have no effect.

Furthermore, the study found no significant effect of Resistance to Change ($\beta = 0.03$, $P > 0.05$), Effort Expectancy ($\beta = -0.02$, $P > 0.05$). The results imply that policymakers should enhance EHR system adoption by assuring technological adequacy, training to assist EHR system use, and social tactics to encourage physicians to motivate each other to utilise the EHR system. In addition, governments should single out doctors who show a willingness to try out novel IT solutions, and they should work to eliminate obstacles like overcrowded computer labs and unreliable power supplies[87]. The fact that the majority of the literature that have been reviewed so far came from the developed world shows the trend in the adoption of electronic medical records is not as pronounced in Africa and Nigeria in particular.

A group of researchers observed that in order to achieve the goal of universal health care across Africa, novel approaches like digital health are required. Unfortunately, there are a number of obstacles that must be overcome before their widespread implementation on the continent can be assured of success. There are several advantages to digital health. Several factors have been identified as potential enablers for achieving universal health coverage, including: bettering access to healthcare services, especially for those in hard-to-reach areas; increasing the safety and quality of healthcare services and products; enhancing health workers' and communities' understanding of and access to health

information; decreasing the financial burden of providing care; and increasing access to the social, economic, and environmental determinants of health.

However, obstacles such as weak health systems, lack of awareness and expertise about digital health, inadequate infrastructure (such as unreliable electricity and internet) and a lack of interoperability among the many digital health systems are limiting the deployment of digital health in Africa. For digital health to play a role in helping countries achieve universal health coverage, prerequisites like a strong healthcare infrastructure, supportive communities, and entry to social and economic resources must be in place. For digital health to be used successfully and sustainably for universal health care in Africa, more evidence and a conceptual framework are required[88].

Researchers have also pointed out that, while electronic medical records have the potential to increase the quality of healthcare delivery by raising both public and professional understanding of the healthcare system and fostering greater cooperation between various government agencies, they can also have a negative impact on healthcare delivery. Researchers in the United States observed that burnout among health workers has reached crisis proportions. This has been attributed in part to the implementation of electronic health records. Since EHRs have been widely implemented, the physician's engagement with them is a major factor. According to some research, American doctors spend just as much time practising "desktop medicine" as they do seeing patients in person. Many patients and doctors feel neglected when their doctors have to split their focus between themselves and electronic health records. Although there are not many doctors who want to go back to paper charts, there's a growing belief that EHRs are to

blame for the widespread discontentment and burnout experienced by medical professionals[89].

2.2.3 Adapted Model of Institutional Support

The model was developed by three Hispanic scholars namely Mary Bond, Carolyn Cason, and Jennifer Gray in 2015. The model was an adaptation of a previous on developed ny Valverde and Rodriguez which was also developed to study the support provided for Hispanic students willing to pursue higher education. Financial support, emotional and moral support, mentoring, professional socialisation, academic guidance, and technological help were used to construct the concept.

The study was based on the fact the people who desired help for advancement should be helped by relevant institutions to develop their potential and reach their goal. It was also held that, in helping the individual to achieve his/her goals, the institution is also helping itself. This underlines the relevance of the model to other organisations such as governments, institutions and in this contexts, hospitals. The model has been adopted in various other studies to examine various types of institution support that can be given to people, especially employees[90,91,92]. In these studies, each researcher has chosen the kind of institutional supported best fitted to their study subjects.

The supports considered relevant in this study include, management support, technical support and financial support. Management support is demonstrated by the attitude of top management to quality service delivery in hospitals. When there is a strong management support, the likelihood of effective service delivery is enhanced. Management support is identified by the relevant policies, organisational culture and the work condition created

by hospital management which either hinder or enable health information managers to deliver effective services. The work environment created and maintained by the management is also important for service delivery. It is necessary for management to inspire quality work among the employees and reward diligence and hard work. When this is missing, it may affect the service delivery in the hospital.

Management support should also be complemented with financial support. The most important tool for employee motivation is living wages. When this is enhance by bonuses, overtime allowances and other fringe benefits, the health information managers are more likely to give their best. The financial support is however not limited to employee rewards. There are necessary facilities that should be put in place for effective service delivery. Equipment needed to be acquired and there is need for regular maintenance and so on. All of these require financial support. When it is provided, the work will go on as expected and the set objectives will be achieved.

Technical support is also part of the institutional necessary for effective service delivery especially where health information managers are concerned. This is true where the use of technology has become rampant among health information managers. As new tools and approaches become accessible, the use of technology in hospitals is rising at an unprecedented rate. Technical support is required for information managers who have not received early exposure to and assistance in learning the necessary skills. Scholars observed that some health information managers can demonstrate negative attitudes towards technology that can help them in their jobs because they are not willing to admit their lack of skills. There is a need for good technological support, yet not all intended technical supports have proven to be beneficial.

2.3.2 Institutional Support and Healthcare Service Delivery

Effective service delivery in any sector, including the health sector, demands the appropriate level of institutional support. Health workers have been trained and they are mandated by training and ethics of their profession to deliver the highest quality services possible to their patients. However, they need all kinds of institutional support in order to succeed.

Researchers in China investigated the effects of institutional support on product/process innovativeness and firm performance. The study used a survey research approach. The population of the study included manufacturing companies in China. A structured questionnaire was used to collect the research data. The quantitative data collected was analysed using Partial Least Squares Structural Equation Modeling. The study found that institutional support positively affects product and process innovativeness, which in turn improve organisational performance. It was also found that dysfunctional competition significantly reduces the positive effect of institutional support on product/process innovativeness. The researcher however cautioned that institutional support is more than a single dimension construct[93]. This shows that the current study which has considered three dimensions of institutional support is an improvement on previous studies.

A group of researchers stressed the importance of institutional support, especially in the period of emergency when health workers are stretched. Some people during the epidemic compared providing medical care to fighting a war. Studies revealed higher levels of anxiety, sadness, and posttraumatic stress disorder symptoms among healthcare

professional as the COVID-19 pandemic put them at risk for stress-associated disorders. it was found that 57% of a sample size of 657 healthcare workers showed signs of acute stress, 48% showed signs of depression, and 33% showed signs of anxiety. The study concluded that robust institutional support is necessary to ensure that health professionals are able to remain physically and mentally stable to discharge their duties[94]. This was also backed by another study conducted in Brazil during the Covid 19 pandemic.

A study was conducted on how institutional support can help female medical professionals in Brazil cope with the consequences of health crises. Coronavirus disease has been demonstrated to disproportionately affect women and healthcare workers, although there has been little study of how these two groups are affected differently. Taking into account gendered and racialized conceptions of care and work, this essay examines the effects of COVID-19 on healthcare employees and working conditions in Brazil's public healthcare system. To get insight into the perspectives of health workers in one of the nations hardest hit by the epidemic, the researchers analysed data from an online survey of 1,263 health professionals conducted between September and October 2020 and disaggregated by sex and by race. Additional study has shown that the influence of institutional support is not limited to female health workers.

Researchers examined the influence of perceived organisational support on job satisfaction and turnover intention of employees in Jordan. The researchers used a structural model, to evaluate the moderating effect of work satisfaction on the relationship between perceived organisational support, perceived alternative employment prospects, and turnover intention as well as the mediating effect of organisational commitment. SMEs in Jordan were selected at random using a convenience sampling

method for a self-administered survey (SMEs). Modern variance-based structural equation modeling (PLS-SEM) was used to evaluate the acquired data (n=270). The results showed that employees' level of dedication to their company moderated the connection between their opinion of their management and their plans to leave, as well as between their opinion of the availability of other employment options and their plans to leave. The relationships between organisational support, projected alternate career opportunities, and organisational commitment were also influenced by employees' levels of work satisfaction. The study concludes that organisational commitment acts as a mediator between other factors (such as perceived organisational support and alternative employment possibility) and turnover intent[95]. This study indicates that while perceived organisational support may be moderated by the availability of alternative opportunities when employees perceived an adequate level of support from their organisations, they are more likely to be committed to their jobs. This was also supported by the findings of a related study

A group of researchers explored the relative influence of personal resilience, social support, and organisational support in lowering COVID-19 anxiety among front-line nurses in the Philippines. The study adopted a cross-sectional survey research method with three hundred and twenty-five Filipino RNs participating in the study using. Four different research instruments were used for data collection. The findings showed that 37.2% of the nurses suffered from unhealthy levels of anxiety. Multiple linear regression analyses showed that individuals' social support ($\beta = 0.142$, $p = .011$), personal resilience ($\beta = 0.151$, $p = .008$), and organisational support ($\beta = 0.127$, $p = .023$) all predicted COVID-19 anxiety. No associations were found between nurse traits and COVID-19

anxiety. The study concluded that nurses who felt they had greater social and organisational support are more likely to be less worried about COVID-19[96]. This shows that service delivery can be boosted by ensuring sufficient institutional support, in terms of technical managerial, and financial support for healthcare workers.

Institutional support also plays a role in enhancing the quality of healthcare service delivery. This was found in study which examined how institutional support can help Health workers dealing with veterans with disabilities perceive their recovery needs the study adopted a Qualitative approach with in-depth interviews schedules used as the instrument for data collection. The population consisted of 26 pairs of U.S. veterans and family caregivers. The study found that institutional support increased the capability of caregivers, who provided social support that encouraged veterans to use health and vocational/educational programmes[97].

Caregivers are in a prime position to coordinate patients' healthcare and non-medical needs. To assist families in developing a coordinated plan of treatment and services to increase patient success across health and non-health domains, it is essential to that those who provide their healthcare services are given all the necessary support so that the healthcare worker can be motivated to give their best.

A study conducted in Africa investigated the rate of absenteeism in rural Ugandan public and private non-profit (PNFP) health facilities and the effects it has on patients. The reserchers adopted Case study sampling and grounded theory approaches. The population is made uo of ninety-five healthcare professionals who were interviewed through focus groups and in-depth interviews. The study found that hospital management s condoned absenteeism and this had a negative impact on the morale of hardworking employees.

Most of those who took part in the PNFP study said their responses were motivated by emotion. There was an unexpected increase in workload, which led to stress, anger aimed towards coworkers and patients, decreased consultation hours, and absenteeism as a form of retaliation. However, many people who use public health services have said that the changes they've made to deal with issues haven't worked. There was a lot of uncontrolled informal task shifting from clinicians to nurses, varying weekly schedules, varying patient appointments, hiccups in absence monitoring registers, referrals of superfluous patients, and a general lack of consistency in scheduling.

Duty and stress for frontline health workers, as well as unsupervised informal task shifting of clinical workload to nurses, who are the less clinically qualified, are all consequences of high rates of absence among physicians and health care management. The study concluded that the lack of management support which allowed absenteeism to become epidemic is impairing the well-being of the workforce, the quality of healthcare, and patients' access to care[98].

2.4 Conceptual Model

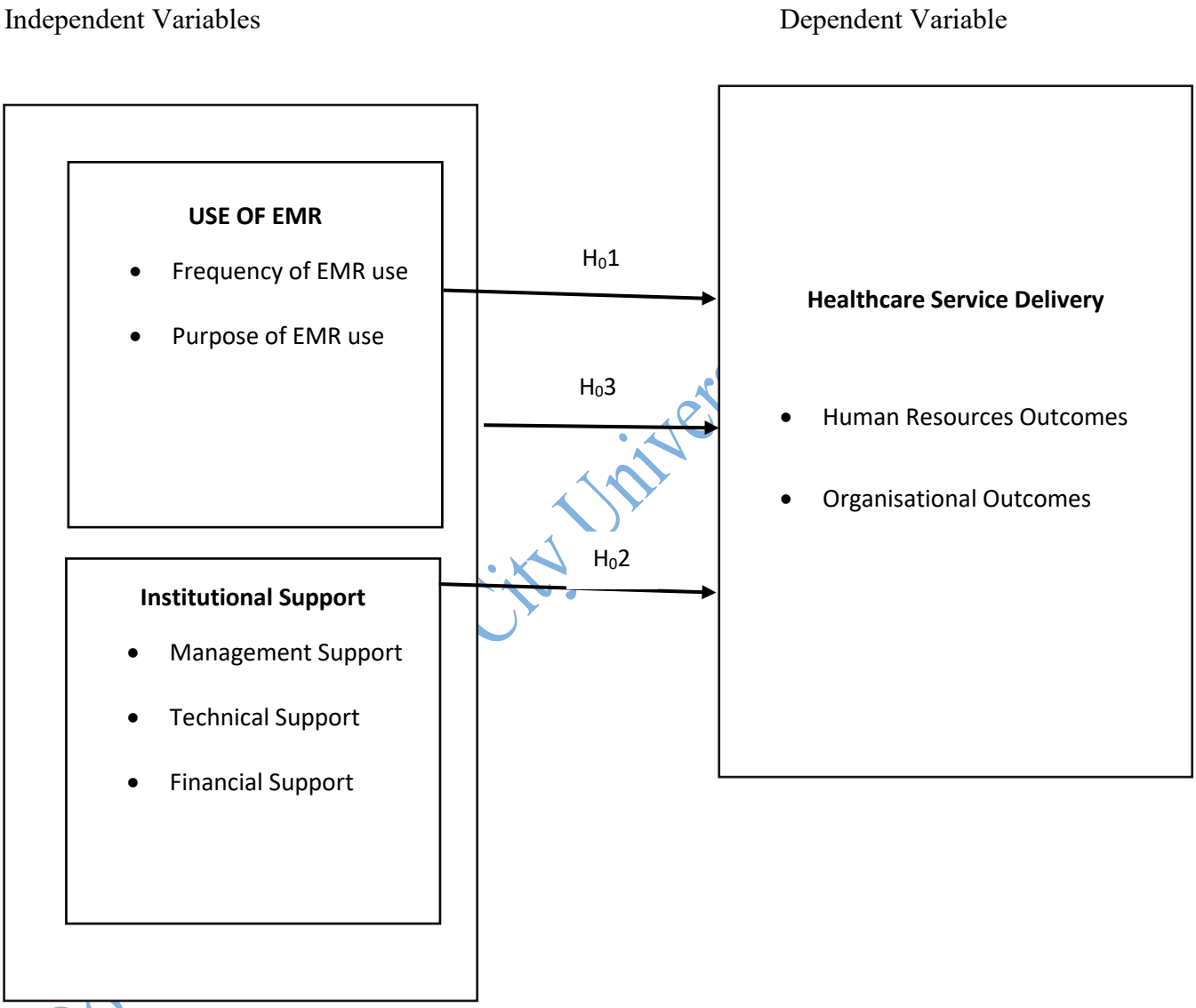

Figure 2.3: Conceptual Model for the Influence of the use of electronic medical records (EMR) and Institutional Support on Healthcare Service Delivery (Source: Researcher, 2022)

Explanation of the Conceptual Model

The conceptual model shows the relationships between all the variables of the study and illustrates what the researcher intends to achieve with the research. The models shows that the dependent variable is service delivery which is measured by human resources outcomes and organisational outcomes. This means that service delivery covers the benefit derived by both the employees and the organisations. The human resources outcome is concerned with the effect of the service delivery on the physical and mental wellbeing of the health information managers who delivered the services. It means that quality service delivery can only be consistent when the health information managers are not overwhelmed or burn out due to excessive work. The organisational outcome is like a cost-benefit analysis of what it costs the hospital to deliver quality services, what improvement has happened to the operations, and how satisfied are the patients with the service rendered. The achivevement of positive human resources and organisational outcomes is helped by other cariables such as the use of EMRs and institutional support.

The use of EMR is one of the independent variables. It comprises of frequency of use and purpose of use of the EMR. The use of the EMR is expected to improve on the existing manual process. EMR can better organize, store and disseminate document and records in less time than it would have taken in the manual approach. It is also faster, dynamice and more robust than the traditional method which makes it an instrudemr that can aid service delivery among health information manager. It is thus hypothesed that the use of EMR will have a significant unfluece on service. When facilities such as EMR are in place, there must also be the institutional support for various health information managers to do their jobs.

Institutional support in this study is conceptualized by management support; technical support, and financial support. All of these represents the different ways the hospital can give to its health information managers to ensure quality services deliver. The managerial support gives health information mangers can come in form proper guisance, clear directive on what is to be achieve. It can also come in the form of technical support in which healh information manager are supported to have meet various work-related challenges. technical aspect of institutional support is mainly associated with the use of technology in the workspaces. However, technical support does not simply end with the use of technology. The organisation has its own culture and procedure that the employee has to learn in order to be effective.

2.5 Summary of Literature Reviewed

The review of literature has shown that service delivery is major issue in the healthcare sector and this include every units such as the health information management unit. Service delivery became popular with the interest of hospital management to ensure patient satisfaction and justify the existence of an health institutions. As the services delivery issue became a subject of research, researchers have often found it difficult to pick a generally accepted metric to measure services with many confusing service delivery and service quality which is a bit narrower than service delivery. Scholars have however, came up with a theory to measure services delivery in nursing which has been adopted by other studies and adapted to measure service delivery in other aspects of healthcare. The theory has however not been used as extensive in Nigeria.

What the theory has shown is that service delivery would be impacted by various factors that include institutional support and the use of electronic medical records; to variables

that have been extensive discussed in literature. The use of electronic medical records is a well-established practice in developing countries and it has been identified as a strategic solution to various issues in healthcare service delivery. According to literature reviewed, the use of electronic medical records saves times, contribute to the efficiency of information management activities, reduce patients' waiting time and contribute to overall patient satisfaction.

However, the use of electronic medical record is a trend in developing countries such as Nigeria as not all hospitals have implemented it and those who are using it are still facing some basic challenges such as inadequate expertise, infrastructural challenge, and poor maintenance. This low level of electronic records implementation has therefore affected services delivery through various problems such as missing records, delay in information retrieval, lack of care continuity and other challenges that are commonplace in poorly run health sectors. The issues with the implementation of electronic medical records has also highlighted the importance of institutional support.

Institutional support is not only important to technology adoption but for overall service delivery. As outlined in this study management support is important to provide a clear roadmap for service delivery in hospitals as it is only through this that each health information manager can understand his/her role and what is expected of him/her. This facilitates easy performance evaluation and encourage them to put in their best. Technical support is also found important as the process of health information management is becoming increasing digitalized and technology driven.

The health information managers can be supported to deliver quality services through technical support which ensure that they are able to make use of various technologies

necessary for their jobs and that those machines do not have much downtimes through regular maintenance. Studies have also shown that technical support also include the guidance on the procedure and protocols relating to the tasks that health information managers perform. It is often necessary for health information managers to seek clarification on 'grey' areas in their daily operations and when they have someone or something (e.g; handbooks, manuals etc.) to make the needed clarification, it affects their service delivery level. All these should also include financial support.

Financial support is at the center of all the institutional supports that can be provided for health information managers. The most important financial support is in form of bonuses and allowance for overtime work, exemplary performance and other contributions to effective service delivery by health information managers. Financial support is also needed at the organisational level. This is necessary to provide equipment, maintain a conducive work environment and manage the facilities available in the hospital. The opinion of experts is that when adequate financial support is available, there is an improved chance for effective service delivery in any organisation.

