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Full Length Research Paper

Assessment of the Application of Electronic Systems in the Management of Patient Records in Abuth, Zaria

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ABSTRACT: This study examined The Application of Electronic Systems in the Management of Patient Records in Abuth, Zaria. To achieve the objectives of the study, the researchers enumerated three research questions: What is the level of use of electronic systems in the management of patient records in ABUTH, Zaria, What are the benefits of the application of electronic systems in the management of patient records in ABUTH, Zaria, What are the challenges to the effective application of the electronic system in the management of patients records in ABUTH, Zaria. The survey research method was used for the study while questionnaires were used to obtain relevant data from the population who were made of 36 staff samples from various records departments of ABUTH. Data collected were analyzed using descriptive statistics. The research revealed that there should be the provision of internet resources and computer, provision of the adequate release of funds to purchase and maintain ICT tools, training/retraining of health records personnel on computer hands-on, provision of regular power supply, and promoting good organizational design, good maintenance culture to ensure its efficiency, there should be proper maintenance of the databank to avoid system breakdown.

Keywords: Electronic Health Information (EHI), Health Information Management (HIM), Electronic Medical Record (EMR), Electronic Prescribing (EP) Electronic Health Record (HER), Health Information System (HIS) National Health Service (NHS)

INTRODUCTION

The innovation in the health system especially in Nigeria today is Electronic Health Information system. It refers to all individuals patient's medical information in digital format. Electronic health information system coordinates the storage and retrieval of individual records with the aid of computers and this is normally done with ease. Electronic health information is usually accessed on a computer, often over a network. It may be linked of Electronic medical information from many locations and or sources and can be accessed sometimes with or without a pass word. Electronic health information (also electronic patient record or computerized record) is an evolving concept, defined as a longitudinal collection of electronic health information about individual patients or population.

It is a record in digital format that is capable of being shared within across different health care settings, being embedded in network-connected enterprise-wide information system; such records may include a whole range of data in comprehensive or summary form. It is important to note that an EHI is generated and maintained within an Institution, such as hospital, integrated delivering network, and clinic or physician's office Abdulsalami (2013).

Health Information Management (HIM) is a special management procedure involving the application of clinical knowledge, information technology, database and management administration, Waegemann (2002). Health information and records involves healthcare planning and management decisions, legal and administrative

procedures, researches, identifying trends for the treatment of diseases and for evaluating the standards and quality to patient care. A health information or record may include any of the individual's health documents which may be on physical "media such as film (X-rays), paper (note) or photographs and in recent times in virtual forms in computers, This latter form of health record keep is called Electronic Health Information Management (e-HIM) (Hallvard et al., 2003).

There are so many terms which have been used to describe electronic patient health records, with overlapping definitions. Waegemann,(2002). An electronic health record (EHR) can simply be defined as an individual patient's medical record in digital form. Electronic health record system coordinates the storage and retrieval of individual health records with the aid of computers. Both Electronic Health Record (EHR) and Electronic Medical Record (EMR) have gained wide spread use with some health informatics, user assigning the term EHR to a global concept and EMR to a discrete localized record. For most users, however, the term EHR and EMR are used interchangeably. An EHR system is also often abbreviated as EHR OR EMR

As at the year 2000, adoption of EHRs and other Health Information Technology (HITs) such as Computer Physician Order Entry (CPOE) was minimal in the United States. Less than 10% of American hospital had implemented HIT (Ringold et al., 2000) while a mere 16% of Primary Care Physician used EHRs (Johnston et al., 2003). Between 2001 and 2004 only (18%) of ambulatory care encounters utilized an EHR system (Jeffrey et al., 2007), in 2005, (25%) of office - based physician reported using fully or partially electronic medical record system (EMR). However, less than one-tenth of these physicians actually had a "computerized order for test reporting of test results, and physician notes (National centre for Health Statistics, 2006). However, in Nigeria health care sector, EHR systems are non-existent in the smaller private facilities and in public hospital such as the specialist and teaching hospitals where they may sometimes exist, are in their infancy and simplified forms (Baron, 2007). Some Health records departments in these centres only use their computers for administrative purpose (Shaibu, 2004). EHR adoption in Nigeria has been limited by several factors including high hardware and software cost, complex implementation procedures and technical requirements, resistant to organizational change and reforms, poor funding and management and that of maintenance.

