Assessment of Electronic Health Records in Hospitals: A Case Study of Federal Medical Centre, Nguru, Yobe State, Nigeria

Nasiru Sani[1], Lawal Shuaibu[2] Umar Faruk Abubakar[3] and Abubakar Shuaibu[4]
[1] University Health Services Centre, Federal University Dutse, Jigawa State of Nigeria
[2] Shehu Idris College of Health Sciences and Technology Makarfi, Kaduna State, Nigeria.
[3]Principal School of Health Information Management and Senior lecturer. School of Health Information Management, Aminu Kano Teaching Hospital, Kano Nigeria. [4]School of health information Management, Aminu Kano Teaching Hospital, Kano Nigeria

Abstract: Electronic Health Record (EHR) has become increasingly important. Handling the increased complexity of manual health records processes, many argue, is impossible without the use of EHR, such as patient data management systems, physician order entry systems and decision support systems. This study is a cross-sectional survey used to assess the application of EHR in Hospitals: Case study of Federal Medical Centre Nguru, Yobe State Nigeria. 91 questionnaires were administered to the staff of clinical services department after 3 days, 87 questionnaires were returned about (95.6%), and analysis was made using SPPS (version 20.0). Descriptive statistics, charts and Chi square test were used, to describe the data, as well as testing for significant association between the respondents at 0.05 level of significance. The findings of this study have clearly showed that EHR is the most effective way of management of clinical information in health care delivery. The findings indicate that there is no significant difference of professionals that have the knowledge of electronic health record and improve quality of patients care in healthcare delivery. Findings reveals there were many challenges affecting the progress of EHR the factors include lack of adequate funding, lack of train manpower, lack of stable power supply, etc. Lastly findings also reveal that health care professionals are tired of manual system of record keeping and also agitating for electronic EHR system.

Keywords: **Electronic Health Records, Health Information Management, Health Information System**

INTRODUCTION

According to (Rodrigues J, 2010 Protti et al 2009) as cited by Abubakar U.F 2014, Electronic Health Record is the medical records in a digital format. The EHR system is the process of application of methods and procedures to facilitate retrieval and storage of a single patient health record through the use of commuter applications, usually over a network. (Blaya et al,) Categorized EHR as information system in an electronic format. The record. Safety of a patient can be improved through application of EHR It is important physician accomplish their role and improve performance of patient care through EHR related sharing of comprehensive health information of a patient (F. Si (Sitting F and Hardeepising, 2012) while (Alsanea 2012) as cited by Abubakar U.F 2014 highlighted that HER

According to the international journal of health informatics December (2009) the survey on the use of technology in seven nations highlight as publish by Ashish, David, Daniel and Tim. The survey of the common wealth found became available in late 2006. The researchers were able to obtain result of EHR among the ambulatory physician in only four of the seven nations: United State of America, Australia, Canada and United Kingdom. The result of the study of Ashish et al (2008) revealed four nations (UK, Netherlands, Australia and New Zealand had universal application of EHR among the GP practice. (Each has 90% application). The Germany has (40-80%. US and Canada had a minority of ambulatory care physicians who use EHR consistently (10-30%) while there is a quality data for hospitals compared to countries studied.

According to Tang and McDonald (2006) as cited by Health Information Systems: Concepts, Methodologies, Tools, and Applications, "an Electronic Health Record (EHR) is a repository of electronically maintained information about an individual's lifetime health status and health care, stored such that it can serve the multiple legitimate users of the record. Iakovidis (1998) also argues that the purpose of an EHR should be toward the support of continuity of care, education and research. On the other

hand , an EHR system is defined as a set of interoperable information system components establishing appropriate mechanisms to generate, use, store and retrieve an EHR, while ensuring confidentiality at all times (Blobel, 2002). Ideally, an EHR shall include information such as patient identification, observations, vital signs, physical examinations, treatments, therapy interventions, administered drugs, allergies, diagnostic and laboratory tests, as well as imaging reports.