The review of literature has however shown that these variables are rarely examined in light of service delivery with scholars often focused on infrastructure, employee skill, employee motivation and other variables. The current study based on solid theoretical footings which combines both institutional support and the use of electronic medical records is therefore a unique addition to the existing literature.

Endnotes

1. World Health Organisation, *A People-Centred Approach Is Needed For*, no. ii. 2017, Available: www.integratedcare4people.org.

2. K., Osei-Frimpong, G., McLean, A., Wilson, & F. Lemke, *Customer Coproduction in Healthcare Service Delivery: Examining the Influencing Effects of the Social Context*, **Journal of Business Research** 120, 2020: 82–93, https://doi.org/10.1016/j.jbusres.2020.07.037.

3. "Delivery of Healthcare Services.", 2022. Available: https://ti-health.org/delivery-of-healthcare-services/.

4. P., Parreira, P., Santos-Costa, M., Neri, A., Marques, P., Queirós, & Salgueiro- A., Oliveira, *Work Methods for Nursing Care Delivery*, **International Journal of Environmental Research and Public Health** 18, no. 4 2021: 1–17.

5. R. M., Meyer, & L. L. O'Brien-Pallas, *Nursing Services Delivery Theory: An Open System Approach*. **Journal of Advanced Nursing**, 66(12), 2010, 2828-2838.

6. K, O'Connor DM,Neff & S. Pitman *Burnout in Mental Health Professionals: A Systematic Review and Meta-Analysis of Prevalence and Determinants*. **European Psychiatry.** 2018; 53:74–99. https://doi.org/10.1016/j.eurpsy.2018.06.003

7. M, Julià C,Vanroelen K, Bosmans KV, Aerden & J. Benach *Precarious Employment and Quality of Employment in Relation to Health and Wellbeing in Europe*. **International Journal Health Services,** 2017, online early; https://doi.org/10. 1177/0020731417707491

8. O., Swallehe, *Service Delivery and Customer Satisfaction in Public Organizations*. **IUP Journal of Marketing Management**, 20(2). 2021.

9. H., Belay, A., Mohammedsanni, A., Gebeyehu, N., Alemu, H., Wendrad, W.,Abate, B., Denboba, F., Mulugeta, S. Omer, & B., Knittel, *Lessons Learned from The Capacity-Building and Mentorship Program to Improve Health Information Systems In 11 Districts of Ethiopia.* **Global Health: Science And Practice,** 10(Supplement 1). 2022.

10. A. A., Davidescu, S. A., Apostu, A., Paul, & I. Casuneanu, *Work Flexibility, Job Satisfaction, and Job Performance Among Romanian Employees—Implications*

for Sustainable Human Resource Management. **Sustainability**, 12(15), 2020. 6086.

11. R. C., Brownson, J. E., Fielding, & L. W. Green, *Building Capacity for Evidence-Based Public Health: Reconciling the Pulls of Practice and The Push of Research.* **Annual Review of Public Health**, 39, 2018, 27.

12. M.A., Zayyad & M. Toycan *Factors Affecting Sustainable Adoption of E-Health Technology in Developing Countries: An Exploratory Survey of Nigerian Hospitals from The Perspective of Healthcare Professionals*. **Peerj** 6: 2018. E4436 Https://doi.org/10.7717/peerj.4436

13. M., Samadbeik, F., Fatehi, M., Braunstein, B., Barry, M., Saremian, F. Kalhor, & S., Edirippulige, *Education and Training on Electronic Medical Records (EMRs) for health care professionals and students: A Scoping Review*. **International Journal of Medical Informatics,** 142, 2020.p.104238.

14. M., Nicholas, *Successful Strategies for Implementing EMR Systems in Hospitals* **(**Doctoral dissertation, Walden University**).** 2018.

15. J., Lambley, & C. Kuziemsky, *A Tactical Framework for EMR adoption. In Healthcare Management Forum.* Sage CA: Los Angeles, CA: SAGE Publications. Vol. 32, No. 3, 2019, pp. 148-152

16. L., Hsu, *What makes good LMOOCs for EFL learners? Learners' personal characteristics and Information System Success Model*. **Computer Assisted Language Learning**, 2021. pp.1-25.

17. I. O., Adeyemi, & A. O. Issa, *Integrating Information System Success Model (ISSM) And Technology Acceptance Model (TAM): Proposing Students' Satisfaction with University Web Portal Model*. **Record and Library Journal**, 6(1), 2020. 69-79.

18. B., Farahani, F., Firouzi, V., Chang, M., Badaroglu, N., Constant, & K. Mankodiya, *Towards Fog-Driven Iot Ehealth: Promises and Challenges of IOT In Medicine and Healthcare*. **Future Generation Computer Systems**, *78*, 2018, 659-676.

19. B., Farahani, M., Barzegari, F. S., Aliee, & K. A. Shaik, *Towards Collaborative Intelligent IOT Ehealth: From Device to Fog, and Cloud*. **Microprocessors and Microsystems,** 72, 2020, 102938.

20. P.T., Chen, *Medical Big Data Applications: Intertwined Effects and Effective Resource Allocation Strategies Identified Through IRA-NRM Analysis*. **Technological Forecasting and Social Change**, *130*, 2018. Pp.150-164.

21. A., Holzinger, P., Kieseberg, E., Weippl, & A. M. Tjoa, *Current Advances, Trends and Challenges of Machine Learning and Knowledge Extraction: From Machine Learning to Explainable AI*. In International Cross-Domain Conference for Machine Learning and Knowledge Extraction. Springer, Cham. 2018, Pp. 1-8

22. M., Abdel-Basset, M., Mohamed, F., Smarandache, & V. Chang, *Neutrosophic Association Rule Mining Algorithm for Big Data Analysis*. **Symmetry,** *10*(4), 2018, 106.

23. A. I. Ojo, *Organisational Factors Associated with Electronic Medical Records Systems Success in Two Nigerian Teaching Hospitals*, 8th Health Informatics in Africa Conference (HELINA 2013)

24. A.M Adegbore, & T. O. Akinyosoye *Factors Influencing Electronic Medical Record Systems Success in Selected Tertiary Healthcare Facilities in South-West, Nigeria.* **Information Impact: Journal of Information and Knowledge Management**, 11:4, 2021, 14-32, DOI: Https://Dx.Doi.Org/10.4314/Iijikm.V12i1.2

25. C. S. Isemeck, K. Ngure, J.Kariuki & O. Muchene, *Factors Influencing The Adoption Of Electronic Health Records In Public Health Facilities In Kisumu County, Kenya*, **Journal Of Health, Medicine And Nursing**, Vol.4, Issue 1 No.5, 2019 Pp 74- 101,

26. E., Oyibocha, "*Sustainable Healthcare System in Nigeria: Vision, Strategies and Challenges.* **IOSR Journal Of Economics And Finance (IOSR-JEF)**. Volume 5, Issue 2. 2018, 28-39. Www.Iosrjournals.Org."

27. N., Sani, R.K., Manohar, Okocha, D.O. & Bdamasi, S., *Health Information Systems, Best Practices in Patient Data Management for Effective Health Care Service Delivery in Hospitals. A Case of Some Selected Tertiary Hospitals in Jigawa State of Nigeria.* **AGU International Journal of Management Studies & Research** *Vol. No. 5 2017, Http://Www.Aguijmsr.Com*

28. F. Ondieki *Effects of Health Records Management on Service Delivery: A Case Study of Kisii Teaching and Referral Hospital*. **Journal Of Hosp Med Manage**.2017,3:1

29. A.O., Attah, *Implementing an Electronic Health Record in A Nigerian Secondary Healthcare Facility. Prospects And Challenges*. Norway: Master's Thesis In Telemedicine and E-Health, 2017.

30. S. S.Furusa & A. Cole. *Factors Influencing E-Health Implementation by Medical Doctors in Public Hospitals in Zimbabwe*. **African Journal of Primary Health Care and Family Medicine**. 2018;10(1), A1746. Https://Doi.Org/10.4102/ Phcfm.V10i1.1746

31. S,Namakula & G, Kituyi *Examining Health Information Systems Success Factors in Uganda Health Care System*s. **Journal Of Global Health Care Systems**4: 1. 2014,

32. O. Mosweu, K. J Bwalya & A. Mutshwewa. *A Probe into Factors for Adoption and Usage of Electronic Document and Records Management Systems in The Botswana Context*. **Information Development** .33(1) 2017,97-110.

33. F. Ondieki *Effects of Health Records Management on Service Delivery: A Case Study of Kisii Teaching and Referral Hospital*. **Journals Of Hosp Med Manage**.2017,3:1

34. P. Adedeji, O. Irinoye, R. Ikono & A. Komolafe. *Factors Influencing the Use of Electronic Health Records Among Nurses in A Teaching Hospital in Nigeria.* **Journal Of Health Informatics in Developing Countries**. Vol. 12 No.2, 2018

35. M. O. Akomolafe. *The Implementation of Electronic Health Record Systems: The Factors Influencing the Successful Electronic Health Record Systems*. **The International Journal of Science & Engineering Research,** Vol 5, 2014

36. P., Palvia, K., Lowe, H., Nemati, & T., Jacks, '*Information Technology Issues in Healthcare: Hospital CEO And CIO Perspectives',* **Communications of The Associations for Information Systems,** 30(19), 2012,293-312

37. ISO TC215, ISO/TR 20514. *Health Informatics – Electronic Health Record Definition, Scope, And Context.* Geneva, Switzerland: ISO**;** 2020.

38. K A Kuhn, & D. A. Giuse *From Hospital Information Systems to Health Information Systems: Problems, Challenges, Perspectives*. **Methods Inf Med**. 2021; 40:275–87.

39. D.W Bates, & A.A., Gawande, *Improving Safety with Information Technology'* **North England Journal of Medicine** 348, 2526-2534.

40. S. Ohemeng-Dapaah, P., Pronyk, E., Akosa, B., Nemser, & A., Kanter, '*Combining Vital Events Registration, Verbal Autopsy and Electronic Medical Records in Rural Ghana for Improved Health Services Delivery'*, **Health Technology Information**, 160, 2017, 416-420

41. R. T., Sutton, D., Pincock, D. C., Baumgart, D. C., Sadowski, R. N., Fedorak, & K. I. Kroeker, *An Overview of Clinical Decision Support Systems: Benefits, Risks, And Strategies for Success*. **NPJ Digital Medicine**, *3*(1), 2020,1-10.

42. W., Lutz, A. K., Deisenhofer, J., Rubel, B., Bennemann, J., Giesemann, K., Poster, & B. Schwartz, *Prospective Evaluation of a Clinical Decision Support System in Psychological Therapy.* **Journal of Consulting and Clinical Psychology**, *90*(1), 2022, 90.

43. S., Albagmi, *The Effectiveness of EMR Implementation Regarding Reducing Documentation Errors and Waiting Time for Patients in Outpatient Clinics: A Systematic Review*. **F1000Research**, *10*. 2021.

44. M., Dachyar, & N. Nattaya, *Collaborating Internet of Things (IOT) And Electronic Medical Record (EMR) To Reduce Healthcare Waiting Time. Outpatient Cardiology Service Case: A BPR Approach.* In *23rd* Asian Forum of Business Education *(AFBE 2019)* Atlantis Press. 2020, Pp. 88-95

45. F. Anwar. A. Shamim, & S.Khan *Barriers In Adoption Of Health Information Technology In Developing Societies*. **International Journal of Advanced Computer Science**;2(1) 2017

46. J. Alpert, "*The Electronic Medical Record In 2016: Advantages and Disadvantages*. **Digital Medicine** ;2: 2016. 48-51."

47. J. Cooper, "*Organization, Management, Implementation and Value of EHR Implementation in A Solo Pediatric Practice*. **Journal of Healthcare. Information Management** 18(3):201, 51–55.".

48. S. Barlow, "*The Economic Effect of Implementing an EMR In an Outpatient Clinical Setting.* **Journal Of Healthcare. Information Management**. 18(1):2018, 46–5

49. P., Adedeji, O., Irinoye, R. Ikono, & A., Komolafe, *Factors Influencing the Use of Electronic Health Records Among Nurses in A Teaching Hospital in Nigeria*. **Journal Of Health Informatics in Developing Countries**, 12(2). 2018.

50. C., Crespo, V., Ripoll, C. Tamarit, '& R.,Valverde, *Institutional Characteristics and Managers' Perceptions of Accounting Information: Impact On E-Government Use and Organisational Performance*. **Spanish Journal of Finance and Accounting/Revista Española De Financiación Y Contabilidad,** 47(3), 2018. Pp.352-365.

51. A.S., Obotu, S.A. Uganneya, & I.C., Ogezi, *Evaluative Study of Digital Record Management System in The Hospitals in Minna Metropolis (A Case Study of Hospitals in Minna Metropolis)*. **Library Philosophy and Practice** *(E-Journal)*. 2018.

52. A.I. Ojo, & S.O., Popoola, *Some Correlates of Electronic Medical Records System Success in Nigerian Teaching Hospitals*. Biomedical Informatics Insights, 7, 2015.Pp.BII-S20229.

53. A.M. Adegbore, & A.T Omowumi, Factors *Influencing Electronic Medical Record Systems Success in Selected Tertiary Healthcare Facilities in South-West, Nigeria*. **Information Impact: Journal Of Information and Knowledge Management**, 12(1), 2021. Pp.14-32.

54. O.J., Anyango, *Challenges to Electronic Medical Record Systems Adoption: A Case of Coast Province General Hospital*. Thesis, The Management University of Africa, 2017.

55. O.O., Oleribe, J., Momoh, B.S., Uzochukwu, F., Mbofana, A.,Adebiyi, T., Barbera, R. Williams, & S.D., Taylor-Robinson, *Identifying Key Challenges Facing Healthcare Systems in Africa and Potential Solutions*. **International Journal of General Medicine**, *12*, 2019. P.395.

56. M. A., Zayyad, & M. Toycan, *Factors Affecting Sustainable Adoption Of E-Health Technology in Developing Countries: An Exploratory Survey of Nigerian Hospitals from The Perspective Of Healthcare Professionals.* **Peer Journal**, *6*, 2018, E4436.

57. O. O., Onigbogi, A. O., Poluyi, C. O., Poluyi, & M. O. Onigbogi, *Doctors' Attitude and Willingness to Use Electronic Medical Records at The Lagos University Teaching Hospital, Lagos, Nigeria*. **Online Journal of Public Health Informatics**, *10*(2). 2018.

58. S., Ajayi, P., Wamae, & D. Muthee, *Assessing Electronic Medical Records Readiness for Service Delivery in State Hospitals in Southwest Nigeria*.

International Journal of Current Aspects, 5(3), 2021. 1-17. Https://Doi.Org/10.35942/Ijcab.V5i3.175

59. O.S., Ayanlade, *Electronic Medical Record System as A Central ICT Tool For Quality Healthcare Services: Nigeria as A Case Study***. African Journal of Science, Technology, Innovation and Development**, 10(2), 2018. Pp.147-157.

60. M., Acquah-Swanzy, *Evaluating Electronic Health Record Systems in Ghana: The Case of Effia Nkwanta Regional Hospital* Master's Thesis, Uit Norges Arktiske Universitet**).** 2015.

61. M. O., Akanbi, U*se of Electronic Health Records in Sub-Saharan Africa: Progress and Challenges*." **Journal Of Medicine in The Tropics** 14(1): (2012). 1-6.

62. O. Akor, & O. John-Mensah "*Nigeria: Why Hospitals Should Embrace Electronic Medical Records*. DAILY TRUST Newspaper. 2016 Apr.19 Available From: Http://Allafrica.Com/Stories/201604190753.Html."

63. A.O., Attah, *Implementing an Electronic Health Record in A Nigerian Secondary Healthcare Facility. Prospects And Challenges*. Norway: Master's Thesis in Telemedicine And E-Health, 2017.

64. D. Harries, & P. Yellowlees "*Brief Communication Cyberterrorism: Is the U.S. Healthcare System Safe?* **Telemedicine And E-Health.**, 19(1): 2013, 61-66. Doi:10.1089/Tmj.2012.0022.

65. K. Paul, *Marketwatch. After A Global Cyberattack Hits U.K. Health Facilities — Why Your Hospital Could Be Next*. 2017. Available From:Http://Www.Marketwatch.Com/Story/Hackers-Are-Stealing-More-Patient-Medical-Records-From- Hospitals-2017-05-12."

66. S., Zhang, Z., Wang, X., Zhao, & M. Zhang, *Effects of Institutional Support on Innovation and Performance: Roles of Dysfunctional Competition*. **Industrial Management & Data Systems**. 2017.

67. H. O., Falola, A. A., Adeniji, J. O., Adeyeye, E. E., Igbinnoba, & T. O. Atolagbe, *Measuring Institutional Support Strategies and Faculty Job Effectiveness*. **Heliyon,** *6*(3), 2020. E03461.

68. MA, Malik & H. R. Khan *Understanding the Implementation of An Electronic Hospital Information System in A Developing Country: A Case Study from Pakistan*. In Warren, J. R. (Ed.), Proc. Third Australasian Workshop

On Health Informatics and Knowledge Management (HIKM 2009). New Zealand: Wellington.

69. R. Heeks, "*Information Systems and Developing Countries: Failure, Success, And Local Improvisation.* **Information Society**. 18: 2022;101–12.

70. L.A., Baumann, J. Baker, & A.G., Elshaug, *The Impact of Electronic Health Record Systems on Clinical Documentation Times: A Systematic Review*. **Health Policy,** *122*(8), 2018. Pp.827-836.

71. K, Herbst P, Littlejohns J, Rawlinson M, Collinson, & J.C. Wyatt *Evaluating Computerized Health Information Systems: Hardware, Software and Human Ware: Experiences from The Northern Province, South Africa*. **J Public Health Med**.;21(3):2019, 305-310.

72. C.J., Ondoa, B.C. Basheka, & M.M., Basaasa, *Institutional Dynamics and Health Service Delivery in Regional Referral Hospitals in Uganda: What Lessons from A Case of Jinja Regional Hospital?* **African Journal of Governance and Development**, 2(1), 2013. Pp.40-56.

73. F.F., Odekunle R.O., Odekunle, & S., Shankar, '*Why Sub-Saharan African Lags in Electronic Health Record Adoption and Possible Strategies to Increase Its Adoption in This Region,* **International Journal of Health Sciences**, 11(4) 2017, 59-64,

74. N. H. Kanyua, '*Factors Influencing the Adoption of ICT In Public Hospitals in Nairobi',* Master's Thesis, Department of Extra-Mural Studies, University of Nairobi. 2015,

75. D.C. Classen, A.J., Holmgren, L.P., Newmark, D., Seger, M. Danforth, & D.W.,Bates, *National Trends In The Safety Performance Of Electronic Health Record Systems From 2009 To 2018*. **JAMA Network Open**, 3(5), 2020. Pp. E205547-E205547.

76. C. Njoroge, '*Factors Influencing Adoption of Electronic Health Record Systems In Small Private Health Facilities'*, Master's Thesis, Department Of Extra-Mural Studies, University Of Nairobi, 2014.