Statement of the problem

These are caused by the ignorance, lack of a proper training of health information managers, irrelevant data collected by health information workers in addition to several other advantages of Electronic Health Management System, preliminary investigates conducted in ABUTH reveals inadequate use of Electronic in the management of particular records which has resulted in waste of time in the search for record, and records misfiling.

Objective of the study

(i) To find out the level of use of electronic systems in management of patient records in ABUTH, Zaria.
(ii) To determine the benefits of the application of electronic systems in the management of patient records in ABUTH, Zaria.
(iii) To find out the challenges to effective application of electronic system in the management of patients records in ABUTH, Zaria.

Research questions

(i) What is the level of use of electronic systems in management of patient records in ABUTH, Zaria.
(ii) What are the benefits of the application of electronic systems in the management of patient records in ABUTH, Zaria.
(iii) What are the challenges to effective application of electronic system in the management of patients' records in ABUTH, Zaria.

Electronic data capturing and processing

There are two primary categories of the electronic management record (EMR), the born digital record and the scanned or Image record (Hallvard et al., 2003). The born digital records which is information captured in a native electronic format, originally is information that may be entered into a database, transcription from an electronic tablet network PC, or in some other manners captured from its inception electronically. The information is then transferred to a server or other host environment, where it is stored electrically. The second category include records originally produced in paper or other hard copy Conn (X-ray film photographs etc.) that have been scanned or image and converted to a digital form. These records are best described as digital format records, as their content is not able to modify or alter (with the exception of the use of third party software to make "over lay notations) electronic records. Most medical records generated preceding the year 2000 are of this category.

The process involved in conversion of these physical records to EMR may be expensive and time consuming, and must be done to exact standards to ensure an accurate capture of the content. However, electronic health Information Management (e-HIM) has numerous advantages over the traditional Handwritten paper-based medical records. Electronic health information record

(EHIR) systems can reduce medical error. The researchers opine that medical records are prone to poor legibility, which can contribute to medical errors (Institute of Medicine, 1999). Although, the use of pre-printed forms, the standardization of abbreviations, and standards could improve reliability of paper medical records, electronic records are more reliable in terms of' standardization of forms, terminology and abbreviations, and data Input. Electronic record keeping (ERK) and order entry were found to reduce errors associated with handwritten document and are recommended for widespread adoption (Institute of Medicine, 2001). EHIR systems are believed to increase physician efficiency and reduce cost, as well as promote standardization of care. In 2004, I in 7 hospitalization in the U.S were estimated to occur when medical records were not readily available and I in 5 lab test were repeated because results were not available at the point of care. Electronic medical records are estimated to improve efficiency by 60% per year, and the monthly cost of an EMR is offset by the cost of only a few unnecessary test or admissions (HIMMS, 2003; Basch, (2005).

Manual or paper medical records are on "physical" media such as film (Xrays), paper (notes), photographs, which are often or different sizes and shapes. The physical storage of such documents could be problematic, as not all document types can fit in the same size folders or storage spaces. Physical records usually require significant amounts of space. When physical records are no longer maintained, the large amount of storage space are no longer required paper, films, and other expensive physical media usage (and therefore cost) are also reduced with electronic record storage.

Furthermore, when paper records are stored in different locations, collection and transporting them to a single location for review by a healthcare provider is time - consuming. When paper/or other types or records are required in multiple locations, coping, faxing and transporting costs are significant (Baron, 2007).

Types of data stored in electronic medical records

An electronic medical record might include patient demographics, medical history, examination and progress reports of health and illness, medicine and allergy list, and immunization status. It may include other information such as Laboratory test results, radiology images (X-rays, CTs, MRLS, etc.) photographs, from endoscopy or laparoscopy or clinical photographs and medication information, including side-effects and interactions.

Also, evidence based recommendations for specific medical condition records of apartments and other reminders, billing records and advance directives, living wills, and health power DC attorney could be included. (www.health.nct.com).

Health information system and E-Health

Reliable and timely information and statistics are essential requirements for health managers worldwide. With sound health statistics, decision makers can enhance their ability to identify health problems and needs, without strategies and appropriate actions for improvement of health service delivery, plans health interventions, evaluate the impact and make evidence based decision on health policy, programme design and resource allocations. A Health Information System (HIS) concentrates on information related to health diseases and their impact on health services. The primary objective of Health Information System (HIS) is to provide information on the health status of a population. It is used both to set policy and manage operations (Murphy 2009).