There are many perceived benefits of making EHR systems interoperable. EHRs can contribute to more effective and efficient patient care by facilitating the retrieval, organization, processing, communication, and viewing of patient health record data from different sites (Tang and McDonald 2006).The duplicate data entry and prescribing can be avoided, while real-time transferring of patient data between care sites can be improved, if information is captured, maintained, and communicated securely and consistently, in line with clinical needs. Moreover, EHR systems complimented by clinical decision support tools are capable of reducing errors, improve productivity and decision-making choices, benefit patient care by providing automatic reminders, alerts to possible drug interactions, flag of abnormal values and lists of possible explanations for those abnormalities, along with other possible functions too numerous and constantly evolving to mention (Garg et al., 2005). Nevertheless, meeting these potential requirements and benefits necessitates the interoperability among various clinical oriented information systems that support the seamless communication of health record data, while preserving faithfully the clinical meaning of the individual authored contributions within it. Electronic Health Records is interoperability of different information technology systems and software applications to communicate by exchanging data accurately, effectively, and consistently, and to use the information that has been exchanged. More specifically, according to Brown and Reynolds (2000), the term interoperability, is defined as follows:

Interoperability with regard to a specific task is said to exist between two applications when one application can accept data (including data in the form of a service request) from the other and perform the task in an appropriate and satisfactory manner (as judged by the user of the receiving system) without the need for extra operator intervention.

The above definition implies the following

a. The ability to communicate data (connectivity).
b. The data received by the receiving system is sufficient to perform the task and the meaning attached to each data item is the same as the understood by the creators and users of the sending and receiving systems.
c. The task is performed to the satisfaction of the user of the receiving system
d. The outcome of this effort was the development and evaluation of different EHR prototypes, which were based on a set of architecture models, exchange formats, specifications of access and integration tools and a standard architecture, all made available and placed in the public domain.

This initiative was later continued under the name Good Electronic Health Record (GEHR) with strong participation from Australia. Currently, this initiative is maintained by an international online, non-profit organization, called the Open EHR Foundation, whose aim is to promote and facilitate progress towards the development of high-quality and interoperable EHRs to support the needs of patients and clinicians. The concept of these initiatives, proposed and defined independently by the Australian GEHR team, is a knowledge-based model, also known as the archetype modelling technique, which facilitates on one hand the specification of a generic clinical record structure, and on the other hand the specific semantic definitions of clinical contents that need to be standardized (Beale, 2002). This model utilizes a dual-level methodology to define the EHR structure. More specifically, the first level is used to define a small, but constant in time, Reference Object Model (ROM) for an EHR, which typically contains only a few generic, non-volatile, concepts/classes (e.g., role, act, entity, participation, observation, etc). In addition, at this level (the level of the ROM), additional methods on how to organize and group clinical information, capture contextual information, query and update the health record, and use of versioning to safely manage clinical information from a medico-legal point of view, are specified (Beale, 2005; Beale and Heard, 2005).

Although the ROM has rich capabilities, it is generic enough to store any type of clinical information. Subsequently, in order to overcome the problem of modelling and specifying the concepts and semantic definitions of clinical contents (e.g. blood pressure, lab results, etc.), the proposed methodology utilizes a second level, in which the constraint rules and mechanisms, called archetypes, specialize the generic data structures that have been implemented using the ROM.

A formal language called Archetype Definition Language (ADL) (Beale and Heard, 2003) has been introduced by the Open EHR initiative in order to describe for each archetype three basic parts: descriptive data, constraint rules, and capabilities, it is generic enough to store any type of clinical information. Subsequently, in order to overcome the problem of modelling and specifying the concepts and semantic definitions of clinical contents (e.g. blood pressure, lab results, etc.), the proposed methodology utilizes a second level, in which the constraint rules and mechanisms, called archetypes, specialize the generic data structures that have been implemented using the ROM.

Descriptive data usually contain a unique identifier for the archetype, a machine readable code describing the clinical concepts modelled by the archetype, as well as various metadata such as author, version, and purpose. Also, due to the fact that an archetype may be a specialization of another archetype, the ADL language also states probable specializations. The constraint rules are the core aspects of each archetype, defining the potential restrictions on the valid structure, cardinality, and content of the EHR component models. In addition, the ontological part defines the controlled vocabulary that can be used in specific places within an instance archetype. The main advantage of the dual-level methodology and the archetypes approach is that clinical concepts (represented by the archetypes) are modelled externally and separately from the reference information model of the EHR system. In other words, instead of following the traditional “single-level” development method of a clinical information system, where the domain concepts and semantics which the system has to process are hard-coded directly into its software and database models, the archetype methodology allows domain concepts to be defined separately by domain specialist (e.g., doctors, nurses, clinical bodies, etc.) without worrying about the internal mechanics of the static application software model (the ROM).