77. F.A.O. Agbese, & C.N., Ikonne, *Electronic Health Records (EHRS) Use and Quality Healthcare Delivery by Physicians in Tertiary Hospitals In Federal Capital Territory, Nigeria*. **Library Philosophy & Practice**. 2021.

78. E. Papp, C., Wölfel, & J. Krzywinski, *Acceptance and User Experience of Wearable Assistive Devices for Industrial Purposes.* In Proceedings of The Design Society: DESIGN Conference. Cambridge University Press. Vol. 1, 2020, Pp. 1515-1520

79. J., Schöpfel, O., Azeroual, & G. Saake, *Implementation and User Acceptance of Research Information Systems: An Empirical Survey of German Universities and Research Organisations*. **Data Technologies and Applications.** 2019

80. O., Azeroual, G., Saake, & M. Abuosba, *Data Quality Measures and Data Cleansing for Research Information Systems*. **Arxiv Preprint** Arxiv:1901.06208., 2019

81. B., Rahimi, H., Nadri, H. L., Afshar, & T. Timpka, *A Systematic Review of The Technology Acceptance Model in Health Informatics.* **Applied Clinical Informatics**, 9(03), 2018, 604-634.

82. M. N., Mata, M., Falahat, A. B., Correia, & J. X. Rita, *Impact of Institutional Support on Export Performance*. **Economies** 9: 2021, 101.

83. M., Falahat, Y. Y., Lee, T., Ramayah, & P. Soto-Acosta, *Modelling the Effects of Institutional Support and International Knowledge on Competitive Capabilities and International Performance: Evidence from An Emerging Economy*. **Journal Of International Management**, 26(4), 2020, 100779.

84. M. N. L. Y., Abdullah, & D. Primus, *The Impact of Institutional Support and Student Engagement on Educational Outcomes of Orang Asli Students at Public Universities*. **Asia Pacific Journal of Education,** 41(1), 2021, 182-197.

85. R. J., Desai, S. V., Wang, M., Vaduganathan, T., Evers, & S. Schneeweiss, *Comparison of Machine Learning Methods with Traditional Models for Use of Administrative Claims with Electronic Medical Records to Predict Heart Failure Outcomes*. **JAMA Network Open**, 3(1), 2020. E1918962 .

86. A, De Benedictis E, Lettieri L, Gastaldi C, Masella A, Urgu & D Tartaglini *Electronic Medical Records Implementation in Hospital: An Empirical Investigation of Individual and Organizational Determinants.* **Plos ONE** 15(6): 2020, E0234108. Https://Doi.Org/10.1371/Journal. Pone.0234108

87. J., Chen, C., Guo, L., Sun, & M. Lu, *Mining Typical Treatment Duration Patterns For Rational Drug Use From Electronic Medical Records*, **Journal Of Systems Science And Systems Engineering** 28, No. 5 2019: 602–620.

88. M. J., Stout, C. J., Van De Ven, V. I., Parekh, J. L.,Pardo, M., Garifullin, M., Xu,... & R. D. Smith, *Use Of Electronic Medical Records To Estimate Changes In Pregnancy And Birth Rates During The COVID-19 Pandemic*, **JAMA Network Open** 4, No. 6 2021: 1–10.

89. R. S., Janett, & P. P. Yeracaris, *Electronic Medical Records In The American Health System: Challenges And Lessons Learned*, **Ciencia E Saude Coletiva** 25, No. 4 2020: 1293–1304.

90. E. J., Bruns, A. N., Hook, E. M., Parker, I., Esposito, A., Sather, R. M., Parigoris,... & K. L. Hyde, *Impact of A Web-Based Electronic Health Record on Behavioral Health Service Delivery for Children and Adolescents: Randomized Controlled Trial*. **Journal of Medical Internet Research**, *20*(6), 2018, E10197.

91. A., Hossain, R., Quaresma, & H. Rahman, *Investigating Factors Influencing the Physicians' Adoption of Electronic Health Record (EHR) In Healthcare System of Bangladesh: An Empirical Study*. **International Journal of Information Management**, 44, 2019. 76-87.

92. O., Olu, D., Muneene, J. E., Bataringaya, M. R., Nahimana, H., Ba, Y., Turgeon, & D. Dovlo, *How Can Digital Health Technologies Contribute to Sustainable Attainment of Universal Health Coverage in Africa? A Perspective*. **Frontiers In Public Health**, 7, 2019, 341.

93. N. L., Downing, D. W., Bates, & C. A. Longhurst, *Physician Burnout in the Electronic Health Record Era: Are We Ignoring the Real Cause*? **Annals Of Internal Medicine**, *169*(1), 2018. 50-51.

94. S. Zhang, *The Impact of Institutional Support on Innovativeness and Firm Performance Under Dysfunctional Competition: Evidence from China*, Industrial **Management & Data Systems,** 2017

95. J. H., Krystal, J., Alvarado, S. A., Ball, F. G., Fortunati, M.,Hu, M. E., Ivy,... & L. C. Mayes, *Mobilizing an Institutional Supportive Response for Healthcare Workers and Other Staff in The Context Of COVID-19: The Yale Experience*. **General Hospital Psychiatry**, 68, 2021, 12-18.

96. A. S.,Albalawi, S., Naughton, M. B.,Elayan, & M. T. Sleimi, *Perceived Organizational Support, Alternative Job Opportunity, Organizational Commitment, Job Satisfaction And Turnover Intention: A Moderated-Mediated Model*, **Organizacija** 52(4). 2019: 310–324.

97. L. J., Labrague, & J. A. A. De Los Santos, *COVID-19 Anxiety Among Front-Line Nurses: Predictive Role of Organisational Support, Personal Resilience and Social Support*. **Journal Of Nursing Management**, 28(7), 2020. 1653-1661.

98. M., Shepherd-Banigan, N., Sperber, K., Mckenna, T. K., Pogoda, & C. H. Van Houtven, *Leveraging Institutional Support for Family Caregivers to Meet the Health and Vocational Needs of Persons with Disabilities*. **Nursing Outlook**, 68(2), 2020, 184-193.

99. R., Tweheyo, C., Reed, S., Campbell, L., Davies, & G.Daker-White, '*I Have No Love for Such People Because They Leave Us to Suffer: A Qualitative Study of Health Workers' Responses and Institutional Adaptations to Absenteeism in Rural Uganda*. **BMJ Global Health**, 4(3), 2019, E001376.

Chapter Three

Methodology

This chapter presents the procedure to be followed in conducting the research. The chapter explains all aspects of the research methodology such as research design, the population of the study, sample size and sampling technique, description of the research instrument, validity and reliability of the instrument, data collection procedure, and method of data analysis

3.1 Description of Research design

The Research design is the overall framework to which this research project **was** developed. It helps to create a systematic methodology that helps to define the research philosophy, approach, data collection and analytical methodology. The qualitative research design was adopted for this study. This method is considered adequate to provide an indepth understand to the perceived reality of the phenomena Thereby providing a descriptive and explorative research using an inductive approach to give depth and understanding to the phenomena studied without interfering with the variables.

3.2 Population of the study

The population of the study consist of HIM practitioners at the Hospitals in Ogun state. These are staff who work in the medical records department of the hospitals. They are in charge of collecting, organizing, and disseminating medical information in the hospital to aid the delivery of health care services. The hospitals selected for this study include; Federal Medical Centre, Abeokuta South, Ogun State, Federal Neuropsychiatric Hospital,

Aro, Abeokuta, Olabisi Onabanjo University Teaching Hospital, Sagamu. The breakdown of the population is provided in Table 3.1.

Table 3.1: Breakdown of Study Population

S/N	Professions	Population
1	Federal Medical Centre, Abeokuta	58
2	Federal Neuropsychiatric Hospital, Aro	37
3	Olabisi Onabanjo University Teaching Hospital, Sagamu	42
	TOTAL	137

3.3 Sample size and sampling technique

Sampling is a process that allows a researcher to scientifically choose who or what is included in a particular study. The sample size for this study included all HIM practitioners currently working in the selected hospitals in Ogun State. Total enumeration was used to select the sample due to the minimal number of HIM practitioners in the hospitals.

Table 3.2: Breakdown of the Study Sample

S/N	Professions	Population	Sample
1	Federal Medical Centre, Abeokuta	58	58
2	Federal Neuropsychiatric Hospital, Aro	37	37
3	Olabisi Onabanjo University Teaching Hospital, Sagamu	42	42
	TOTAL	137	137

3.4 Description of Research instrument

The main instrument for the study was a structured questionnaire which was adopted to collect the necessary data. In line with the research objective, the questionnaire was in four sections (A-D).

Section A deals with the demographic information of the respondents. It contain items such as Age, gender, department, academic level, etc.

Section B focused on the Service Delivery of HIM practitioners. The section contains items adapted from the nursing service delivery theory[1]. It has statements such as "the health information managers work in a conducive environment", The health records unit's work procedure is sustainable". All of the statements are measured by a 4-point Likert scale such as 1= Strongly Disagree; 2=Disagree, 3=Agree and, 4= Strongly Agree.

Section C focused on the use of Electronic Medical Records. The section is divided into frequency and purpose of use. It contains items adapted from a related study on the use of EMR[2]. It has statements such as "I use electronic medical records to schedule patients' appointments", I use electronic medical records to guide patients to the right doctors/nurses". All of the statements are measured by a 4-point Likert scale such as 1= Strongly Disagree; 2=Disagree, 3=Agree and, 4= Strongly Agree.

Section D: Institutional support. The Section contain various statements adapted from the literature reviewed on various aspects of institutional support. Some of the statements include; "there are training opportunities to develop my skills as a health information manager", "I receive bonuses for overtime work" etc. All of the statements are measured

by a 4-point Likert scale such as 1= Strongly Disagree; 2=Disagree, 3=Agree and, 4= Strongly Agree.

3.5 Validity of Research Instrument

Validity refers to the ability of a research instrument to measure the constructs it is designed to measure. The research instrument for this study was submitted to the supervisor for assessment of face and content validity. The corrections made after this ensured the validity of the instrument.

3.6 Reliability of the Research Instrument

The research instrument was tested for reliability. This was done through a pre-test. 20 copies of the research instrument were administered on HIM practitioners from Lagos State University Teaching Hospital (LASUTH). The responses were analysed to obtain the Cronbach alpha value of each construct. The results showed that the whole instrument is reliable with a Cronbach Alpha value of .71. In addition, the test for each section of the questionnaire also revealed the following values Service Delivery Scale = .83; Institutional Support Scale = .76; Use of EMR Scale = .69

3.7 Method of Data Collection

A letter of introduction was obtained from the Department of Information Management, Lead City University was be presented to the hospital management. After due permissions have been obtained, the research instrument was administered physically to the respondents by the researchers with the assistance of trained research assistants. The researchers administered the questionnaire in person to the respondents. The whole process of questionnaire administration lasted for two weeks.

3.7 Method of Data Analysis

The data collected in the process of this study were analysed using descriptive statistics such as simple percentages, mean and standard deviations to analyse the research questions and demographic data. In addition, the study hypotheses were tested at a 0.05 level of significance using inferential statistics. Research hypotheses one and two were analysed using simple regression. The third hypothesis was analysed using multiple regression analysis. The IBM SPSS software was used to analyse the data.

Endnotes

1. R. M., Meyer, & L. L. O'Brien-Pallas, *Nursing Services Delivery Theory: An Open System Approach*. **Journal of Advanced Nursing**, 66(12), 2010, 2828-2838.

2. E. J., Bruns, A. N., Hook, E. M., Parker, I., Esposito, A., Sather, R. M., Parigoris,... & K. L. Hyde, *Impact of a Web-Based Electronic Health Record on Behavioral Health Service Delivery for Children and Adolescents: Randomized Controlled Trial*. **Journal of Medical Internet Research**, 20(6), 2018, E10197.

Chapter Four

Data Analysis and Discussion

.

This chapter presents the results of data analysis based on the questionnaire during the research. The researcher administered the study questionnaire to 137 HIM professionals from three hospitals in Ogun State. Out of the 137 questionnaire, 122 was completed and returned. This represents 89% return rate which is considered adequate for analysis and discussion.

4.1 Demographic Analysis

Table 4.1: Demographic Analysis

		Frequency	Percent
Name of Hospital	Federal Medical Centre, Abeokuta	51	41.8
	Federal Neuropsychiatric Hospital, Aro	29	26.2
	Olabisi Onabanjo University Teaching Hospital, Sagamu	39	32.0
	Total	**122**	**100.0**
Sex	Male	47	38.5
	Female	75	61.5
	Total	**122**	**100.0**
Academic Qualification	HND	28	23.0
	BSC	42	34.4
	MSC	20	16.4

	Others	32	26.2
	Total	**122**	**100.0**
Job Experience	6-10 years	64	52.5
	11-15 years	40	32.8
	16- 20 years	13	10.7
	21-25 years	5	4.1
	Total	**122**	**100.0**

Source: Fieldwork 2023

Table 4.1 provides a demographic analysis of the study participants, offering insights into their characteristics. The table is divided into several categories, each offering information on the frequency and percentage distribution of respondents within those categories.

According to name of hospital to which the respondents belong, the data reveals that the largest group of participants (41.8%) is affiliated with the Federal Medical Centre, Abeokuta. The second largest group (32.0%) is associated with Olabisi Onabanjo University Teaching Hospital, Sagamu, and the Federal Neuropsychiatric Hospital, Aro represents 26.2% of the respondents. This information gives a sense of the distribution of participants among different healthcare institutions.

The gender distribution among respondents, with 61.5% being female and 38.5% being male. This suggests a female-majority representation in the sample. In term of Academic Qualification, it shows that a significant proportion of the respondents hold a Bachelor's degree (34.4%), while 23.0% have an HND qualification. Additionally, 16.4% hold a

Master's degree (MSc), and 26.2% fall under the "Others" category, possibly indicating a diverse range of academic backgrounds in the study.

The last category, "Job Experience," highlights the distribution of respondents based on the number of years of experience. The majority of participants (52.5%) have 6-10 years of job experience, while 32.8% have 11-15 years. The remaining participants are spread across the 16-20 years (10.7%) and 21-25 years (4.1%) experience categories. This section offers an understanding of the experience levels of the participants, which can be crucial in interpreting the results and assessing the relevance of their experiences to the study's objectives. These details are valuable for understanding the composition of the sample and can help in interpreting the research findings in the subsequent sections of the study.

4.2 Research Questions

4.2.1. What is the level of service delivery among health information management practitioners in teaching hospitals in Ogun state

Table 4.2: Service Delivery Among Health Information Management Practitioners In Teaching Hospitals In Ogun State

	SA	A	SD	D	Mean
Human Resources Outcomes					
The schedule of work does have any negative effect on my health	99 (81.1%)	23 (18.9%)	--	--	3.81
I am capable of carrying out my assigned tasks effectively	66 (54.1%)	56 (45.9%)	--	--	3.54
The task given to me matches my qualifications	73 (59.8%)	42 (34.4%)	7 (5.7%)	--	3.54
I feel safe discharging my duties	68 (55.7%)	47 (38.5%)	7 (5.7%)		3.50

Average Mean					**3.60**
Organisational Outcome					
The hospital renders quality services to patients	65 (53.3%)	56 (45.9%)	1 (0.8%)	--	3.52
The HIM staff attends to all patients within a reasonable time	68 (55.7%)	48 (39.3%)	5 (4.1%)	1 (0.8%)	3.50
The service rendered is cost-effective	59 (48.4%)	63 (51.6%)	--	--	3.48
The hospital often receive commendation from patients.	54 (44.6%)	55 (45.5 %)	11 (9.1%)	1 (0.8%)	3.34
Average Mean					**3.46**

Decision rule: low mean is < 2.5, moderate mean is = 2.5 and high mean is > 2.5
Source: Field work, 2023.

Table 4.2, presented data on the level of service delivery among health information management practitioners in teaching hospitals in Ogun State. Service delivery was measured with two metrics namely; human resources outcomes and organizational outcomes. In the human resources outcomes section, the table focuses on how practitioners perceive various factors related to their work environment. The majority of respondents (81.1%) strongly agree that the schedule of work does not have a negative effect on their health. This high percentage suggests that the practitioners generally find their work schedules manageable and conducive to their well-being. Similarly, a significant portion (54.1%) agrees that they are capable of carrying out their assigned tasks effectively, indicating confidence in their abilities. Moreover, 59.8% of respondents believe that the tasks given to them match their qualifications, which is important for job satisfaction and effectiveness. In addition, 55.7% of practitioners feel safe discharging their duties. The average mean for this section is 3.60, indicating a generally positive perception of human resources outcomes among practitioners. The suggests that the respondents does not perceived their tasks as too stressful.

In the organisational outcome section, majority of the respondents (53.3%) strongly agrees that the hospital renders quality services to patients, indicating a high level of confidence in their institution's service quality. Moreover, 55.7% of respondents strongly agree that Health Information Management (HIM) staff attend to patients within a reasonable time, underlining efficient service delivery. Although there is a balanced response regarding the cost-effectiveness of services, with 48.4% agreeing and 51.6% disagreeing, the overall mean score is 3.48, reflecting a moderate level of satisfaction. Lastly, the table indicates that 44.6% of respondents believe the hospital often receives commendations from patients, highlighting a positive reputation. The average mean for this section is 3.46, showing a relatively favorable view of the hospital's organizational outcomes among practitioners.

Overall, the aggregate mean for service delivery is 3.56 which suggest a high level of service delivery in the teaching hospitals.

4.2.2 What is the level of use of electronic medical records among health information management practitioners in teaching hospitals in Ogun state?

Table 4.3: Level of Use of Electronic Medical Records Among Health Information Management Practitioners in Teaching Hospitals in Ogun State

Items	SA	A	SD	D	Mean
Frequency of Use					
I make use of EMRs daily	66 (56.4%)	42 (35.9%)	8 (6.8%)	1 (0.9%)	3.48
I only use EMRs for my tasks weekly	51 (41.8%)	51 (41.8%)	14 (11.5%)	6 (4.9%)	3.20
I make use of EMR just once in a month	2 (1.7%)	--	52 (43.0%)	67 (55.4%)	1.54
I use EMR for records management yearly	2	38	14	68	3.64

	(1.6%)	(31.1%)	(11.5%)	(55.7%)	
I have never made use of EMRs	1	15	43	63	2.38
	(0.8%)	(12.3%)	(35.2%)	(51.6%)	
Weighted Mean					2.64
Purpose of Use					
I use the EMR system to enter, process, and store patient data	56 (46.7%)	54 (45.0%)	6 (5.0%)	4 (3.3%)	3.35
I use the EMR system for retrieval of healthcare information.	67 (55.4%)	43 (35.5%)	7 (5.8%)	4 (3.3%)	3.43
I use EMR systems to protect patients records from unauthorized access	62 (50.8%)	53 (43.4%)	7 (5.7%)	--	3.45
I use the EMR system to share medical records with other departments and sections	66 (56.4%)	42 (35.9%)	8 (6.8%)	1 (0.9%)	3.48
Weighted mean					3.42
Aggregate Mean					3.01

Decision rule: low mean is < 2.5, moderate mean is = 2.5 and high mean is > 2.5

Source: Field work, 2023.