A Health Management Information System (HMIS) collects and processes data on Inputs, processes Output, outcomes, and impact or health services. The primary objective of the (HMIS) is to provide operational information on policy implementation and to provide health managers with reliable and timely day-today information about the impact or their interventions. An HMIS is an essential tool for health managers.

e-Health describe the application of information and communication technologies across covering all the operating functions that affect the health sector, from the doctor to the hospital managers via nurses, data processing specialist, social security administrators and the patients. e-Health include telemedicine evidence based medicine providing information on appropriate treatment under certain patient conditions (Consumer Health Information and Health Knowledge Management), An Interim Med. 2006 Healthcare expert, policy makers, payers, and consumers considers health information technologies, such as electronic health records and computerized provider order entry to be critical to transforming the healthcare industry. Information Management is fundamental to health care delivery. Given the fragmented nature of healthcare, the large volume of transactions in the system, the need to integrate new scientific evidence into practice and other complex information management activities, the imitations of paper based information management are intuitively apparent. Health Information Management (HIM) is the practice of acquiring, analyzing and protecting digital and traditional medical information vital to providing quality patient care, (www.unicharts.com)

Barriers to Implementing EHR system

Barriers to implementing an EHR system are enormous and varied from the start up through adaptation of full integration of such a system to fit into the existing general health delivery processes. Such challenges include difficulty in adding-older records to a new EHR systems

(Hallvard et al., 2003), plans for long term preservation and storage of records, methods to ensure the future accessibility and compatibility of archive data with yet-to-be developed retrieved systems and how to ensure the physical and virtual security of the achieve (Gastro, 2007). Other technical issue that must be considered are messaging standard for moving clinical and other types of data (Orders, referrals, test resulting etc.) between systems, coding and classification standards which are not burgoos and are widely accepted (Columbus, 2006). And idea EHR system must have record standardization but could also have interfaces that can be customized to each provider environment.

Synchronization and updating or records in a coordinated fashion when care is been provided at two different facilities (Centre for Information Technology Leadership, 2005); privacy, confidentiality and security of health information over network (Los Angeles Times Health and Medicine, 2006) could be major barriers to implementation. Although, the now of medical information has numerous benefits such as possibility or detecting dangerous drugs combinations and epidemics, such information plans also has its risks (Basch, 2005). Hardware acquisition cost and incompatibility challenges (Cross, 2007), start -- cost and software maintenance cost (Columbus, 2005) and training requirements are also some of the limitation.

Inertia

Software technology advances at a rapid pace. Most software systems require frequent updates, often at a significant ongoing cost. Some types of software and operating system require full-scale re-implementation periodically, which disrupts not only the budget but also workflow. Physicians desire modular upgrades and ability to continually customize, without large-scale reimplementation.

Training of employees to use an EHR system is costly. New employees, permanent or temporary, will also require training as they are hired. Most large organization resists change. The Institutional stress of implementing any new large-scale system must be anticipated by management. Agency for Health Care research and quality according to the National Resource Centre for Health Information Technology, is of the view that EHR implementation follow the 80/20 rule; That is 80% of the work of implementation must be spent on issues or change management, while only 20% is spent on technical issues related to the technology itself (Nainil, 2007).

Legal barriers, legal liability in all aspects of health in the 21 century was an increasing problem in the 1990s and 2000s. The surge in the per capital number or attorneys and changes in the tort system caused an increase in the cost of every aspect of healthcare and healthcare technology was no exception. Failure or damage caused during installation or utilization of an EHR system has been feared as a threat in lawsuit. This liability concern was of special concern for small IJIR system makers. Some smaller companies may be forced to abandon markets based on the regional liability climate. Larger EHR providers (or government - sponsored providers of EHRs) are better able to withstand legal assaults to successful implementation. Generally, people and organizations have initial resistance to change. The institutional stress of implementing any new large-scale system must be anticipated by management. Other important issues to be considered are the legal harriers including issues on liability (Laura, 2007), and digital signatures (American Bar Association, 2006). Not enough attention is being placed on the security or the Information in EHR. This is significant barrier for the adoption of an EHR. At the federal level, there needs to be a shift in "attitudes, awareness, and capabilities in the areas of privacy and security" of individual's health records if adoption or an EHR is to occur. With the private sector, many companies are moving forward in the development, establishment and implementation of medical records bands and health information exchange. By law, companies are required to follow all HIPAA standards and adopt the same information-handling practices that have been in effect for the federal government for years. This includes two ideas, standardized.