CHARACTERISTICS OF ELECTRONIC HEALTH RECORD

a. Dynamic
b. Simple
c. Well defined procedures/process flow
d. User Friendly
e. Data security and confidentiality
f. Interoperability
g. Interconnectivity and Data Sharing
h. Address peculiar needs
i. Generate reliable reports and statistics
j. Aid education and research
k. Cost Effective in the long run
l. Help to achieve health service delivery goals.

RESPONSIBILITIES OF STAKEHOLDERS

Professionals/Users

a. Test and certify framework in line with work plan
b. Present to Government for appropriate legal framework/backing
c. Review and upgrade framework periodically

Government

a. Accept framework and adopt it as work tool, sign into law
b. Provide required infrastructure/enabling environment
c. Leave implementation to professionals
d. Provide monitoring/oversight and regulations for use of framework
e. Strengthen Local Content by encouraging indigenous developers
f. Review education system to include mandatory Info. Tech. (esp. in health)
g. Harvest generated information for effective utilization, provide incentives
h. Provide environment for continuous research

RELATIONSHIP BETWEEN ELECTRONIC HEALTH RECORD USE AND QUALITY OF CARE OVER TIME

Electronic health records (EHRs) have the potential to advance the quality of health care by providing timely access to patients' health information, tracking patients over time to ensure that they receive guideline-recommended care, and offering decision-support mechanisms to reduce medical errors. However, cross-sectional studies have failed to show a direct correlation between having an EHR and high levels of quality of care, suggesting that simply having an EHR may not be sufficient to improve quality and safety of health care. Nonetheless, randomized controlled trials demonstrate clearly that quality improvement occurs when specific decision support is in place. Other factors, such as presence of order entry and better training and implementation of EHR systems, are likely also needed to achieve higher levels of quality and safety. In addition, it is possible that quality and safety benefits of EHR adoption and use may be time-dependent, possibly taking some years after implementation to occur, as users become familiar with the applications. As with other new technologies, there may be considerable lag in comprehensive usage and consequent delay in realizing the benefits attributable to EHR adoption. Therefore, we undertook the present study to examine how the quality of care delivered in ambulatory care practices varied according to duration of EHR adoption and usage.

GLOBAL CONCEPT OF ELECTRONIC HEALTH RECORD

The concepts of EHR are being introduced in Europe, North America, Australasia, the Middle East, Africa and elsewhere. There is no universally accepted definition of the term electronic health record, but we use it to mean an electronic patient's health record and health care that can be shared by different healthcare providers. Although electronic health records are widely viewed as central to modernising the organisation and delivery of sustainable, high quality health care, the uptake of such records in hospital has tended to be slow. Approaches to deployment of electronic health records vary from home grown systems in single organisations with the necessary technical and managerial capacity; to interoperability standards for linking multiple information technology (IT) systems; to top-down, government driven, and national implementations of standardised, commercial software applications. The last approach was chosen in England in 2002: the nationwide implementation of electronic health records, known as the National Health Service (NHS) Care Records Service, is the National Programme for IT.

A limited range of standardised applications was to be centrally procured and implemented in, initially, five geographical clusters by centrally contracted local service providers; these new systems were then planned to connect to a national database and messaging service (the NHS Spine). The resulting NHS Care Records Service is thus in two parts - a centrally stored summary care record containing basic clinical information for emergencies (which has been separately evaluated) and a locally held and shared detailed electronic health record. The latter, detailed electronic health record is the focus of this paper. Our research builds on and expands this earlier work by investigating the NHS Care Records Service in diverse secondary care settings and by interviewing a more comprehensive range of NHS trust staff.