Table 4.3 provides a result of data analysis of the level of use of Electronic Medical Records (EMRs) among health information management practitioners in teaching hospitals in Ogun State. The level of use is discussed under frequency and purpose of use

Under the frequency of use, 56.4% of the respondents strongly agreed that they make use of EMRs daily, showcasing a high level of engagement with these electronic records. An additional 35.9% agree, signifying frequent utilization. Only 6.8% disagree, and a mere 0.9% strongly disagree. The weighted mean for this item is 3.48, indicating a generally positive attitude towards daily EMR use. Furthermore, the results show that 41.8% of demonstration strongly agree that they use EMRs for their tasks weekly, showing consistent usage. An equal percentage, 41.8%, agree, indicating that a substantial proportion utilizes EMRs weekly. However, 11.5% disagree, and 4.9% strongly disagree.

The mean score for this itemis 3.20, reflecting a moderate level of agreement regarding weekly EMR use.

A minority of the respondents, 1.7%, strongly agreed that they use EMRs only once a month while the majority (43.0%) disagreed with monthly use, while 55.4% strongly disagreed. The mean score for this item is 1.54, signifying infrequent use. Similarly, a minority of the respondents (1.6%) strongly agreed that they use EMRs for records management yearly. Additionally, 31.1% agree, indicating that some use EMRs on a yearly basis. An 11.5% disagreement and a substantial 55.7% strong disagreement are observed. The mean score for this item is 3.64, suggesting that yearly use is not common. Only 0.8% strongly agree that they have never made use of EMRs. A small proportion, 12.3%, agrees that they have never used EMRs, while 35.2% disagree, and the majority, 51.6%, strongly disagree. The mean score for this item is 2.38, indicating that most practitioners have experience with EMRs.

In the case of purpose of use, nearly half of the respondents (46.7%), strongly agree that they use the EMR system for entering, processing, and storing patient data. An additional 45.0% agree, indicating widespread use of EMRs for patient data management. Only 5.0% disagree, and 3.3% strongly disagreed. The mean score for this item is 3.35, signifying a strong consensus in favor of using EMRs for patient data management.

Furthermore, 55.4%, strongly agrees that they use EMRs for retrieving healthcare information, emphasizing the importance of these systems for efficient data access. An additional 35.5% agree, further indicating their significant role in data retrieval. A small proportion, 5.8%, disagrees, and 3.3% strongly disagree. The mean score for this item is 3.43, showcasing a predominant agreement regarding EMR use for data retrieval.

In addition, approximately half of the respondents (50.8%) strongly agreed that they use EMR systems to protect patients' records from unauthorized access, underscoring their role in ensuring data security. Another 43.4% agree, highlighting their importance in safeguarding patient information. A small 5.7% disagree, but no strong disagreement is recorded. The mean score for this item is 3.45, indicating a general consensus in favor of using EMRs for data security. A significant percentage of the respondents (56.4%) strongly agrees that they use the EMR system to share medical records with other departments and sections, emphasizing their role in facilitating data sharing. An additional 35.9% agree, further confirming their significance in interdepartmental data exchange. A small proportion, 6.8%, disagrees, and 0.9% strongly disagree. The mean score for this item is 3.48, indicating strong consensus on using EMRs for data sharing.

The aggregate mean for the table is 3.01, showcasing an overall positive perception of EMR use among Health Information Management practitioners in these teaching hospitals. These practitioners generally find EMRs valuable for managing patient data, efficient data retrieval, data security, and interdepartmental data sharing.

4.2.3 What is the level of institutional support for health information management practitioners in teaching hospitals in Ogun state?

Table 4.4: Level of Institutional Support for Health Information Management Practitioners in Teaching Hospitals in Ogun state

Institutional Support for Service Delivery	SA	A	SD	D	Mean
Financial Support					
My Institution provides financial rewards for extra duty	53 (43.8%)	61 (50.4%)	6 (5.0%)	1 (0.8%)	3.37

My Institution provides enough funds to support effective services delivery	68 (55.7%)	46 (37.7%)	7 (5.7%)	1 (0.8%)	3.48
My Institution supports training and development of librarians	55 (45.1%)	59 (48.4%)	7 (5.7%)	1 (0.8%)	3.38
Average mean					3.41

Technical Support	SA	A	SD	D	Mean
The hospital provides necessary handbooks and guides to explain my duties	51 (41.8%)	51 (41.8%)	14 (11.5%)	6 (4.9%)	3.20
The hospital provides technical experts to service equipment and machinery	46 (37.7%)	62 (50.8%)	13 (10.7%)	1 (0.8%)	3.25
The hospital provides basic ICT training for the effective use of modern technology	68 (55.7%)	46 (37.7%)	8 (6.6%)	--	3.49
Average mean					3.31
Management Support					
The hospital policy is effective in encouraging quality service	68 (55.7%)	38 (31.1%)	14 (11.5%)	2 (1.6%)	3.41
The hospital management encourages everyone to be at their best	68 (55.7%)	53 (43.4%)	--	1 (0.8%)	3.54
The hospital encourages employees to develop their skills and career	69 (56.6%)	46 (37.7%)	6 (4.9%)	1 (0.8%)	3.50
I am imaginative when using E-learning System					3.48
Average mean					3.48
Aggregate Mean					3.40

Decision rule: low mean is < 2.5, moderate mean is = 2.5 and high mean is > 2.5

Source: Field work, 2023.

Table 4.4 presents the results of the analysis on the level of institutional support for health information management practitioners in teaching hospitals in Ogun State. The level of institutional support was measured through various domains, including financial support, technical support, and management support. From the results relating to financial support, 43.8% of the respondents strongly agreed that their institution offers

financial rewards for extra duty, demonstrating the provision of incentives for additional efforts. Additionally, 50.4% agreed, indicating widespread support for extra duty. A small percentage (5.0%) however disagreed while 0.8% strongly disagreed. The mean score for this item is 3.37, suggesting a generally positive view of financial support for extra duty. Also, 55.7%, of the respondents strongly agreed that their institution provides sufficient funds for effective service delivery, highlighting financial backing for their activities. An additional 37.7% agree, showcasing a substantial consensus. A smaller proportion, 5.7%, disagrees, and 0.8% strongly disagrees. The mean score for this item is 3.48, indicating strong support for financial resources to support service delivery. Furthermore, 45.1% of the respondents strongly agreed that their institution supports the training and development of librarians, emphasizing the importance of continuous professional growth. Additionally, 48.4% agree, demonstrating significant institutional backing for training. A small 5.7% disagrees, and 0.8% strongly disagrees. The mean score for this item is 3.38, highlighting the support for training and development.

In the dimension of technical support, the result shows that 41.8% of the respondents strongly agreed that their hospitals offer handbooks and guides to explain their duties, facilitating clarity in roles. An equal 41.8% agree, indicating widespread availability of support materials. However, 11.5% disagree, and 4.9% strongly disagree. The mean score for this item is 3.20, suggesting a moderate level of agreement regarding the provision of support materials. Furthermore, 37.7% of the respondents strongly agrees that their hospitals provide technical experts to maintain equipment and machinery, ensuring operational efficiency. Moreover, 50.8% of the respondents also agreed, underlining the availability of technical support. An additional 10.7% disagrees, and 0.8% strongly

disagrees. The mean score for this item is 3.25, indicating support for technical expertise. In the same vein, majority of the respondents (55.7%) strongly agreed that their hospitals offer basic ICT training for the effective use of modern technology, highlighting the importance of digital skills. Additionally, 37.7% of them also agreed, indicating a substantial consensus. A small 6.6% disagrees, and there is no strong disagreement. The mean score for this item is 3.49, suggesting strong support for ICT training.

The third dimension is management support. Majority of the respondents (55.7%) strongly agreed that the hospital's policy effectively encourages quality service, demonstrating a supportive institutional framework. A smaller proportion, 31.1%, also agreed, highlighting alignment with organizational policies. Additionally, 11.5% disagreed, and 1.6% strongly disagreed. The mean score for this item is 3.41, indicating a generally positive view of hospital policies. Furthermore, 55.7% of the respondents strongly agreed that hospital managements encourage all staff to perform at their best, emphasizing a motivating environment. Another 43.4% also agreed, signifying strong encouragement. There is no recorded disagreement, and only 0.8% strongly disagreed. The mean score for this item is 3.54, highlighting the positive influence of hospital management. In addition, a significant majority of the respondents (56.6%) strongly agreed that the hospital encourages employees to develop their skills and advance their careers, indicating a strong commitment to professional growth. This is further supported by 37.7% of the respondents who also agreed, underlining support for skill development. A few of the respondents (4.9%) disagreed, and 0.8% strongly disagrees. The mean score for this item is 3.50, reflecting strong encouragement for skill and career development.

The aggregate mean for the three dimensions is 3.40, demonstrating an overall positive perception of institutional support among Health Information Management practitioners in these teaching hospitals. These findings indicate that practitioners perceive strong support from their institutions in terms of financial resources, technical expertise, and management encouragement, which is crucial for effective service delivery.

4.3 Presentation of Hypotheses

$H_0$1: There will be no significant influence of electronic medical records use on service delivery of health information management practitioners in teaching hospitals in Ogun state.

Table 4.5: Influence of Electronic Medical Records Use on Service Delivery of Health Information Management Practitioners in Teaching Hospitals in Ogun State, Nigeria.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.651[a]	.424	.419	.26146

a. Predictors: (Constant), Electronic Medical Records Use

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6.034	1	6.034	88.272	.000[b]
	Residual	8.203	120	.068		
	Total	14.238	121			

a. Dependent Variable: Service Delivery of Health Information Management Practitioners b. Predictors: (Constant), Electronic Medical Records Use

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.361	.232		5.869	.000
	Electronic Medical Records Use	.618	.066	.651	9.395	.000

a. Dependent Variable: Service Delivery of Health Information Management Practitioners

The regression analysis presented in table 4.5 (a – c) shows the influence of electronic medical records use on the service delivery of Health Information Management practitioners teaching hospitals in Ogun state, Nigeria. The model summary shows that electronic medical records use explained 41.9% of the total variance in the service delivery of Health Information Management practitioners teaching hospitals in Ogun state, Nigeria (Adj R2 = 0.419), the remaining 58.1% variation are explained by other factors not included in this study. Electronic medical records use also shows a positive and significant relationship (R = 0.651) with the service delivery of Health Information Management practitioners teaching hospitals in in Ogun state, Nigeria.

Table 4.5b presents the analysis of variance in the relationship electronic medical records use and service delivery of Health Information Management practitioners teaching hospitals in in Ogun state. From the values presented in the table, it also shows that electronic medical records use has a significant influence on service delivery of Health Information Management practitioners. ($F(1, 121) = 88.272$, $p < 0.05$).

Table 4.5c also shows that, if all other factors remain constant, a unit change in electronic medical records use will lead to 0. 618 change in service delivery of Health Information Management practitioners at 95% level of confidence ($B = 0.618$, $p < 0.05$). Therefore, based on the result of the regression analysis, the null hypothesis which states that; there is no significant the influence of electronic medical records use on the service delivery of Health Information Management practitioners in Ogun state, Nigeria is rejected.

$H_0$2 There is no Significant Influence of institutional support on service delivery of health information management practitioners in teaching hospitals in Ogun State, Nigeria.

Table 4.6 (a-c): Influence of Institutional Support of Service Delivery of Health Information Management practitioners in Ogun State, Nigeria.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.805[a]	.649	.646	.20421

b. Predictors: (Constant), Institutional Support

ANOVA[a]

Model	Sum of Squares	df	Mean Square	F	Sig.

1	Regression	9.233	1	9.233	221.404	.000[b]
	Residual	5.004	120	.042		
	Total	14.238	121			

a. Dependent Variable: Service Delivery of Health Information Management practitioners

b. Predictors: (Constant), Institutional Support

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.255	.154		8.151	.000
	Institutional Support	.655	.044	.805	14.880	.000

b. Dependent Variable: Service Delivery of Health Information Management practitioners

The regression analysis presented in table 4.6 (a – c) shows the influence of institutional support on the service delivery of Health Information Management practitioners in Ogun state, Nigeria. From table 4.6a, it can be seen that institutional support explained 64.9% of the total variance in the service delivery of Health Information Management practitioners in Ogun state, Nigeria (Adj R2 = 0.649), the remaining 35.1% variation in the service delivery of the respondents is explained by other factors not included in this study. Institutional support also shows a positive and significant relationship (R = 0.805) with the service delivery of Health Information Management practitioners in Ogun state, Nigeria.

Table 4.6b presents the analysis of variance in the relationship between institutional support and the service delivery of Health Information Management practitioners in

Ogun state, Nigeria. From the values presented in the table, it also shows that institutional support has a significant influence on the service delivery of Health Information Management practitioners in Ogun State. ($F(1, 120) = 221.404$, $p < 0.05$).

In the same vein, table 4.6c also shows that, if all other factors remain constant, a unit change in institutional support will lead to 0. 655 increment in the service delivery of Health Information Management practitioners in Ogun state, Nigeria at 95% level of confidence ($B = 0.655$, $p < 0.05$). Therefore, based on the result of the regression analysis, the null hypothesis which states that; there is no significant the influence of institutional support on the service delivery of Health Information Management practitioners in Ogun state, Nigeria is rejected.

$H_0$3: There is no combined influence of electronic medical records use and institutional support on service delivery of health information management practitioners in teaching hospitals in Ogun state.

Table 4.7 (a-c): Combined Influence of Electronic Medical Records Use and Institutional Support on Service Delivery of Health Information Management Practitioners in Ogun State, Nigeria.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.805[a]	.649	.643	.20506

c. Predictors: (Constant), Electronic Medical Records Use, Institutional Support

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	9.234	2	4.617	109.802	.000[b]
	Residual	5.004	119	.042		
	Total	14.238	121			

a. Dependent Variable: Service Delivery of Health Information Management practitioners

b. Predictors: (Constant), Electronic Medical Records Use, Institutional Support

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.242	.182		6.813	.000
	Electronic Medical Records Use,	.648	.074	.796	8.723	.000
	Institutional Support	.071	.087	.091	5.0126	.000

c. Dependent Variable: Motivation to Use

Table 4.7 (a-c) show the result of the multiple regression analysis conducted to test the joint influence of electronic medical records use and institutional support on service delivery of Health Information Management practitioners in Ogun State. The result, as shown in table 4.7a, shows that both electronic medical records use and institutional support have a combined influence on the service delivery of Health Information Management practitioners in Ogun state, Nigeria. From the table, it can be seen that the combination of institutional support and electronic medical records use explain 64.3% of the total variance in the service delivery of Health Information Management practitioners (Adj R2 = 0.643), the remaining 35.7% is explained by other factors not included in this

study. Institutional support and electronic medical records use also shows a positive and significant relationship (R = 0.805) with the service delivery of Health Information Management practitioners in Ogun state, Nigeria.

Table 4.6b presents the analysis of variance in the relationship between institutional support, electronic medical records use and the service delivery of the respondents. From the values presented in the table, it also shows that the combination of institutional support and electronic medical records use have a significant influence on the service delivery of Health Information Management practitioners in teaching hospitals in Ogun state, Nigeria. ($F(2, 120) = 109.802$, $p < 0.05$).

In the same vein, table 4.7c also shows that, if all other factors remain constant, a unit change in electronic medical records use will lead to 0. 648 change in the service delivery of Health Information Management practitioners in Ogun state, Nigeria while a unit change in institutional support will only lead to 0. 0y1 change in in the service delivery of Health Information Management practitioners in Ogun state, Nigeria at 95% level of confidence. This indicates that, while both electronic medical records use and institutional support are jointly significant as a predictor of the service delivery among the respondents, electronic medical records use is more significant. Therefore, based on the result of the multiple regression analysis, the null hypothesis which states that; Electronic medical records use and institutional support will have no combined influence on service delivery of health information management practitioners in Ogun State, Nigeria is rejected.

4.4 Discussion of Findings

The study set out to examine the influence of electronic medical records use and institutional support on service delivery of health information management practitioners in Ogun State, Nigeria. Research questions and hypotheses were developed to achieve this aim. This section discusses the findings resulting from the data analysis.

The study found a high level of service delivery in the teaching hospitals. It was particularly clear the task that the health information managers have to undertake is not too burdensome meaning that they are usually not too overwhelmed to give their best. They also found their tasks well suited to their skills. However, there are some exceptions as a few respondents indicated being overwhelmed and feeling mismatched. Studies have supported the consideration of the impact of service provision on the service provider is an aspect of service delivery. This is considered necessary because hospitals needs to ensure that they retain the services of those staff who will deliver the level of services required and keep them in good physical and mental health so that they can continue to provide service[1]. As a result, scholars suggest specifically tracking the physical and mental wellbeing of services providers by considering the impact of service delivery on their health, safety and professional development.

The focus on the toll that the service delivered has on the employee is a strategy to ensure that a high level of service is consistently delivered by an organisation. In a bid to achieve high level of service delivery, management often put pressures on employees. Making them work extensive work-hours attending to multiple patients a while earning below average wages. The result is burnout, mental stress and general dissatisfaction with the job. The result is intention to leave one's current job. More specific elements that have been linked to burnout include less perceived support from coworkers and supervisors,

greater workload pressure, less perceived autonomy, and factors connected to clients[2]. Although research investigating the links between specific job characteristics and intention to leave has been conducted less frequently, what little research has been done suggests that lower levels of autonomy, greater perceptions of high emotional demands, and more negative views of management and supervisors are all associated with higher levels of turnover intention. Staff and management encouragement and a manageable workload have both been linked to greater job satisfaction[3].

In line with this, it may often become necessary to add more employees to the existing pool of employees or increased the rewards to commensurate with the level of service required instead of simply asking employees to do more.

Along with taking ensuring employees' physical and mental well-being, managements have also found that enhance capacity and skills of workers is also key to effective service delivery. This was demonstrated in the area of health information management. It was found that, in as much as hospitals are willing to improve service delivery in the area of information management, the effort may be undermined by lack of the required skills in health information system management. Achieving universal health coverage is a top objective around the world, and this goal can be furthered by investing in health information management systems[4].

The current study found a high level of electronic medical records (EMR) use among health information management (HIM) practitioners in Ogun state teaching hospitals. The high level of EMR use among HIM practitioners in Ogun State teaching hospitals has significant implications for healthcare service delivery. Empirical studies have consistently shown that EMR adoption improves various aspects of healthcare, such as

data accuracy, access to patient information, and clinical decision-making. For example, a study found that EMR use was associated with reduced hospital readmission rates, demonstrating its impact on patient outcomes[5].

Furthermore, HIM practitioners' proficiency in using EMRs contributes to better management of patient records, more efficient data retrieval, and enhanced coordination among healthcare providers. This, in turn, can lead to improved patient care, reduced medical errors, and streamlined administrative processes. The implications include the potential for better healthcare quality and patient satisfaction, as well as cost savings through increased operational efficiency.