According to Smith C et al., 2006 as cited by the New England journal of medicine. The health care system in United states (U.S) faces challenges on multiple fronts, including rising costs and inconsistent quality. Health information technology, especially electronic health records, has the potential to improve the efficiency and effectiveness of health care providers. Chaudrhy B, Wang J, Wus, et al., 2006. Methods to speed the adoption of health information technology have received bipartisan support among U.S. policymakers, and the American Recovery and Reinvestment Act of 2009 has made the promotion of a national, interoperable health information system a priority. Despite broad consensus on the potential benefits of electronic health records and other forms of health information technology, U.S. health care providers have been slow to adopt them. Jha A et al 2006. Using a well-specified definition of electronic health records in a recent study, we found that only 17% of U.S. physicians use either a minimally functional or a comprehensive electronic records system. DesRochas CM et al., 2008. Prior data on hospitals' adoption of electronic health records or key functions of electronic records (e.g., computerized provider-order entry for medications) suggest levels of adoption that range between 5% and 59%. This broad range reflects different definitions of what constitutes an electronic health record, use of convenience samples, and low survey response rates. To provide more precise estimates of adoption of electronic health records among U.S. hospitals, the Office of the National Coordinator for Health Information Technology of the Department of Health and Human Services commissioned a study to measure current levels of adoption to facilitate tracking of these levels over time. As in our previous study, we identified key clinical functions to define the minimum functionalities necessary to call a system an electronic records system in the hospital setting. We also defined an advanced configuration of functionalities that might be termed a comprehensive electronic- records system. Our survey then determined the proportion of U.S. hospitals reporting the use of electronic health records for either of these sets of functionalities. We hypothesized that large hospitals would have a higher prevalence of adoption of electronic health records than smaller hospitals. Similarly, we hypothesized that major teaching hospitals would have a higher prevalence of adoption than nonteaching hospitals and private hospitals a higher prevalence than public hospitals. Lastly, to guide policymakers, we sought to identify frequently reported barriers to adoption and potential mechanisms for facilitating it.

CONCEPT OF ELECTRONIC HEALTH RECORD IN NIGERIA

Electronic Health Records is the safe, secure, ethical and cost effective transmission and exchange of health data and information…some of the common EHR applications include *m-health* (mobile health through GSM), telemedicine and electronic health records (EHR). Dr. Osahon Enabulele President, Nigerian Medical Association. The Electronic Health Record (EHR) is a longitudinal electronic record of patient health information generated by one or more encounters in any care delivery setting. Included in this information are patient demographics, progress notes, problems, medications, vital signs, past medical history, immunizations, laboratory data and radiology reports. The EHR automates and streamlines the clinician's workflow. The EHR has the ability to generate a complete record of a clinical patient encounter - as well as supporting other care-related activities directly or indirectly via interface - including evidence-based decision support, quality management, and outcomes reporting. The EHR enable critical, real-time information services that empower both patients and health care workers.

CURRENT SITUATION OF ELECTRONIC HEALTH RECORD IN FEDERAL MEDICAL CENTRE, NGURU

Case Notes is an electronic patient management, monitoring and management of patient records design to monitor patients and supportive care. The system is used for clinical data documentation; entering, storing, sending data to people who need to act upon the data, for managing admission, medical orders, health records, discharges, transfers, ancillary services which includes pharmacy, laboratory, radiology, physiotherapy etc.

i. **File Maker PRO**: File maker pro is an electronic patient management, monitoring and storing records system designed to monitor HIV clinical and supportive care. File Maker Pro was introduced

to increase the efficiency of HIV care through primary, secondary and tertiary care levels providing antiretroviral therapy (ART) services.

ii. **Components of Electronic Health Records**: An electronic record may be created for each service a patient receives from an ancillary department, such as radiology, laboratory, or pharmacy, or as a result of an administrative action (e.g., creating a claim). Some AMCs' clinical systems also allow electronic capture of physiological signals (e.g., electrocardiography), nursing notes, physician orders, etc.

iii. **Administrative System**: Registration, admissions, discharge, and transfer (RADT) data are key components of EHRs. These data include vital information for accurate patient identification and assessment, including, but not necessarily limited to, name, demographics, next of kin, employer information, chief complaint, patient disposition, etc. The registration portion of an EHR contains a unique patient identifier, usually consisting of a numeric or alphanumeric sequence that is unidentifiable outside the organization or institution in which it serves. RADT data allows an individual's health information to be aggregated for use in clinical analysis and research. *White Paper on Unique Health Identifiers for Individuals*, 2002. http://ncvhs.hhs.gov/noiwp1.htm

iv. **Laboratory System**: Laboratory systems generally are standalone systems that are interfaced to EHRs. Typically, there are laboratory information systems (LIS) that are used as hubs to integrate orders, results from laboratory instruments, schedules, billing, and other administrative information. Laboratory data is integrated entirely with the EHR only infrequently. Even when the LIS is made by the same vendor as the EHR, many machines and analyzers are used in the diagnostic laboratory process that are not easily integrated within the EHR. For example, the Cerner LIS interfaces with over 400 different laboratory instruments. Cerner, a major vendor of both LIS and EHR systems, reported that 60 percent of its LIS installations were standalone (not integrated with EHRs). Some EHRs are implemented in a federated model, which allows the user to access the LIS from a link within the EHR interface. "Only Time Will Tell, But LIS Experts Offer A Forecast." 2005.