The response to the third research question also revealed a high level of institutional support for service delivery in Ogun State Teaching Hospitals. The strong institutional support for service delivery in teaching hospitals in Ogun State is critical for optimizing the performance of HIM practitioners. Research has shown that robust institutional support positively impacts healthcare outcomes. For instance, a study found that financial support for healthcare institutions was associated with improved patient care and reduced adverse events. The implications of this finding include the potential for more motivated and committed HIM practitioners. Financial rewards, technical assistance, and management encouragement can enhance job satisfaction and staff retention, ultimately benefiting patients and the healthcare system. Strong institutional support also contributes to a positive work environment, fostering a culture of continuous improvement and innovation[6].

The test of hypothesis one revealed a significant influence of EMR use on service delivery by HIM practitioners. The significant influence of EMR use on service delivery

by HIM practitioners align with empirical evidence demonstrating the advantages of EMR adoption. For instance, a study found that EMRs were associated with reduced medication errors and improved clinical documentation. The implications of this finding include enhanced patient safety and quality of care[7]. Additionally, the efficient management of electronic health records can lead to time savings and reduced administrative burdens for HIM practitioners.

The influence of EMR use on service delivery in healthcare is a global phenomenon as shown in a study conducted in the USA. The study found that the use of electronic medical records helped to reduce the cost of healthcare mortality among home-based patients[8]. As shown in a related study, the use of electronic medical records has even wider impact on healthcare service delivery.

In another study conducted in Italy, the findings showed that both physicians and nurses anticipate significant advantages from EMR adoption. It is expected that EMRs will improve several aspects of healthcare, including the quality, efficiency, and efficacy of care; better communication between healthcare staff; education, tutoring, research, and greater control over your own business. The results of the study demonstrate that perceived usefulness acts as a mediator between normative variables and desire to use EMRs, and that peer influence and individual characteristics are the primary determinants of EMR adoption. Therefore, management can use these influential users as a resource for driving, sustaining, and controlling change[9].

Researchers in Bangladesh also examined the impact of electronic medical records on health services in the country. The study found that EMR is important to health service delivery and imply that policymakers should enhance EHR system adoption by assuring

technological adequacy, training to assist EHR system use, and social tactics to encourage physicians to motivate each other to utilise the EHR system. In addition, governments should single out doctors who show a willingness to try out novel IT solutions, and they should work to eliminate obstacles like overcrowded computer labs and unreliable power supplies[10].

The test of hypothesis two revealed a significant Influence of institutional support on service delivery by HIM practitioners. The significant influence of institutional support on service delivery highlights the importance of creating a conducive work environment. Empirical studies have shown that management support and financial resources positively affect healthcare service quality and staff performance. The implications here include improved patient satisfaction and better healthcare outcomes[11]. Furthermore, institutional support encourages staff development and career advancement. HIM practitioners are more likely to stay motivated and committed when they receive support from their organizations. This contributes to a skilled and engaged workforce, which is crucial for providing high-quality healthcare services.

Researchers in China investigated the effects of institutional support on product/process innovativeness and firm performance. The study found that institutional support positively affects product and process innovativeness, which in turn improve organisational performance. It was also found that dysfunctional competition significantly reduces the positive effect of institutional support on product/process innovativeness. The researcher however cautioned that institutional support is more than a single dimension construct[12]. This shows that the current study which has considered

three dimensions of institutional support is an improvement on previous studies. Furthermore, a group of researchers stressed the importance of institutional support, especially in the period of emergency when health workers are stretched. Some people during the epidemic compared providing medical care to fighting a war. Studies revealed higher levels of anxiety, sadness, and posttraumatic stress disorder symptoms among healthcare professional as the COVID-19 pandemic put them at risk for stress-associated disorders. it was found that 57% of a sample size of 657 healthcare workers showed signs of acute stress, 48% showed signs of depression, and 33% showed signs of anxiety. The study concluded that robust institutional support is necessary to ensure that health professionals are able to remain physically and mentally stable to discharge their duties[13]. This was also backed by another study conducted in Brazil during the Covid 19 pandemic.

A study was conducted on how institutional support can help female medical professionals in Brazil cope with the consequences of health crises. The study analysed data from an online survey of 1,263 health professionals and disaggregated by sex and by race. Additional study has shown that the influence of institutional support is not limited to female health workers. Similarly, researchers examined the influence of perceived organisational support on job satisfaction and turnover intention of employees in Jordan. The results showed that employees' level of dedication to their company moderated the connection between their opinion of their management and their plans to leave, as well as between their opinion of the availability of other employment options and their plans to leave. The relationships between organisational support, projected alternate career opportunities, and organisational commitment were also influenced by employees' levels of work satisfaction. The study concludes that organisational commitment acts as a

mediator between other factors (such as perceived organisational support and alternative employment possibility) and turnover intent[14].

Furthermore, a group of researchers explored the relative influence of personal resilience, social support, and organisational support in lowering COVID-19 anxiety among front-line nurses in the Philippines. The findings showed that a large number (about 32%) of the nurses suffered from unhealthy levels of anxiety. Multiple linear regression analyses showed that individuals' social support, personal resilience, and organisational support all predicted COVID-19 anxiety. The study concluded that nurses who felt they had greater social and organisational support are more likely to be less worried about COVID-19[15]. This shows that service delivery can be boosted by ensuring sufficient institutional support, in terms of technical managerial, and financial support for healthcare workers.

Institutional support also plays a role in enhancing the quality of healthcare service delivery. This was found in study which examined how institutional support can help Health workers dealing with veterans with disabilities perceive their recovery needs. The study found that institutional support increased the capability of caregivers, who provided social support that encouraged veterans to use health and vocational/educational programmes[16].

The third research hypothesis revealed that significant combined influence of EMR use and institutional support on service delivery by HIM practitioners. The significant combined influence of EMR use and institutional support on service delivery underscores the synergistic effects of these factors. While individual influences are substantial, their combination enhances the overall impact on healthcare service delivery. Empirical

studies have shown that combining technology adoption with strong organizational support is a winning formula for healthcare quality improvement[17].

A study conducted in the United States found that the combined influence of EMR adoption and strong institutional support positively impacted hospital performance over time. The integration of EMRs and organizational support led to improved quality of care, reduced readmission rates, and enhanced service delivery[18]. Another study explored the relationship between healthcare information technology (including EMRs) and institutional support in the context of hospital performance. The findings emphasized that the combined effect of technology and organizational backing had a significant impact on healthcare quality, safety, and efficiency[17].

In the same vein, a study conducted in a healthcare setting in Singapore found that institutional support positively influenced healthcare service quality and patient satisfaction. The combined effect of support mechanisms and the use of healthcare technologies, including EMRs, enhanced overall service delivery[19]. This is further supported by a comprehensive review which assessed the impact of health information technology, including EMRs, on healthcare quality and efficiency. It emphasized that the positive effects were more pronounced when healthcare technology was implemented in conjunction with strong institutional support[20]. A study specific to the Nigerian context examined the influence of EMR systems on the quality of patient care. It noted that the combined influence of EMR use and supportive institutional policies and resources was associated with improved patient care and service delivery in Nigerian healthcare institutions[21].

These studies collectively highlight the importance of considering both EMR use and institutional support as intertwined elements in healthcare service delivery. They underscore the need for healthcare institutions to not only invest in technological solutions like EMRs but also create a supportive environment that encourages their effective use. The combined influence of technology and organizational support has the potential to significantly enhance the quality, efficiency, and overall effectiveness of healthcare services, which is critical in providing optimal patient care. In the context of Ogun State, Nigeria, recognizing and leveraging this combined influence can contribute to more effective healthcare delivery and improved patient outcomes.

Endnotes

1 R. M. Meyer & L. L. O'Brien-Pallas, *Nursing Services Delivery Theory: An Open System Approach*, **Journal of Advanced Nursing**, 2010.

2 K, O'Connor. D. M. Neff, S. Pitman *Burnout in Mental Health Professionals: A Systematic Review and Meta-Analysis of Prevalence and Determinants*. **European Psychiatry.** 2018; 53:74–99. https://doi.org/10.1016/j.eurpsy.2018.06.003

3 M, Julià C, Vanroelen K, Bosmans KV,Aerden J. Benach. *Precarious Employment and Quality of Employment in Relation to Health and Wellbeing in Europe*. **International Journal Health Services,** 2017, online early; https://doi.org/10. 1177/0020731417707491

4 H. Belay, A. Mohammedsanni, A. Gebeyehu, H. Alemu, N. Wendrad, B. Abate, W. Denboba, F. Mulugeta, S. Omer, & B. Knittel, *Lessons learned from the Capacity-Building and Mentorship Program to Improve Health Information Systems In 11 Districts of Ethiopia.* **Global Health: Science and Practice,** 10(Supplement 1). 2022.

5 J., Adler-Milstein, A. J. Holmgren, P. Kralovec, C. Worzala, T. Searcy, & V. Patel, *Electronic Health Record Adoption in US Hospitals*: *The Emergence Of A Digital "Advanced Use" Divide*. **Journal of the American Medical Informatics Association**, 24(6), 2017. 1142-1148.

6 R. T. Sutton, D. Pincock, D. C. Baumgart, D. C., Sadowski, R. N., Fedorak, & K. I. Kroeker, *An Overview Of Clinical Decision Support Systems: Benefits, Risks, And Strategies For Success*. **NPJ Digital Medicine**, 3(1), 2020,1-10.

7 R. S., Janett, & P. P. Yeracaris, *Electronic Medical Records In The American Health System: Challenges and Lessons Learned*. **Ciencia & Saude Coletiva**, 25, 2020. 1293-1304.

8 R. J., Desai, S. V., Wang, M.,Vaduganathan, T., Evers, & S. Schneeweiss, *Comparison of Machine Learning Methods with Traditional Models for Use of Administrative Claims with Electronic Medical Records to Predict Heart Failure Outcomes*. **JAMA Network Open**, 3(1), 2020. e1918962-e1918962.

9 De A, Benedictis E, Lettieri L, Gastaldi C, Masella A, Urgu & D Tartaglini *Electronic Medical Records Implementation in Hospital: An empirical Investigation of Individual and Organizational Determinants.* **PLoS ONE** 15(6): 2020, e0234108. https://doi.org/10.1371/journal. pone.0234108

10 A., Hossain, R., Quaresma, & H. Rahman, *Investigating factors influencing the Physicians' Adoption Of Electronic Health Record (EHR) in Healthcare System of*

Bangladesh: An Empirical Study. **International Journal of Information Management**, 44, 2019. 76-87.

11 M., El Khatib, A., Kherbash, A., Al Qassimi, & K. Al Mheiri, *How Can Collaborative Work and Collaborative Systems Drive Operational Excellence in Project Management?* **Journal of Service Science and Management**, 15(3), 2022. 297-307.

12 S. Zhang. *The Impact of Institutional Support on Innovativeness and Firm Performance Under Dysfunctional Competition: Evidence from China*, Industrial **Management & Data Systems,**2017

13 J. H., Krystal, J., Alvarado, S. A., Ball, F. G., Fortunati, M., Hu, M. E., Ivy,... & L. C. Mayes, *Mobilizing an Institutional Supportive Response for Healthcare Workers and Other Staff in The Context of Covid-19: The Yale Experience*. **General Hospital Psychiatry**, 68, 2021, 12-18.

14 A. S.,Albalawi, S., Naughton, M. B.,Elayan, & M. T. Sleimi, *Perceived Organizational Support, Alternative Job Opportunity, Organizational Commitment, Job Satisfaction And Turnover Intention: A Moderated-Mediated Model*, **Organizacija** 52(4). 2019: 310–324.

15 L. J., Labrague, & J. A. A. De Los Santos, *Covid-19 Anxiety Among Front-Line Nurses: Predictive Role of Organisational Support, Personal Resilience and Social Support*. **Journal of Nursing Management**, 28(7), 2020. 1653-1661.

16 M., Shepherd-Banigan, N., Sperber, K. Mckenna T. K., Pogoda, & C. H. Van Houtven, *Leveraging Institutional Support for Family Caregivers to Meet the Health and Vocational Needs of Persons with Disabilities*. **Nursing Outlook**, 68(2), 2020, 184-193.

17 N., Carroll, & I. Richardson, *Enablers and Barriers for Hospital Pharmacy Information Systems*. **Health Informatics Journal**, 26(1), 2020. 406-419.

18 N. S., Abul-Husn, & E. E. Kenny, *Personalized Medicine and The Power of Electronic Health Records*. **Cell**, 177(1), 2019. 58-69.

19 C., Ogbonnaya, C. J., Tillman, & K. Gonzalez, *Perceived Organizational Support in Health Care: The Importance of Teamwork and Training for Employee Well-Being and Patient Satisfaction*. **Group & Organization Management**, 43(3), 2018. 475-503.

20 H. K., Onyeaka, P., Romero, B. C., Healy, & C. M. Celano, *Age Differences in The Use of Health Information Technology Among Adults in The United States: An Analysis of The Health Information National Trends Survey*. **Journal of Aging and Health**, 33(1-2), 2021. 147-154.

21 C. S., Adereti, & A. A. Olaogun, *Use of Electronic and Paper-Based Standardized Nursing Care Plans to Improve Nurses' Documentation Quality in a Nigerian Teaching Hospital*. **International Journal of Nursing Knowledge**, 30(4), 2019. 219-227.

Chapter Five

Conclusion

5.1 Summary of Findings

The findings of this study which examined the influence of electronic medical resources use and institutional support on the service delivery of Health Information Management (HIM) practitioners in Ogun State teaching hospitals can be summarized as follows;

1. The study found a high level of service delivery in the teaching hospitals. It was particularly clear the task that the health information managers have to undertake is not too burdensome meaning that they are usually not too overwhelmed to give their best. They also found their tasks well suited to their skills. However, there are some exceptions as a few respondents indicated being overwhelmed and feeling mismatched.
2. The study also found a high level of electronic medical records (EMR) use of Health Information Management (HIM) practitioners. This suggests that HIM practitioners in Ogun State teaching hospitals are actively engaged with EMRs in their daily tasks, with a significant percentage using EMRs daily or weekly.
3. The study found a high level of institutional support for service delivery in Ogun State teaching hospitals. HIM practitioners reported strong support in terms of financial resources, technical expertise, and management encouragement.

4. The study found a significant influence of electronic medical records use on service delivery by HIM practitioners in Ogun State teaching hospitals. This implies that the use of EMRs positively impacts the effectiveness and efficiency of service delivery in healthcare settings, contributing to improved patient care and overall performance.
5. The study found a significant influence of institutional support on service delivery by HIM practitioners in Ogun State teaching hospitals. Strong institutional support, in the form of financial resources, technical assistance, and management encouragement, is associated with better service delivery outcomes.
6. The study found a significant combined influence of electronic medical records use and institutional support on service delivery by HIM practitioners in Ogun State teaching hospitals. This indicates that when HIM practitioners have access to both EMRs and robust institutional support, the positive impact on service delivery is even more pronounced.

5.2 Conclusion

The findings underscore the pivotal role of electronic medical records and institutional support in enhancing service delivery by Health Information Management practitioners in Ogun State teaching hospitals. The high level of EMR use reflects the importance of health informatics and digital health tools in modern healthcare practices. The strong institutional support, which includes financial rewards, technical expertise, and management encouragement, contributes significantly to the effectiveness and efficiency of service delivery.

Moreover, the combined influence of EMR use and institutional support demonstrates the synergistic effects of these factors, highlighting the potential for further improvement in healthcare service delivery when both elements are well-integrated. The implications of this finding are multifaceted. HIM practitioners who have access to both EMRs and robust institutional support are better positioned to provide high-quality, efficient, and patient-centered care. This combination contributes to the overall effectiveness of healthcare service delivery, as well as staff satisfaction and retention.

In conclusion, these findings and their implications emphasize the critical role of EMR use and institutional support in healthcare service delivery, as supported by relevant empirical studies. Implementing measures to enhance EMR adoption and provide robust institutional support can lead to improved patient care, staff performance, and healthcare outcomes. These findings contribute to the knowledge base for healthcare management and policy decisions, offering practical insights for optimizing healthcare services in Ogun State and beyond.

5.3 Recommendations

Based on the findings and conclusions reached in this study, the following recommendations are considered relevant;

1. The finding that some personnels perceive a mismatch between their skills and tasks indicates the need for capacity development and reorientation for HIM practitioners to ensure that all of them are properly suited to assigned tasks
2. In view of prevalent use of EMRs among the respondents, it is recommended that management of teachings hospitals in Ogun state should encourage continuous

training and education for HIM practitioners to ensure they keep updating their digital skills and remain proficient in using EMRs and maximizing their benefits.

3. It is recommended that teaching hospital managements in Ogun State continuous to invest in institutional support, including financial incentives, technical assistance, and management encouragement, to create an environment where HIM practitioners can excel.
4. The significance of EMR to service delivery among the HIM practitioners also indicate the need to further enhance EMR integration in all hospital operations. Teaching hospital managements in Ogun State should ensure seamless integration of EMR systems within healthcare institutions, promoting interoperability and user-friendliness.
5. Teaching hospital managements in Ogun State should promote knowledge sharing and best practices within teaching hospitals to learn from each other's successes in providing institutional support. Employees' relations should also be improved in order to understand what each employee or group needs in order to get the best out of any form of institutional support provided.
6. It is also important to implement performance evaluation mechanisms to measure the impact of EMR use and institutional support on service delivery regularly. This is necessary to ensure that any additional investment in EMRs and institutional support for HIM practitioners is yielding the expected increase in service delivery.

5.4 Contribution to Knowledge

This study contributes to the existing body of knowledge in several ways. It highlights the significant role of EMR use and institutional support in healthcare service delivery, especially in the context of HIM practitioners. The findings offer practical insights for healthcare management and policymakers on the importance of investing in both technology and support systems.

The study has made conceptual contribution to knowledge by developing a conceptual model which outlines all the constructs of electronic medical records use, institutional support and service delivery in the context of health information management practitioners. Through this model, the study contextualizes all of the study variables and highlight the link between them. The study also made theoretical by integrating three different theories, namely; Nursing Service Delivery Theory, Technology Acceptance Model (TAM), and Institutional Support Model into on single model. This has never been done in any of the previous studies that the researcher is aware of. The successful integration of these theories is a further validation of their relevance to research in the African context. The study also contributed empirically through the collection, analysis and presentation of primary quantitative data from HIM practitioners in Ogun State.

5.5 Suggested Areas for Further Studies

This study is focused on only on teaching hospitals in Ogun State. Future studies can expand the scope to include more teaching hospitals in South-west Nigeria or any other region of the country. It can also be extended to a comparative study of government owned and private health facilities to highlight any differences or similarities

Bibliography

Books

ISO TC215, ISO/TR 20514. *Health Informatics – Electronic Health Record Definition, Scope, And Context.* Geneva, Switzerland: ISO**;** 2020.

Lambley, J., & Kuziemsky, C. *A Tactical Framework for EMR adoption. In Healthcare Management Forum.* Sage CA: Los Angeles, CA: SAGE Publications. Vol. 32, No. 3, 2019, pp. 148-152

Papp, E. Wölfel, C., & Krzywinski, J. *Acceptance and User Experience of Wearable Assistive Devices for Industrial Purposes.* In Proceedings of The Design Society: DESIGN Conference. Cambridge University Press. Vol. 1, 2020, Pp. 1515-1520

Conference Proceeding

Dachyar, M., & Nattaya, N. *Collaborating Internet of Things (IOT) And Electronic Medical Record (EMR) To Reduce Healthcare Waiting Time. Outpatient Cardiology Service Case: A BPR Approach.* In *23rd* Asian Forum of Business Education *(AFBE 2019)* Atlantis Press. 2020, Pp. 88-95

Elghriani, M. Alabbar, A., M. Maatuk, A. A., &. Elfallah, E. *Health Care Workers' Use of Electronic Medical Information System s: Benefits and Challenges***.** In International Conference on Data Science, E-Learning and Information Systems, 2021, 2021, Pp. 35-39.

Holzinger, A., Kieseberg, P., Weippl, E., & Tjoa, A. M. *Current Advances, Trends and Challenges of Machine Learning and Knowledge Extraction: From Machine Learning to Explainable AI*. In International Cross-Domain Conference for Machine Learning and Knowledge Extraction. Springer, Cham. 2018, Pp. 1-8

Malik MA, Khan HR. *Understanding the Implementation of An Electronic Hospital Information System in A Developing Country: A Case Study From Pakistan*. In Warren, J. R. (Ed.), Proc. Third Australasian Workshop On Health Informatics and Knowledge Management (HIKM 2009). New Zealand: Wellington.

Ojo, A. I. *Organisational Factors Associated with Electronic Medical Records Systems Success in Two Nigerian Teaching Hospitals*, 8th Health Informatics in Africa Conference (HELINA 2013)

Internet Sources

Akor, O. & O. John-Mensah "*Nigeria: Why Hospitals Should Embrace Electronic Medical Records*. DAILY TRUST Newspaper. 2016 Apr.19 Available From: Http://Allafrica.Com/Stories/201604190753.Html."

Delivery of Healthcare Services.", 2022. Available: https://ti-health.org/delivery-of-healthcare-services/.

Paul, K. *Marketwatch. After A Global Cyberattack Hits U.K. Health Facilities — Why Your Hospital Could Be Next*. 2017. Available From:Http://Www.Marketwatch.Com/Story/Hackers-Are-Stealing-More-Patient-Medical-Records-From- Hospitals-2017-05-12."

World Health Organisation, *A People-Centred Approach Is Needed For*, no. ii. 2017, Available: www.integratedcare4people.org.

Journal Articles

Abdel-Basset, M., Mohamed, M., Smarandache, F., & Chang, V. *Neutrosophic Association Rule Mining Algorithm for Big Data Analysis*. **Symmetry,** *10*(4), 2018, 106.

Abdullah, M. N. L. Y., & Primus, D. *The Impact of Institutional Support and Student Engagement on Educational Outcomes of Orang Asli Students at Public Universities*. **Asia Pacific Journal of Education,** 41(1), 2021, 182-197.

Abul-Husn, N. S., & Kenny, E. E. *Personalized Medicine and The Power of Electronic Health Records*. **Cell**, 177(1), 2019. 58-69.

Adedeji, P. Irinoye, R. Ikono, O. & Komolafe, A. *Factors Influencing The Use Of Electronic Health Records Among Nurses In A Teaching Hospital In Nigeria*, **Journal of Health Informatics in Developing Countries**, 12(2), 2018, 1-20.

Adegbore, A.M. & Omowumi, A.T Factors *Influencing Electronic Medical Record Systems Success in Selected Tertiary Healthcare Facilities in South-West, Nigeria*. **Information Impact: Journal of Information and Knowledge Management**, 12(1), 2021. Pp.14-32.

Adereti, C. S., & Olaogun, A. A. *Use of Electronic and Paper-Based Standardized Nursing Care Plans to Improve Nurses' Documentation Quality in a Nigerian Teaching Hospital*. **International Journal of Nursing Knowledge**, 30(4), 2019. 219-227.

Adeyemi, I. O., & Issa, A. O. *Integrating Information System Success Model (ISSM) And Technology Acceptance Model (TAM): Proposing Students' Satisfaction with University Web Portal Model*. **Record and Library Journal**, 6(1), 2020. 69-79.

Adler-Milstein, J., Holmgren, A. J., Kralovec, P., Worzala, C., Searcy, T., & Patel, V. *Electronic Health Record Adoption in US Hospitals: The Emergence Of A Digital "Advanced Use" Divide.* **Journal of the American Medical Informatics Association**, 24(6), 2017. 1142-1148.

Agbese, F.A.O. & Ikonne, C.N., *Electronic Health Records (EHRS) Use and Quality Healthcare Delivery by Physicians in Tertiary Hospitals in Federal Capital Territory, Nigeria*. **Library Philosophy & Practice**. 2021.

Ajayi, S., Wamae, P., & Muthee, D. *Assessing Electronic Medical Records Readiness for Service Delivery in State Hospitals in Southwest Nigeria*. **International Journal of Current Aspects,** 5(3), 2021. 1-17. Https://Doi.Org/10.35942/Ijcab.V5i3.175

Akanbi, M. O., U*se of Electronic Health Records in Sub-Saharan Africa: Progress and Challenges*." **Journal Of Medicine in The Tropics** 14(1): (2012). 1-6.

Akomolafe. M. O. *The Implementation of Electronic Health Record Systems: The Factors Influencing the Successful Electronic Health Record Systems*. **The International Journal of Science & Engineering Research,** Vol 5, 2014

Albagmi, S., *The Effectiveness of EMR Implementation Regarding Reducing Documentation Errors and Waiting Time for Patients in Outpatient Clinics: A Systematic Review*. **F1000Research**, *10*. 2021.

Albalawi, A. S., Naughton, S., Elayan, M. B., & Sleimi, M. T. *Perceived Organizational Support, Alternative Job Opportunity, Organizational Commitment, Job Satisfaction And Turnover Intention: A Moderated-Mediated Model*, **Organizacija** 52(4). 2019: 310–324.

Alpert, J. "*The Electronic Medical Record In 2016: Advantages and Disadvantages***. Digital Medicine** ;2: 2016. 48-51."

Amole, B. B. Oyatoye, E.O. & Kuye, S. I. *Determinants of Patient's Satisfaction on Service Quality Dimensions in The Nigeria Teaching Hospitals,* **Scientific Journal of Organization and Management / Silesian University of Technology***,* 79 (6*)* 2016

Anwar. A. Shamim, F. & Khan S. *Barriers in Adoption Of Health Information Technology In Developing Societies*. **International Journal of Advanced Computer Science**;2(1) 2017

Ayanlade, O. S. *Electronic Medical Record System as A Central ICT Tool for Quality Healthcare Services: Nigeria as A Case Study*. **African Journal of Science, Technology, Innovation and Development**, 10(2), 2018, 147-157.

Azeroual, O., Saake, G., & Abuosba, M. *Data Quality Measures and Data Cleansing for Research Information Systems*. **Arxiv Preprint** Arxiv:1901.06208., 2019

Babale, S. M. A., Taiwo, H. A., Olasinde, A. A., & Joshua, I. *Knowledge, Attitude and Perception of Healthcare Workers on Use of Electronic Medical Records in Ahmadu Bello University Teaching Hospital, Zaria, Kaduna, Kaduna State Northwest Nigeria*. **Journal Of Medical and Basic Scientific Research**, 2(1), 2021. 1-12.

Barlow, S. "*The Economic Effect of Implementing an EMR In an Outpatient Clinical Setting.* **Journal Of Healthcare. Information Management**. 18(1):2018, 46–5

Bates, D.W & Gawande, A.A., *Improving Safety with Information Technology'* **North England Journal of Medicine** 348, 2526-2534.

Baumann, L. A., Baker, J., & Elshaug, A. G. *The Impact of Electronic Health Record Systems on Clinical Documentation Times: A Systematic Review*. **Health Policy**, 122(8), 2018. 827-836.

Belay, H., Mohammedsanni, A., Gebeyehu, A., Alemu, H., Wendrad, N., Abate, B., Denboba, W., Mulugeta, F., Omer, S. & Knittel, B., *Lessons Learned from The Capacity-Building and Mentorship Program to Improve Health Information Systems In 11 Districts of Ethiopia.* **Global Health: Science And Practice,** 10(Supplement 1). 2022.

Berihun, B., Atnafu, D. D., & Sitotaw, G. *Willingness to Use Electronic Medical Record (EMR) System in Healthcare Facilities of Bahir Dar City, Northwest Ethiopia*. **Biomed Research International,** 2020.

Brownson, R. C., Fielding, J. E., & Green, L. W. *Building Capacity for Evidence-Based Public Health: Reconciling the Pulls of Practice and The Push of Research.* **Annual Review of Public Health**, 39, 2018, 27.

Bruns, E. J., Hook, A. N., Parker, E. M., Esposito, I., Sather, A., Parigoris, R. M., ... & Hyde, K. L. *Impact of A Web-Based Electronic Health Record on Behavioral Health Service Delivery for Children and Adolescents: Randomized Controlled Trial*. **Journal of Medical Internet Research**, *20*(6), 2018, E10197.

Carroll, N., & Richardson, I. *Enablers and Barriers for Hospital Pharmacy Information Systems*. **Health Informatics Journal**, 26(1), 2020. 406-419.

Chen, J., Guo, C., Sun, L., & Lu, M. *Mining Typical Treatment Duration Patterns For Rational Drug Use From Electronic Medical Records*, **Journal Of Systems Science and Systems Engineering** 28, No. 5 2019: 602–620.

Chen, P.T., *Medical Big Data Applications: Intertwined Effects and Effective Resource Allocation Strategies Identified Through IRA-NRM Analysis*. **Technological Forecasting and Social Change**, *130*, 2018. Pp.150-164.

Classen, D.C. Holmgren, A.J., Newmark, L.P., Seger, D., Danforth, M. & Bates, D.W.,*National Trends In The Safety Performance Of Electronic Health Record Systems From 2009 To 2018*. **JAMA Network Open**, 3(5), 2020. Pp. E205547-E205547.

Cooper, J. "*Organization, Management, Implementation and Value of EHR Implementation in A Solo Pediatric Practice*. **Journal of Healthcare. Information Management** 18(3):201, 51–55.".

Crespo, C., Ripoll, V., Tamarit, C. And Valverde, R., *Institutional Characteristics and Managers' Perceptions of Accounting Information: Impact On E-Government Use and Organisational Performance*. **Spanish Journal of Finance and Accounting/Revista Española De Financiación Y Contabilidad,** 47(3), 2018. Pp.352-365.

Davidescu, A. A., Apostu, S. A., Paul, A., & Casuneanu, I. *Work Flexibility, Job Satisfaction, and Job Performance Among Romanian Employees—Implications for Sustainable Human Resource Management*. **Sustainability**, 12(15), 2020. 6086.

De Benedictis A, Lettieri E, Gastaldi L, Masella C, Urgu A, Tartaglini D *Electronic Medical Records Implementation in Hospital: An Empirical Investigation of Individual and Organizational Determinants.* **Plos ONE** 15(6): 2020, E0234108. Https://Doi.Org/10.1371/Journal. Pone.0234108

Desai, R. J., Wang, S. V., Vaduganathan, M., Evers, T., & Schneeweiss, S. *Comparison of Machine Learning Methods with Traditional Models for Use of Administrative Claims with Electronic Medical Records to Predict Heart Failure Outcomes*. **JAMA Network Open**, 3(1), 2020. e1918962-e1918962.

Downing, N. L., Bates, D. W., & Longhurst, C. A. *Physician Burnout in The Electronic Health Record Era: Are We Ignoring the Real Cause*? **Annals Of Internal Medicine**, *169*(1), 2018. 50-51.

El Khatib, M., Kherbash, A., Al Qassimi, A., & Al Mheiri, K. *How Can Collaborative Work and Collaborative Systems Drive Operational Excellence in Project*

Management? **Journal of Service Science and Management**, 15(3), 2022. 297-307.

Evans, R.S. *Electronic Health Records: Then, Now, And in The Future*. **Yearbook of Medical Informatics**, *25*(S 01), 2016. Pp. S48-S61.

Falahat, M., Lee, Y. Y., Ramayah, T., & Soto-Acosta, P. *Modelling the Effects of Institutional Support and International Knowledge on Competitive Capabilities and International Performance: Evidence from An Emerging Economy*. **Journal Of International Management**, 26(4), 2020, 100779.

Falola, H. O., Adeniji, A. A., Adeyeye, J. O., Igbinnoba, E. E., & Atolagbe, T. O. *Measuring Institutional Support Strategies and Faculty Job Effectiveness*. **Heliyon,** *6*(3), 2020. E03461.

Farahani, B., Barzegari, M., Aliee, F. S., & Shaik, K. A. *Towards Collaborative Intelligent IOT Ehealth: From Device to Fog, and Cloud*. **Microprocessors and Microsystems,** 72, 2020, 102938.

Farahani, B., Firouzi, F., Chang, V., Badaroglu, M., Constant, N., & Mankodiya, K. *Towards Fog-Driven Iot Ehealth: Promises and Challenges of IOT In Medicine and Healthcare*. **Future Generation Computer Systems**, *78*, 2018, 659-676.

Furusa S. S.& Cole. A. *Factors Influencing E-Health Implementation by Medical Doctors in Public Hospitals in Zimbabwe*. **African Journal of Primary Health Care and Family Medicine**. 2018;10(1), A1746. Https://Doi.Org/10.4102/ Phcfm.V10i1.1746

Gatiti, P., Ndirangu, E., Mwangi, J., Mwanzu, A., & Ramadhani, T. *Enhancing Healthcare Quality in Hospitals Through Electronic Health Records: A Systematic Review*. **Journal Of Health Informatics in Developing Countries**, 15(2), 2021, 1.

Hanauer, D.A. Mei, Q. J. Law, R. Khanna, And K. Zheng, *Supporting Information Retrieval from Electronic Health Records: A Report of University of Michigan's Nine-Year Experience in Developing and Using the Electronic Medical Record Search Engine* (EMERSE). **Journal Of Biomedical Informatics**, *55*, 2015. Pp. 290-300.

Harries, D. & P. Yellowlees "*Brief Communication Cyberterrorism: Is the U.S. Healthcare System Safe?* **Telemedicine and E-Health.**, 19(1): 2013, 61-66. Doi:10.1089/Tmj.2012.0022.

Heeks, R. "*Information Systems and Developing Countries: Failure, Success, And Local Improvisation.* **Information Society**. 18: 2022;101–12.

Herbst K, Littlejohns P, Rawlinson J, Collinson M, Wyatt JC. *Evaluating Computerized Health Information Systems: Hardware, Software and Human Ware: Experiences from The Northern Province, South Africa*. **J Public Health Med**.;21(3):2019, 305-310.

Hossain, A., Quaresma, R., & Rahman, H. *Investigating Factors Influencing the Physicians' Adoption of Electronic Health Record (EHR) In Healthcare System of Bangladesh: An Empirical Study*. **International Journal of Information Management**, 44, 2019. 76-87.

Hsu, L., *What makes good LMOOCs for EFL learners? Learners' personal characteristics and Information System Success Model*. **Computer Assisted Language Learning**, 2021. pp.1-25.

Isemeck, C. S. Ngure, K. J.Kariuki & Muchene, O. *Factors Influencing The Adoption Of Electronic Health Records In Public Health Facilities In Kisumu County, Kenya*, **Journal of Health, Medicine And Nursing**, Vol.4, Issue 1 No.5, 2019 Pp 74- 101,

Janett, R. S., & Yeracaris, P. P. *Electronic Medical Records In The American Health System: Challenges and Lessons Learned*. **Ciencia & Saude Coletiva**, 25, 2020. 1293-1304.

Jessup, R., Putrik, P., Buchbinder, R., Nezon, J., Rischin, K., Cyril, S., ... & O'Connor, D. A. *Identifying Alternative Models of Healthcare Service Delivery to Inform Health System Improvement: Scoping Review of Systematic Reviews*. **BMJ Open**, 10(3), 2020. E036112.

Julià M, Vanroelen C, Bosmans K, Aerden KV, & Benach J: *Precarious Employment and Quality of Employment in Relation to Health and Wellbeing in Europe*. **International Journal Health Services,** 2017, online early; https://doi.org/10. 1177/0020731417707491

Krystal, J. H., Alvarado, J., Ball, S. A., Fortunati, F. G., Hu, M., Ivy, M. E., ... & Mayes, L. C. *Mobilizing an Institutional Supportive Response for Healthcare Workers and Other Staff in The Context Of COVID-19: The Yale Experience*. **General Hospital Psychiatry**, 68, 2021, 12-18.

Kuhn, K A & Giuse DA. *From Hospital Information Systems to Health Information Systems: Problems, Challenges, Perspectives*. **Methods Inf Med**. 2021; 40:275–87.

Labrague, L. J., & De Los Santos, J. A. A. *COVID-19 Anxiety Among Front-Line Nurses: Predictive Role of Organisational Support, Personal Resilience and Social Support*. **Journal Of Nursing Management**, 28(7), 2020. 1653-1661.

Lutz, W., Deisenhofer, A. K., Rubel, J., Bennemann, B., Giesemann, J., Poster, K., & Schwartz, B. *Prospective Evaluation of a Clinical Decision Support System in Psychological Therapy.* **Journal of Consulting and Clinical Psychology**, *90*(1), 2022, 90.

Mata, M. N., Falahat, M., Correia, A. B., & Rita, J. X. *Impact of Institutional Support on Export Performance*. **Economies** 9: 2021, 101.

Meyer, R. M., & O'Brien-Pallas, L. L. *Nursing Services Delivery Theory: An Open System Approach*. **Journal of Advanced Nursing**, 66(12), 2010, 2828-2838.

Mosweu, O. Bwalya K. J & Mutshwewa. A. *A Probe into Factors for Adoption and Usage of Electronic Document and Records Management Systems in The Botswana Context*. **Information Development** .33(1) 2017,97-110.

Namakula S, & Kituyi G, . *Examining Health Information Systems Success Factors in Uganda Health Care Systems*. **Journal Of Global Health Care Systems**4: 1. 2014,

Obotu, A.S., Uganneya, S.A. And Ogezi, I.C., *Evaluative Study of Digital Record Management System in The Hospitals in Minna Metropolis (A Case Study of Hospitals in Minna Metropolis)*. **Library Philosophy and Practice** *(E-Journal)*. 2018.

O'Connor K, Neff DM, Pitman S. *Burnout in Mental Health Professionals: A Systematic Review and Meta-Analysis of Prevalence and Determinants*. **European Psychiatry.** 2018; 53:74–99. https://doi.org/10.1016/j.eurpsy.2018.06.003

Odekunle F.F., Odekunle, R.O., & Shankar, S., '*Why Sub-Saharan African Lags in Electronic Health Record Adoption and Possible Strategies to Increase Its Adoption in This Region,* **International Journal of Health Sciences**, 11(4) 2017, 59-64,

Ogbonnaya, C., Tillman, C. J., & Gonzalez, K. *Perceived Organizational Support in Health Care: The Importance of Teamwork and Training for Employee Well-Being and Patient Satisfaction*. **Group & Organization Management**, 43(3), 2018. 475-503.