v. **Radiology System Components**: Radiology information systems (RIS) are used by radiology departments to tie together patient radiology data (e.g., orders, interpretations, patient identification information) and images. The typical RIS will include patient tracking, scheduling, results reporting, and image tracking functions. RIS systems are usually used in conjunction with picture archiving communications systems (PACS), which manage digital radiography studies. Radiology Information Systems, defined at the Bio-health Informatics site. http://www.biohealthmatics.com/technologies/his/ris.aspx.

vi. **Pharmacy System Components**: Pharmacies are highly automated in AMCs and in other large hospitals as well. But, again, these are islands of automation, such as pharmacy robots for filling prescriptions or payer formularies, which typically are not integrated with EHRs. Ondo, et al, report, in 2005, that "in inpatient settings, an average of 31 percent of all [electronic] pharmacy orders … are re-entered in a pharmacy system. While re-entry is not desirable, this is a 35 percent improvement overall since 2003, and a 14 percent improvement from that reported in 2004." Karen Ondo and Jason Hess 2005.

vii. **Computerized Physician Order Entry**: Computerized physician order entry (CPOE) permits clinical providers to electronically order laboratory, pharmacy, and radiology services. CPOE systems offer a range of functionality, from pharmacy ordering capabilities alone to more sophisticated systems such as complete ancillary service ordering, alerting, customized order sets, and result reporting. Jonathan A. Handler, et al, 2004.

viii. **Clinical Documentation**: Electronic clinical documentation systems enhance the value of EHRs by providing electronic capture of clinical notes; patient assessments; and clinical reports, such as medication administration records (MAR). As with CPOE components, successful implementation of a clinical documentation system must coincide with a workflow redesign and buy-in from all the stakeholders in order realize clinical benefits, which may be substantial—as much as 24 percent of a nurse's time can be saved. Poissant L., Pereira J., et al 2005.

APPLICATION OF ELECTRONIC HEALTH RECORDS TO HEALTH INFORMATION MANAGEMENT

ICT-driven health care is being considered as a genuine option towards improving health care delivery to the people. The Nigerian health care system seems to be in a comatose state. Lack of access to accurate and timely health information is an important contributory factor. So in a bid to improve health care delivery indices, there is need to employ the use of technology tools in the area of telemedicine, to drive the health care systems. Deliberated on the need for the use of electronic communication and information technology to transmit, store and retrieve digital data for clinical, educational and administrative purposes.

The World Health Organization (WHO) in 2005 suggested ICT as the cost-effective and secure use of Information and Communication Technology (ICT) in support of health and health-related fields, including health care-services, health surveillance, health education, knowledge and researches. Hence, through the use of computers and other digital devices which are connected to available sensors, diagnosis of patients is done and clinical information of such a patient, displayed via computer. The ICT have reached maturity with recent advances in technology, which has enabled a symbiosis between the fields of medicine and the information and communication technology. The time health professionals spend on patient is reduced due to telex-monitoring without the patients being physically present in the hospital. Telemedicine in Nigeria will no doubt go a long way in enhancing the provision of health care delivery to the mass populace if employed. The government has placed much emphasis in the restructuring the health care infrastructure in order to keep up with the rate of technology advancement. ICT plays a critical role in this; a key benefit being providing health care practitioners with access to timely and accurate information and complementing their decision-making process with clinical decision support system. For the fact that health information have started to embrace the advantages brought by computer technology, the services and operations must be affected. Today computer technology assisted medical practitioners in research, health education, medical auditing, monitoring and evaluation effectively. Health informatics is the rapidly developing scientific field that utilizes computer technology in the advancement of medicine. Information Technology (IT) applied in health care for knowledge creation and management. Computer application in health information management is responsible for design, development, analysis and utilization of patient and enterprise-wide data system. Health Information Technology (HIT) provides the umbrella framework to describe the comprehensive management of health information across computerized systems and its secure exchange between consumers, providers, government and quality entities, and insurers. Health Information Technology (HIT) is in general increasingly viewed as the most promising tool for improving the overall quality, safety and efficiency of the health care delivery system (Chaudhry et al., 2006 as cited by computer application and utilization in health information management June 2012).

Broad and consistent utilization of Health Information Technology (HIT) will:

a. Improve health care quality;
b. Prevent medical errors;
c. Reduce health care costs;
d. Increase administrative efficiencies
e. Decrease paperwork; and
f. Expand access to affordable care.

Interoperable Health Information Technology (HIT) will improve individual patient care, but it will also bring many public health benefits including:

Early detection of infectious disease outbreaks around the country;

Improved tracking of chronic disease management; and Evaluation of health care based on value enabled by the collection of de-identified price and quality information that can be compared.

Health Information Technology (HIT) is the application of information processing involving both computer hardware and software that deals with the storage, retrieval, sharing and use of health care information, data and knowledge for communication and decision making (Brailer and Thompson, 2004). Computerization of health information will assist the health care providers in mobilization of health information electronically across organizations within region, community or hospital. Health information technology and computer systems.

Before the existence of electronic health records, paper base were maintained and secured which are used in different unit or department in the hospital environment. This system is no longer acceptable. Current trend requires partial or full electronic.

Electronic Health Record will provide the umbrella framework to describe the comprehensive management of health information across system and it is secure exchange between patients, providers, government and quality entities, and insurers. Electronic Health Record in general increasingly viewed as the most promising tool for improving the overall quality, safety and efficiency of the health care delivery system (Chaudhry 2006). Broad and consistent utilization of Electronic Health Records will:

a. Heath care quality;
b. Prevent medical errors;
c. Reduced health care cost;
d. Increase administrative efficiencies;
e. Decrease paper work; and
f. Expand access to affordable care.

Interoperable (EHR) will improve individual patient care, but it will also bring many public health benefits including;

a. Early detection or infectious disease outbreaks around the country;
b. Improve tracking of chronic disease management;
c. Evaluation of health care base on value enabled by the collection of de-identified price and quality of information that can be compared.

Health information management incorporates all the data needed by policy makers, clinicians and health service users to improve and protect population health. The World Health Organization (WHO) argues that investment in Health Information Management Systems (HIMS) now could reap multiple benefits, including:

a. Helping decision makers to detect and control emerging and endemic health problems, monitor progress towards health goals, and promote equity;
b. Empowering individuals and communities with timely and understandable health-related information, and drive improvements in quality of services;
c. Strengthening the evidence base for effective health policies, permitting evaluation of scale-up efforts, and enabling innovation through research;
d. Improving governance, mobilizing new resources, and ensuring accountability in the way they are used. Each aspect is analysed with 10 different data characteristics:

Paper-based records require a significant amount of storage space compared to digital records. Electronic Health Record (EHR) data can be used to support clinical trial recruitment, research collaboration, and retrospective studies. Capturing the data electronically can reduce duplicate data entry (with associate mistakes). Generally, the potential benefits of electronic health record include: Faster and easier storage, transmission and access to medical data and health-related information for healthcare providers and professionals, citizens/patients academics, researchers, policy makers and others capacity building and

improved delivery of healthcare services, particularly in rural and remote areas, reduction of operational and administrative costs in implementing healthcare services.

CHALLENGIES ASSOCIATED WITH THE APPLICATION OF ELECTRONIC HEALTH RECORDS.

The Fourth Annual Survey of Electronic Health Records (EHRs) Trends and Usage study reported that 58% of the respondents cited the largest barrier to implementing an EHR was lack of adequate funding or resources. A full electronic health record system, including a Picture Archiving and Communication System (PACS) can cost tens of millions. Hardware and software is very expensive, especially if you factor in the costs of future upgrades. Other technology problems include: the lack of broadband communication networks, lack of a standard code of generally accepted practices and protocols, poor user interface design, lack of appropriate vocabulary and data transmission standards, the challenges surrounding entering data, concerns about data privacy, confidentiality, and security of health information, and ensuring access only to authorized users. The Fourth Annual Survey of Electronic Health Record (EHR) Trends and Usage, sponsored by the Medical Records Institute (MRI) and SNOMED® International, surveyed respondents between April 15, 2002 and May 16, 2002. Lack of adequate funding or resources; lack of support by the medical staff; inability to find an EHR solution or components at an affordable cost; difficulty in creating a migration plan from paper to electronic health records; and difficulty in finding a satisfactory EHR solution that is not fragmented over several vendors or IT platforms were given as the to five barriers to EHR implementation.