Ogundele, O.A. C.N. Ikonne, E Madukoma, *Institutional Support and Use of Electronic Health Records by Medical Doctors in Teaching Hospitals in South-West, Nigeria*. **International Journal of Academic Library and Information Science** 9(4): 2021, 149-157

Ohemeng-Dapaah, S. Pronyk, P., Akosa, E., Nemser, B., And Kanter, A., '*Combining Vital Events Registration, Verbal Autopsy and Electronic Medical Records in Rural*

Ghana for Improved Health Services Delivery', **Health Technology Information**, 160, 2017, 416-420

Ojo, A.I. & Popoola, S.O., *Some Correlates of Electronic Medical Records System Success in Nigerian Teaching Hospitals*. **Biomedical Informatics Insights,** 7, 2015.Pp.BII-S20229.

Olanipekun, L.O., *Manpower Planning, Work Environment and Service Delivery in Ogun State Hospital Management Board*. **Texas Journal of Medical Science**, *1*(1), 2021. Pp.13-33.

Oleribe, O.O., Momoh, J., Uzochukwu, B.S., Mbofana, F., Adebiyi, A., Barbera, T., Williams, R. & Taylor-Robinson, S.D., *Identifying Key Challenges Facing Healthcare Systems in Africa and Potential Solutions*. **International Journal of General Medicine**, *12*, 2019. P.395.

Olu, O., Muneene, D., Bataringaya, J. E., Nahimana, M. R., Ba, H., Turgeon, Y., & Dovlo, D. *How Can Digital Health Technologies Contribute to Sustainable Attainment of Universal Health Coverage in Africa? A Perspective*. **Frontiers In Public Health**, 7, 2019, 341.

Ondieki F. *Effects of Health Records Management on Service Delivery: A Case Study of Kisii Teaching and Referral Hospital*. **Journal of Hospital Medical Management**.2017,3:1

Ondoa, C.J., Basheka, B.C. & Basaasa, M.M., *Institutional Dynamics and Health Service Delivery in Regional Referral Hospitals in Uganda: What Lessons from A Case of Jinja Regional Hospital?* **African Journal of Governance and Development**, 2(1), 2013. Pp.40-56.

Onigbogi, O. O., Poluyi, A. O., Poluyi, C. O., & Onigbogi, M. O. *Doctors' Attitude and Willingness to Use Electronic Medical Records at The Lagos University Teaching Hospital, Lagos, Nigeria*. **Online Journal of Public Health Informatics**, *10*(2). 2018.

Onyeaka, H. K., Romero, P., Healy, B. C., & Celano, C. M. *Age Differences in The Use of Health Information Technology Among Adults in The United States: An Analysis of The Health Information National Trends Survey*. **Journal of Aging and Health**, 33(1-2), 2021. 147-154.

Osei-Frimpong, K., McLean, G., Wilson, A., & Lemke, F. *Customer Coproduction in Healthcare Service Delivery: Examining the Influencing Effects of the Social Context*, **Journal of Business Research** 120, 2020: 82–93, https://doi.org/10.1016/j.jbusres.2020.07.037.

Oyibocha, E., "*Sustainable Healthcare System in Nigeria: Vision, Strategies and Challenges.* **IOSR Journal Of Economics And Finance (IOSR-JEF)** .Volume 5, Issue 2. 2018, 28-39. Www.Iosrjournals.Org."

Palvia, P., Lowe, K., Nemati, H., And Jacks, T., '*Information Technology Issues in Healthcare: Hospital CEO And CIO Perspectives',* **Communications of The Associations for Information Systems,** 30(19), 2012,293-312

Parreira, P., Santos-Costa, P., Neri, M., Marques, A., Queirós, P., & Salgueiro-Oliveira, A., *Work Methods for Nursing Care Delivery*, **International Journal of Environmental Research and Public Health** 18, no. 4 2021: 1–17.

Rahimi, B., Nadri, H., Afshar, H. L., & Timpka, T. *A Systematic Review of The Technology Acceptance Model in Health Informatics*. **Applied Clinical Informatics**, 9(03), 2018, 604-634.

Raquel M. Meyer & Linda L. O'Brien-Pallas, *Nursing Services Delivery Theory: An Open System Approach*, **Journal of Advanced Nursing**, 2010.

Samadbeik, M., Fatehi, F., Braunstein, M., Barry, B., Saremian, M., Kalhor, F. & Edirippulige, S., *Education and Training on Electronic Medical Records (EMRs) for health care professionals and students: A Scoping Review*. **International Journal of Medical Informatics,** 142, 2020.p.104238.

Sani, N., Manohar, R.K., Okocha, D.O. & Bdamasi, S., *Health Information Systems, Best Practices in Patient Data Management for Effective Health Care Service Delivery in Hospitals. A Case of Some Selected Tertiary Hospitals in Jigawa State of Nigeria.* **AGU International Journal of Management Studies & Research** *Vol. No. 5 2017, Http://Www.Agutjmsr.Com*

Schöpfel, J., Azeroual, O., & Saake, G. *Implementation and User Acceptance of Research Information Systems: An Empirical Survey of German Universities And Research Organisations*. **Data Technologies and Applications.** 2019

Shepherd-Banigan, M., Sperber, N., Mckenna, K., Pogoda, T. K., & Van Houtven, C. H. *Leveraging Institutional Support for Family Caregivers to Meet the Health and Vocational Needs of Persons with Disabilities*. **Nursing Outlook**, 68(2), 2020, 184-193.

Spatar, D., Kok, O., Basoglu, N., & Daim, T. *Adoption Factors of Electronic Health Record Systems*. **Technology In Society**, 58, 2019, 101144.

Stout, M. J., Van De Ven, C. J., Parekh, V. I., Pardo, J. L., Garifullin, M., Xu, M., ... & Smith, R. D. *Use Of Electronic Medical Records To Estimate Changes In*

Pregnancy And Birth Rates During The COVID-19 Pandemic, **JAMA Network Open** 4, No. 6 2021: 1–10.

Sungur, C., Sonğur, L., Çiçek, A. Ç., & Top, M. *Correction of Patient Medical Record Errors Through a File Control Method.* **Health Policy And Technology**, 8(4), 2019. 329-336.

Sutton, R. T., Pincock, D., Baumgart, D. C., Sadowski, D. C., Fedorak, R. N., & Kroeker, K. I. *An Overview of Clinical Decision Support Systems: Benefits, Risks, And Strategies for Success*. **NPJ Digital Medicine**, *3*(1), 2020,1-10.

Swallehe, O., *Service Delivery and Customer Satisfaction in Public Organizations*. **IUP Journal of Marketing Management**, 20(2). 2021.

Tweheyo, R., Reed, C., Campbell, S., Davies, L., & Daker-White, G. '*I Have No Love for Such People Because They Leave Us to Suffer: A Qualitative Study of Health Workers' Responses and Institutional Adaptations to Absenteeism in Rural Uganda*. **BMJ Global Health**, 4(3), 2019, E001376.

Zayyad, M. A., & Toycan, M. *Factors Affecting Sustainable Adoption Of E-Health Technology in Developing Countries: An Exploratory Survey of Nigerian Hospitals From The Perspective Of Healthcare Professionals.* **Peer Journal**, *6*, 2018, E4436.

Zhang, S., Wang, Z., Zhao, X., & Zhang, M. *Effects of Institutional Support on Innovation and Performance: Roles of Dysfunctional Competition*. **Industrial Management & Data Systems**. 2017.

Zhang. S. *The Impact of Institutional Support on Innovativeness and Firm Performance Under Dysfunctional Competition: Evidence from China*, Industrial **Management & Data Systems**, 2017

Thesis/Dissertation

Acquah-Swanzy, M., *Evaluating Electronic Health Record Systems in Ghana: The Case of Effia Nkwanta Regional Hospital* Master's Thesis, Uit Norges Arktiske Universitet**).** 2015.

Anyango, O.J., *Challenges to Electronic Medical Record Systems Adoption: A Case of Coast Province General Hospital*. Thesis, The Management University of Africa, 2017.

Attah, A.O., *Implementing an Electronic Health Record in A Nigerian Secondary Healthcare Facility. Prospects And Challenges*. Norway: Master's Thesis In Telemedicine and E-Health, 2017.

Kanyua, N. H. '*Factors Influencing the Adoption of ICT In Public Hospitals In Nairobi',* Master's Thesis, Department Of Extra-Mural Studies, University Of Nairobi. 2015,

Nicholas, M., *Successful Strategies for Implementing EMR Systems in Hospitals* **(**Doctoral dissertation, Walden University**).** 2018.

Njoroge, C. '*Factors Influencing Adoption of Electronic Health Record Systems In Small Private Health Facilities'*, Master's Thesis, Department Of Extra-Mural Studies, University Of Nairobi, 2014.

Shehu, I. *Acceptance of Electronic Health Records for Improving Quality of Health Service Delivery: A Case Study of Aminu Kano Teaching Hospital Kano State, Nigeria* (Doctoral Dissertation, School of Computing and Information Technology). 2016.

Lead City University

Department of Information Management

Questionnaire on Use of Electronic Medical Records, Institutional Support and Quality of Health Services in Teaching hospitals in Ogun State

Dear Respondent,

I am a Master's student of Library and Information Science, Lead City University, Ibadan. I am conducting a study on the **Use of Medical Health Records, Institutional Support, and Quality of Health Service Delivery in Teaching hospitals in Ogun State**. This questionnaire is to gather data as part of the study. All information provided will be treated with the utmost confidentiality.

Thank you for your anticipated co-operation.

Yours Sincerely,

Section A

Demographic Information

PART A: Background Information. Please tick as appropriate

- Name of Hospital: _____
- Academic qualification (Tick the highest qualification): Diploma ( ) HND ( ) BA, B.SC., ( ) MA, MLS, M.SC.; PHD ()
- Gender: ( ) Male ( ) Female
- Job Experience: ( ) Below 5 years ( ) 6-10 years ( ) 11-15 years ( ) 16-20 years

( ) 21-25 years ( ) Above 25 years

Section B

SECTION B: Service Delivery

Please indicate your level of agreement or disagreement with the following statements regarding your level of awareness to cloud computing services by a tick in the appropriate box.

Key: SA=Strongly Agree, A= Agree, SD strongly Disagree, D= Disagree

S/N	Items	SA	A	SD	D
	Human Resources Outcomes				
1	The schedule of work does have any negative effect on my health				
2	I am capable of carrying out my assigned tasks effectively				
3	The task given to me matches my qualifications				
4	I feel safe discharging my duties				
	Organisational Outcome				
5	The hospital renders quality services to patients				
6	The HIM staff attends to all patients within a reasonable time				
7	The service rendered is cost-effective				
8	The hospital often receive commendation from patients.				

SECTION C: Level of EMR Use in Hospitals

Please indicate your level of agreement or disagreement with the following statements in regard to the level of EMR use by a tick in the appropriate box.

Key: SA=Strongly Agree, A= Agree, SD strongly Disagree, D= Disagree

S/N	**Frequency of Use**	Yes	No
1.	Daily		
2.	Weekly		
3.	Monthly		

4.	Yearly		
5.	Never		

Please indicate your level of agreement or disagreement with the following statements in regard to the level of EMR use by a tick in the appropriate box.

Key: SA=Strongly Agree, A= Agree, SD strongly Disagree, D= Disagree

6.					
7.	**Purpose of Use**	**S.A**	**A**	**D**	**S.D**
8.	I use the EMR system to enter, process, and store patient data				
9.	I use the EMR system for retrieval of healthcare information.				
10.	I use EMR systems to protect patients records from unauthorized access				
11.	I use the EMR system to share medical records with other departments and sections				

SECTION D: Institutional Support for Service Delivery.

Please indicate your level of agreement or disagreement with the statements below by a tick in the appropriate box.

Please indicate your opinion using the scale: strongly agree (SA), agree (A) strongly Disagree (SD), Disagree (D).

S/N	Institutional Support for Service Delivery	SA	A	D	SD
	Financial Support				
1	My Institution provides financial rewards for extra duty				
2	My Institution provides enough funds to support effective services delivery				
3	My Institution supports training and development of librarians				
	Technical Support				
	The hospital provides necessary handbooks				

4	and guides to explain my duties				
5	The hospital provides technical experts to service equipment and machinery				
6	The hospital provides basic ICT training for the effective use of modern technology				
	Management Support				
7	The hospital policy is effective in encouraging quality service				
8	The hospital management encourages everyone to be at their best				
9	The hospital encourages employees to develop their skills and career				

Bio-data

A. Personal Data

1. Full Name:

Address:

Email:

2. Date and Place of Birth:

3. Nationality: Nigerian

4. Name and Address of Next of Kin:

Add.

B. Educational Background

Educational Institutions attended with dates and Qualifications:

i. Primary Education:

ii. **Secondary Education:**

iii. Higher Educational Institutions:

C. Working Experience with Dates;

D. **Awards and Fellowships:**

Referees;

..

Signature	**Date**

The University Compliance Certification

This is to certify that this thesis is writing by Nureni Olufemi OLABODE with Matric No LCU/PG/001928 in the Department of Information Management, Lead City University, Ibadan, is in FULL compliance with the approved university format and style.

Name	**Signature**

[1] World Health Organisation, *A People-Centred Approach Is Needed For*, no. ii. 2017, Available: www.integratedcare4people.org.

[2] Osei-Frimpong, K., McLean, G., Wilson, A., & Lemke, F. *Customer Coproduction in Healthcare Service Delivery: Examining the Influencing Effects of the Social Context*, **Journal of Business Research** 120, 2020: 82–93, https://doi.org/10.1016/j.jbusres.2020.07.037.

[3] "Delivery of Healthcare Services.", 2022. Available: https://ti-health.org/delivery-of-healthcare-services/.

[4] Parreira, P., Santos-Costa, P., Neri, M., Marques, A., Queirós, P., & Salgueiro-Oliveira, A., *Work Methods for Nursing Care Delivery*, **International Journal of Environmental Research and Public Health** 18, no. 4 2021: 1–17.

[5] Meyer, R. M., & O'Brien-Pallas, L. L. *Nursing Services Delivery Theory: An Open System Approach*. **Journal of Advanced Nursing**, 66(12), 2010, 2828-2838.

[6] O'Connor K, Neff DM, Pitman S. *Burnout in Mental Health Professionals: A Systematic Review and Meta-Analysis of Prevalence and Determinants*. **European Psychiatry.** 2018; 53:74–99. https://doi.org/10.1016/j.eurpsy.2018.06.003

[7] Julià M, Vanroelen C, Bosmans K, Aerden KV, Benach J: *Precarious Employment and Quality of Employment in Relation to Health and Wellbeing in Europe*. **International Journal Health Services,** 2017, online early; https://doi.org/10. 1177/0020731417707491

[8] O., Swallehe, *Service Delivery and Customer Satisfaction in Public Organizations*. **IUP Journal of Marketing Management**, 20(2). 2021.

[9] Belay, H., Mohammedsanni, A., Gebeyehu, A., Alemu, H., Wendrad, N., Abate, B., Denboba, W., Mulugeta, F., Omer, S. & Knittel, B., *Lessons Learned from The Capacity-Building and Mentorship Program to Improve Health Information Systems In 11 Districts of Ethiopia.* **Global Health: Science And Practice,** 10(Supplement 1). 2022.

[10] Davidescu, A. A., Apostu, S. A., Paul, A., & Casuneanu, I. *Work Flexibility, Job Satisfaction, and Job Performance Among Romanian Employees—Implications for Sustainable Human Resource Management*. **Sustainability**, 12(15), 2020. 6086.

[11] Brownson, R. C., Fielding, J. E., & Green, L. W. *Building Capacity for Evidence-Based Public Health: Reconciling the Pulls of Practice and The Push of Research.* **Annual Review of Public Health**, 39, 2018, 27.

[12] Zayyad MA, Toycan M. *Factors Affecting Sustainable Adoption of E-Health Technology in Developing Countries: An Exploratory Survey of Nigerian Hospitals from The Perspective of Healthcare Professionals*. **Peerj** 6: 2018. E4436 Https://doi.org/10.7717/peerj.4436

[13] Samadbeik, M., Fatehi, F., Braunstein, M., Barry, B., Saremian, M., Kalhor, F. & Edirippulige, S., *Education and Training on Electronic Medical Records (EMRs) for health care professionals and students: A Scoping Review*. **International Journal of Medical Informatics,** 142, 2020.p.104238.

[14] Nicholas, M., *Successful Strategies for Implementing EMR Systems in Hospitals* **(**Doctoral dissertation, Walden University**).** 2018.

[15] Lambley, J., & Kuziemsky, C. *A Tactical Framework for EMR adoption. In Healthcare Management Forum.* Sage CA: Los Angeles, CA: SAGE Publications. Vol. 32, No. 3, 2019, pp. 148-152

[16] Hsu, L., *What makes good LMOOCs for EFL learners? Learners' personal characteristics and Information System Success Model*. **Computer Assisted Language Learning**, 2021. pp.1-25.

[17] Adeyemi, I. O., & Issa, A. O. *Integrating Information System Success Model (ISSM) And Technology Acceptance Model (TAM): Proposing Students' Satisfaction with University Web Portal Model*. **Record and Library Journal**, 6(1), 2020. 69-79.

[18] Farahani, B., Firouzi, F., Chang, V., Badaroglu, M., Constant, N., & Mankodiya, K. *Towards Fog-Driven Iot Ehealth: Promises and Challenges of IOT In Medicine and Healthcare*. **Future Generation Computer Systems**, *78*, 2018, 659-676.

[19] Farahani, B., Barzegari, M., Aliee, F. S., & Shaik, K. A. *Towards Collaborative Intelligent IOT Ehealth: From Device to Fog, and Cloud*. **Microprocessors and Microsystems,** 72, 2020, 102938.

[20] Chen, P.T., *Medical Big Data Applications: Intertwined Effects and Effective Resource Allocation Strategies Identified Through IRA-NRM Analysis*. **Technological Forecasting and Social Change**, *130*, 2018. Pp.150-164.

[21] Holzinger, A., Kieseberg, P., Weippl, E., & Tjoa, A. M. *Current Advances, Trends and Challenges of Machine Learning and Knowledge Extraction: From Machine Learning to Explainable AI*. In International Cross-Domain Conference for Machine Learning And Knowledge Extraction. Springer, Cham. 2018, Pp. 1-8

[22] Abdel-Basset, M., Mohamed, M., Smarandache, F., & Chang, V. *Neutrosophic Association Rule Mining Algorithm for Big Data Analysis*. **Symmetry,** *10*(4), 2018, 106.

[23] A. I. Ojo, *Organisational Factors Associated with Electronic Medical Records Systems Success in Two Nigerian Teaching Hospitals*, 8th Health Informatics in Africa Conference (HELINA 2013)

[24] A.M Adegbore, & Akinyosoye T. O. Omowumi *Factors Influencing Electronic Medical Record Systems Success in Selected Tertiary Healthcare Facilities in South-West, Nigeria.* **Information Impact: Journal of Information and Knowledge Management**, 11:4, 2021, 14-32, DOI: Https://Dx.Doi.Org/10.4314/Iijikm.V12i1.2

[25] C. S. Isemeck, K. Ngure, J.Kariuki And O. Muchene, *Factors Influencing The Adoption Of Electronic Health Records In Public Health Facilities In Kisumu County, Kenya*, **Journal Of Health, Medicine And Nursing**, Vol.4, Issue 1 No.5, 2019 Pp 74- 101,

[26] E., Oyibocha, "*Sustainable Healthcare System in Nigeria: Vision, Strategies and Challenges.* **IOSR Journal Of Economics And Finance (IOSR-JEF)** .Volume 5, Issue 2. 2018, 28-39. Www.Iosrjournals.Org."

[27] N., Sani, R.K., Manohar, Okocha, D.O. & Bdamasi, S., *Health Information Systems, Best Practices in Patient Data Management for Effective Health Care Service Delivery in Hospitals. A Case of Some Selected Tertiary Hospitals in Jigawa State of Nigeria.* **AGU International Journal of Management Studies & Research** *Vol. No. 5 2017, Http://Www.Aguijmsr.Com*

[28] F. Ondieki *Effects of Health Records Management on Service Delivery: A Case Study of Kisii Teaching and Referral Hospital*. **Journal Of Hosp Med Manage**.2017,3:1

[29] A.O., Attah, *Implementing an Electronic Health Record in A Nigerian Secondary Healthcare Facility. Prospects And Challenges*. Norway: Master's Thesis In Telemedicine and E-Health, 2017.

[30] S. S.Furusa & A. Cole. *Factors Influencing E-Health Implementation by Medical Doctors in Public Hospitals in Zimbabwe*. **African Journal of Primary Health Care and Family Medicine**. 2018;10(1), A1746. Https://Doi.Org/10.4102/ Phcfm.V10i1.1746

[31] S,Namakula & Kituyi G, . *Examining Health Information Systems Success Factors in Uganda Health Care Systems*. **Journal Of Global Health Care Systems**4: 1. 2014,

[32] O. Mosweu, K. J Bwalya & A. Mutshwewa. *A Probe into Factors for Adoption and Usage of Electronic Document and Records Management Systems in The Botswana Context*. **Information Development** .33(1) 2017,97-110.

[33] F. Ondieki *Effects of Health Records Management on Service Delivery: A Case Study of Kisii Teaching and Referral Hospital*. **Journals Of Hosp Med Manage**.2017,3:1

[34] P. Adedeji, O. Irinoye, R. Ikono & A. Komolafe. *Factors Influencing the Use of Electronic Health Records Among Nurses in A Teaching Hospital in Nigeria***. Journal Of Health Informatics in Developing Countries**. Vol. 12 No.2, 2018

[35] M. O. Akomolafe. *The Implementation of Electronic Health Record Systems: The Factors Influencing the Successful Electronic Health Record Systems*. **The International Journal of Science & Engineering Research,** Vol 5, 2014

[36] P., Palvia, Lowe, K., Nemati, H., And Jacks, T., '*Information Technology Issues in Healthcare: Hospital CEO And CIO Perspectives'*, **Communications of The Associations for Information Systems,** 30(19), 2012,293-312

[37] ISO TC215, ISO/TR 20514. *Health Informatics – Electronic Health Record Definition, Scope, And Context.* Geneva, Switzerland: ISO**;** 2020.

[38] K A Kuhn, Giuse DA. *From Hospital Information Systems to Health Information Systems: Problems, Challenges, Perspectives*. **Methods Inf Med**. 2021; 40:275–87.

[39] D.W Bates, And Gawande, A.A., *Improving Safety with Information Technology'* **North England Journal of Medicine** 348, 2526-2534.

[40] S. Ohemeng-Dapaah, Pronyk, P., Akosa, E., Nemser, B., And Kanter, A., '*Combining Vital Events Registration, Verbal Autopsy and Electronic Medical Records in Rural Ghana for Improved Health Services Delivery'*, **Health Technology Information**, 160, 2017, 416-420

[41] Sutton, R. T., Pincock, D., Baumgart, D. C., Sadowski, D. C., Fedorak, R. N., & Kroeker, K. I. *An Overview of Clinical Decision Support Systems: Benefits, Risks, And Strategies for Success*. **NPJ Digital Medicine**, *3*(1), 2020,1-10.

[42] Lutz, W., Deisenhofer, A. K., Rubel, J., Bennemann, B., Giesemann, J., Poster, K., & Schwartz, B. *Prospective Evaluation of a Clinical Decision Support System in Psychological Therapy.* **Journal of Consulting and Clinical Psychology**, *90*(1), 2022, 90.

[43] Albagmi, S., *The Effectiveness of EMR Implementation Regarding Reducing Documentation Errors and Waiting Time for Patients in Outpatient Clinics: A Systematic Review*. **F1000Research**, *10*. 2021.

[44] Dachyar, M., & Nattaya, N. *Collaborating Internet of Things (IOT) And Electronic Medical Record (EMR) To Reduce Healthcare Waiting Time. Outpatient Cardiology Service Case: A BPR Approach.* In *23rd* Asian Forum of Business Education *(AFBE 2019)* Atlantis Press. 2020, Pp. 88-95

[45] F. Anwar. A. Shamim, & S.Khan *Barriers In Adoption Of Health Information Technology In Developing Societies*. **International Journal of Advanced Computer Science**;2(1) 2017

[46] J. Alpert, "*The Electronic Medical Record In 2016: Advantages and Disadvantages***. Digital Medicine** ;2: 2016. 48-51."

[47] J. Cooper, "*Organization, Management, Implementation and Value of EHR Implementation in A Solo Pediatric Practice*. **Journal of Healthcare. Information Management** 18(3):201, 51–55.".

[48] S. Barlow, "*The Economic Effect of Implementing an EMR In an Outpatient Clinical Setting.* **Journal Of Healthcare. Information Management**. 18(1):2018, 46–5

[49] Adedeji, P., Irinoye, O., Ikono, R. And Komolafe, A., *Factors Influencing the Use of Electronic Health Records Among Nurses in A Teaching Hospital in Nigeria*. **Journal Of Health Informatics in Developing Countries**, 12(2). 2018.

Crespo, C., Ripoll, V., Tamarit, C. And Valverde, R., *Institutional Characteristics and Managers' Perceptions of Accounting Information: Impact On E-Government Use and Organisational Performance*. **Spanish Journal of Finance and Accounting/Revista Española De Financiación Y Contabilidad,** 47(3), 2018. Pp.352-365.

[50] Obotu, A.S., Uganneya, S.A. And Ogezi, I.C., *Evaluative Study of Digital Record Management System in The Hospitals in Minna Metropolis (A Case Study of Hospitals in Minna Metropolis)*. **Library Philosophy and Practice** *(E-Journal)*. 2018.

[51] Ojo, A.I. & Popoola, S.O., *Some Correlates of Electronic Medical Records System Success in Nigerian Teaching Hospitals*. Biomedical Informatics Insights, 7, 2015.Pp.BII-S20229.

[52] Adegbore, A.M. & Omowumi, A.T Factors *Influencing Electronic Medical Record Systems Success in Selected Tertiary Healthcare Facilities In South-West, Nigeria*. **Information Impact: Journal Of Information And Knowledge Management**, 12(1), 2021. Pp.14-32.

[53] Anyango, O.J., *Challenges to Electronic Medical Record Systems Adoption: A Case of Coast Province General Hospital*. Thesis, The Management University of Africa, 2017.

[54] Oleribe, O.O., Momoh, J., Uzochukwu, B.S., Mbofana, F., Adebiyi, A., Barbera, T., Williams, R. & Taylor-Robinson, S.D., *Identifying Key Challenges Facing Healthcare Systems in Africa and Potential Solutions*. **International Journal of General Medicine**, *12*, 2019. P.395.

[55] Zayyad, M. A., & Toycan, M. *Factors Affecting Sustainable Adoption Of E-Health Technology in Developing Countries: An Exploratory Survey of Nigerian Hospitals From The Perspective Of Healthcare Professionals.* **Peer Journal**, *6*, 2018, E4436.

[56] Onigbogi, O. O., Poluyi, A. O., Poluyi, C. O., & Onigbogi, M. O. *Doctors' Attitude and Willingness to Use Electronic Medical Records at The Lagos University Teaching Hospital, Lagos, Nigeria*. **Online Journal of Public Health Informatics**, *10*(2). 2018.

[57] Ajayi, S., Wamae, P., & Muthee, D. *Assessing Electronic Medical Records Readiness for Service Delivery in State Hospitals in Southwest Nigeria*. **International Journal of Current Aspects,** 5(3), 2021. 1-17. Https://Doi.Org/10.35942/Ijcab.V5i3.175

[58] Ayanlade, O.S., *Electronic Medical Record System as A Central ICT Tool For Quality Healthcare Services: Nigeria as A Case Study***. African Journal of Science, Technology, Innovation and Development**, 10(2), 2018. Pp.147-157.

[59] M., Acquah-Swanzy, *Evaluating Electronic Health Record Systems in Ghana: The Case of Effia Nkwanta Regional Hospital* Master's Thesis, Uit Norges Arktiske Universitet**).** 2015.

[60] M. O., Akanbi, U*se of Electronic Health Records in Sub-Saharan Africa: Progress and Challenges*." **Journal Of Medicine in The Tropics** 14(1): (2012). 1-6.

[61] Akor, O. & O. John-Mensah "*Nigeria: Why Hospitals Should Embrace Electronic Medical Records*. DAILY TRUST Newspaper. 2016 Apr.19 Available From: Http://Allafrica.Com/Stories/201604190753.Html."

[62] A.O., Attah, *Implementing an Electronic Health Record in A Nigerian Secondary Healthcare Facility. Prospects And Challenges*. Norway: Master's Thesis in Telemedicine And E-Health, 2017.

[63] Harries, D. & P. Yellowlees "*Brief Communication Cyberterrorism: Is the U.S. Healthcare System Safe?* **Telemedicine And E-Health.**, 19(1): 2013, 61-66. Doi:10.1089/Tmj.2012.0022.

[64] . Paul, K. *Marketwatch. After A Global Cyberattack Hits U.K. Health Facilities — Why Your Hospital Could Be Next*. 2017. Available From:Http://Www.Marketwatch.Com/Story/Hackers-Are-Stealing-More-Patient-Medical-Records-From- Hospitals-2017-05-12."

[65] Zhang, S., Wang, Z., Zhao, X., & Zhang, M. *Effects of Institutional Support on Innovation and Performance: Roles of Dysfunctional Competition*. **Industrial Management & Data Systems**. 2017.

[66] Falola, H. O., Adeniji, A. A., Adeyeye, J. O., Igbinnoba, E. E., & Atolagbe, T. O. *Measuring Institutional Support Strategies and Faculty Job Effectiveness*. **Heliyon,** *6*(3), 2020. E03461.

[67] Malik MA, Khan HR. *Understanding the Implementation of An Electronic Hospital Information System in A Developing Country: A Case Study From Pakistan*. In Warren, J. R. (Ed.), Proc. Third Australasian Workshop
On Health Informatics and Knowledge Management (HIKM 2009). New Zealand: Wellington.

[68] Heeks, R. "*Information Systems and Developing Countries: Failure, Success, And Local Improvisation.* **Information Society**. 18: 2022;101–12.

[69] Baumann, L.A., Baker, J. And Elshaug, A.G., *The Impact of Electronic Health Record Systems on Clinical Documentation Times: A Systematic Review*. **Health Policy,** *122*(8), 2018. Pp.827-836.

[70] Herbst K, Littlejohns P, Rawlinson J, Collinson M, Wyatt JC. *Evaluating Computerized Health Information Systems: Hardware, Software and Human Ware: Experiences from The Northern Province, South Africa*. **J Public Health Med**.;21(3):2019, 305-310.

[71] Ondoa, C.J., Basheka, B.C. & Basaasa, M.M., *Institutional Dynamics and Health Service Delivery in Regional Referral Hospitals in Uganda: What Lessons From A Case Of Jinja Regional Hospital?* **African Journal of Governance and Development**, 2(1), 2013. Pp.40-56.

[72] Odekunle F.F., Odekunle, R.O., & Shankar, S., '*Why Sub-Saharan African Lags in Electronic Health Record Adoption and Possible Strategies to Increase Its Adoption in This Region,* **International Journal of Health Sciences**, 11(4) 2017, 59-64,

[73] Kanyua, N. H. '*Factors Influencing the Adoption of ICT In Public Hospitals In Nairobi',* Master's Thesis, Department Of Extra-Mural Studies, University Of Nairobi. 2015,

[74] Classen, D.C. Holmgren, A.J., Newmark, L.P., Seger, D., Danforth, M. & Bates, D.W.,*National Trends In The Safety Performance Of Electronic Health Record Systems From 2009 To 2018*. **JAMA Network Open**, 3(5), 2020. Pp. E205547-E205547.

[75] C. Njoroge, '*Factors Influencing Adoption of Electronic Health Record Systems In Small Private Health Facilities'*, Master's Thesis, Department Of Extra-Mural Studies, University Of Nairobi, 2014.

[76] F.A.O. Agbese, & C.N., Ikonne, *Electronic Health Records (EHRS) Use and Quality Healthcare Delivery by Physicians In Tertiary Hospitals In Federal Capital Territory, Nigeria*. **Library Philosophy & Practice**. 2021.

[77] E. Papp, Wölfel, C., & Krzywinski, J. *Acceptance and User Experience of Wearable Assistive Devices for Industrial Purposes.* In Proceedings of The Design Society: DESIGN Conference. Cambridge University Press. Vol. 1, 2020, Pp. 1515-1520

[78] Schöpfel, J., Azeroual, O., & Saake, G. *Implementation and User Acceptance of Research Information Systems: An Empirical Survey of German Universities And Research Organisations*. **Data Technologies and Applications.** 2019

[79] Azeroual, O., Saake, G., & Abuosba, M. *Data Quality Measures and Data Cleansing for Research Information Systems*. **Arxiv Preprint** Arxiv:1901.06208., 2019

[80] Rahimi, B., Nadri, H., Afshar, H. L., & Timpka, T. *A Systematic Review of The Technology Acceptance Model in Health Informatics*. **Applied Clinical Informatics**, 9(03), 2018, 604-634.

[81] Desai, R. J., Wang, S. V., Vaduganathan, M., Evers, T., & Schneeweiss, S. *Comparison of Machine Learning Methods with Traditional Models for Use of Administrative Claims with Electronic Medical Records to Predict Heart Failure Outcomes*. **JAMA Network Open**, 3(1), 2020. E1918962 .

[82] De Benedictis A, Lettieri E, Gastaldi L, Masella C, Urgu A, Tartaglini D *Electronic Medical Records Implementation in Hospital: An Empirical Investigation of Individual and Organizational Determinants.* **Plos ONE** 15(6): 2020, E0234108. Https://Doi.Org/10.1371/Journal. Pone.0234108

[83] Chen, J., Guo, C., Sun, L., & Lu, M. *Mining Typical Treatment Duration Patterns For Rational Drug Use From Electronic Medical Records*, **Journal Of Systems Science And Systems Engineering** 28, No. 5 2019: 602–620.

[84] Stout, M. J., Van De Ven, C. J., Parekh, V. I., Pardo, J. L., Garifullin, M., Xu, M., ... & Smith, R. D. *Use Of Electronic Medical Records To Estimate Changes In Pregnancy And Birth Rates During The COVID-19 Pandemic*, **JAMA Network Open** 4, No. 6 2021: 1–10.

[85] Janett, R. S., & Yeracaris, P. P. *Electronic Medical Records In The American Health System: Challenges And Lessons Learned*, **Ciencia E Saude Coletiva** 25, No. 4 2020: 1293–1304.

[86] Bruns, E. J., Hook, A. N., Parker, E. M., Esposito, I., Sather, A., Parigoris, R. M., ... & Hyde, K. L. *Impact of A Web-Based Electronic Health Record on Behavioral Health Service Delivery for Children and Adolescents: Randomized Controlled Trial*. **Journal of Medical Internet Research**, *20*(6), 2018, E10197.

[87] Hossain, A., Quaresma, R., & Rahman, H. *Investigating Factors Influencing the Physicians' Adoption of Electronic Health Record (EHR) In Healthcare System of Bangladesh: An Empirical Study*. **International Journal of Information Management**, 44, 2019. 76-87.

[88] Olu, O., Muneene, D., Bataringaya, J. E., Nahimana, M. R., Ba, H., Turgeon, Y., & Dovlo, D. *How Can Digital Health Technologies Contribute to Sustainable Attainment of Universal Health Coverage in Africa? A Perspective*. **Frontiers In Public Health**, 7, 2019, 341.

[89] Downing, N. L., Bates, D. W., & Longhurst, C. A. *Physician Burnout in The Electronic Health Record Era: Are We Ignoring the Real Cause*? **Annals Of Internal Medicine**, *169*(1), 2018. 50-51.

[90] Mata, M. N., Falahat, M., Correia, A. B., & Rita, J. X. *Impact of Institutional Support on Export Performance*. **Economies** 9: 2021, 101.

[91] Falahat, M., Lee, Y. Y., Ramayah, T., & Soto-Acosta, P. *Modelling the Effects of Institutional Support and International Knowledge on Competitive Capabilities and International Performance: Evidence from An Emerging Economy*. **Journal Of International Management**, 26(4), 2020, 100779.

[92] Abdullah, M. N. L. Y., & Primus, D. *The Impact of Institutional Support and Student Engagement on Educational Outcomes of Orang Asli Students at Public Universities*. **Asia Pacific Journal of Education,** 41(1), 2021, 182-197.

[93] S. Zhang. *The Impact of Institutional Support on Innovativeness and Firm Performance Under Dysfunctional Competition: Evidence from China*, Industrial **Management & Data Systems,** 2017

[94] Krystal, J. H., Alvarado, J., Ball, S. A., Fortunati, F. G., Hu, M., Ivy, M. E., ... & Mayes, L. C. *Mobilizing an Institutional Supportive Response for Healthcare Workers and Other Staff in The Context Of COVID-19: The Yale Experience*. **General Hospital Psychiatry**, 68, 2021, 12-18.

[95] A. S.,Albalawi, S., Naughton, M. B.,Elayan, & M. T. Sleimi, *Perceived Organizational Support, Alternative Job Opportunity, Organizational Commitment, Job Satisfaction And Turnover Intention: A Moderated-Mediated Model*, **Organizacija** 52(4). 2019: 310–324.

[96] Labrague, L. J., & De Los Santos, J. A. A. *COVID-19 Anxiety Among Front-Line Nurses: Predictive Role of Organisational Support, Personal Resilience and Social Support*. **Journal Of Nursing Management**, 28(7), 2020. 1653-1661.

[97] Shepherd-Banigan, M., Sperber, N., Mckenna, K., Pogoda, T. K., & Van Houtven, C. H. *Leveraging Institutional Support for Family Caregivers to Meet the Health and Vocational Needs of Persons with Disabilities*. **Nursing Outlook**, 68(2), 2020, 184-193.

[98] Tweheyo, R., Reed, C., Campbell, S., Davies, L., & Daker-White, G. '*I Have No Love for Such People Because They Leave Us to Suffer: A Qualitative Study of Health Workers'*

Responses and Institutional Adaptations to Absenteeism in Rural Uganda. **BMJ Global Health**, 4(3), 2019, E001376.