Electronic Health Records are not exist without any challenges' because of the nature of services they are provide and the expectations of their users especially at this period of health care information need to face the reality by moving along with the modern trend in health information services, which involves the use of computers and its peripherals to facilitate and enhance service delivery. This information will cover both a number of challenges that are affecting the running of such services especially in our Hospitals nowadays such problems are included.

i. **Lack of effective network performance:** There are no measuring, modelling, planning and optimizing networks to ensure that they carry traffic with the speed, reliability, and capacity that is appropriate for the nature of the application and the cost constrains of the country.
ii. **Data base conversion problems** converting of paper base data to electronic system will consume time and money.
iii. **In adequate power supply:** Electricity power supply is a very sad story in the country, despite billions of naira spent on the situation; it still seems stagnant and unprogressively. For several decades people in the region never had consistent electricity and this has made them loss interest in the usage of Information Technology Tools (IT).
iv. **Funding problems:** Lack of enough fund cause slows in running Electronic Health Records System.
v. **In adequate facilities to run the system:** Without relevance information technology gadgets automation of the health information cannot take place.
vi. **Cost**: Availability of personnel with the paper background/level of technical expertise to run a computerized system; in particular the software skills of the staff at the lowest level where computers can be provided should be looked into:

    a. Availability of technical support in case of hardware breakdown.
    b. Maintaining of security/confidentiality of data.

CONCLUSION

The findings of this study has clearly showed that electronic health record is the most effective way of management of clinical information in health care delivery. It could be seen that most of the respondents in the above staff categories indicates that the use of electronic health record can eliminate misfiling of case

folder, overcome the problem of space for keeping patient information. It can enhance easy access of retrieving for research cases. The finding indicates that there is no significant different of professionals that have the knowledge of electronic health record and improve quality of patients care in healthcare delivery, that is I fail to reject Null hypothesis.

RECOMMENDATIONS

In view of the above, the following recommendations are suggested for effective and efficient health information services:

1. Provision of trained Health Records professionals to manage Electronic Health Records.
2. Computerization of clinical service department should be done for better health care services and developing a good clinical databank that will ease research, training in health care system as well as planning.
3. There is need to purchase licensed, recommended software for electronic health records for smooth running.
4. There is need for train and retrain of health records personnel for upgrading their skills on electronic health record, since it is a continuous program or a dynamic system.
5. There should be constant supply of light or solar system in the hospital.
6. Federal government should provide adequate funding to health care delivery
7. Rapid upgrading of electronic health record and use of electronic Coding system.

REFERENCE

Abubakar, U. F. (2014, September 30). *Analysis of Health Information System in a Developing Country.* London: Kingstone University.

Ann Robertson, K. C. (2010). Implementation and adoption of nationwide electronic health records in secondary care in England: qualitative analysis of interim results from a prospective national evaluation. *BMJ*, 1-2.

Heritage, A. (2011). *The Free Dictionary*. Retrieved October 21, 2015, from thefreedictionary: www.thefreedictionary.com/service

Jha A.K. et al., 2. (2009). Use of Electronic Health Records in U.S. Hospitals. *Th e new england journal o f medicine*, 2.

Johns, M. L. (2007). *Health Information Management Technology* . Chicago : AHIMA .

Kitsiou, S. M. (2009). *Overview and Analysis of electronic health trcord standards.* Greece: Imprint of IGI Global.

LI ZHOU, B. e. (2009). Electronic Health Record Use and Quality Care. *Journal of the American Medical Informatics Association*, 457.

Maki, K. M. (2010). *Health Information Management Concept, Principles, and Practice.* Chicago: AHIMA.

McPerson, J. (2011, October). *TechTarget.* Retrieved October 21, 2015, from SearchSecurity.co.u: http://www.searchsecurity.techtarget.co.uk/def inition/National-Health-service

Modernization, C. f. (2006). *Electronic Health Records Overview.* Virginia: The MITRE Corporation.

Nataional Committee for Vital and Health Statistics. (2006). Electronic Health Records Overvie. *National Institutes of Health*, 6-8.

Rodrigues, J. (2010). *Health Information Systems: Concepts, Methodologies, Tools and Applications.* New York: University of Beira Interior, Portugal.