Global successes and failure in the implementations of EHR systems

In the United State, the Department Veterans Affairs (VA) with the largest enterprise - wide Health Information System that include an electronic medical record, known as the Veteran health Information Systems and Technology Architecture or Vista has successfully implemented on EHR system using a graphical user interface known as the Computerized Patient Record System (CPRS) which allows healthcare providers to review and update a patient's electronic medical record at any of the VA's over 1,000 healthcare facilities (National Centre for Health Statistics, 2006). GPRS include the ability to place orders, diets, and Laboratory test. As of 2005, the National Health Service (NHS) in the United Kingdom also began an LHR system with the goal of having over 60,000,000 patients with a centralized electronic health commencing May 2006, providing general practitioners in England access to the National Programme for IT (NPIT1). Also the Canadian Province or Albeta Started a large - scale operational EHR system project in 2005 called Alberta Netcare, which is expected to encompass all of Alberta by 2008 (National centre for Health Statistics, 20(5). However, in 2002 a proprietary and 34 million Central physician order entry system that

was developed at Cedars Sinai Medical centre in Los Angeles was scrapped because of physician dissatisfaction by number of error the system caught and corrected, as well as frustration caused by the slow performance or the system (Washington Post, 2005). As many as 30% of EHR implementation attempts have failed over the past few years (Gastro, 2007). Advocate of electronic health records hope that product certification will provide the assurance needed to justify significant investments in new system.

Benefits of EHR standardization and national healthcare information network

Improve billing accuracy

Although billing is now largely accomplished electronically in the United States, these claims often require additional documentation from a patient's medical record. This is a tedious task when records are in an electronic format not compatible with the billing program, or when the records are in paper format. An integrated electronic medical record maker billing moves accurate. This could be adopted.

Reduction in duplication of services

Duplication of laboratory tests, diagnostic imaging, and other services can be prevented by good record keeping of any type. However, because electronic records can be available at many locations at once, integration or services and awareness of duplication is facilitated.

Improved access to medical records

Records, once a few years are typically put into long term storage as records must be kept for as long as 21 years as the case may be. Electronic medical records enable health organizations to access old records instantly, thereby allowing them to be sent to another health organization in the event of an emergency. Many EHR systems now offer integrated patient portal or personal Health Record Systems which allow patients and 3rd parties to access medical records with a secure username and password.

Facilitation of clinical trials

Clinicians and researchers suggest benefits to integrating electronic health records with data collection and analysis in clinical trials. Complete computerized health information stored in a central computer with inputs and output devices in each patients care area would provide such as unit records and a high quality or patient care through all phases of an illness. EHR will improve all the followings in terms of accuracy timely and retrieving of health information etc.

Patient registration

With the manual system or operation at the registration centres in health institutions, there is much to talk about on problem of misfiling and duplication of records, which is due to pan to the illegible hand writing and wrong spelling of patients name and other related data. This is where the use of EHR could be gainfully employed.

Treatment of patient

EHR facilities continuity or treatment and at the same time avoid repetition of investigations, which also saves time and cost of treatment of patients, if all relevant data on all previous investigations and treatment were linked together with the aid of a computer, it would help to provide an effective patient's care.

Assisting communication

Since the treatment of a patient is a team responsibility, these include the Doctors, Nurses, and Medical Social workers, physiotherapist, etc. taking part in the patient's final treatment. Electronic health information on individual patients so that it is easily available for other members of the treating team.

Research and assessment of medical care

The use of electronic health record can help the Doctors to Link with health Information Management to review patient's cases. This is to reconsider the treatment given for a certain diseases and sickness from an improvement on the previous effort to achieve a better result.

Medical examination

Since EHR improves effectively and efficiently, productivity and reliable data; it could be useful for education and research purposes.

Data bank

The U IR in health information proceeds would contribute to the development of data bank. This data bank will provide the hospital management with valuable resources of information from which to derive sound decision. They will produce factual qualitative data that can be used to evaluate patient's care in order to improve services,

facilities and efficiency.

Confidentiality of record

In some hospitals where records are bounded together and placed anywhere they like; and where open shelves system of filling are maintained with the system, a great problem is that of ensuring confidentiality of information stored and health records are concerned with the possibility of loss of privacy or the individual. It is then proved that information stored in computer can be secured against release to unauthorized persons. Thus, they can be maintained by the use of system password whereby it is only the authorize person that will be able to open the system.

Retrieval of records

Manual retrieval of records always proves unreliable thereby causing a ripple effect from the library to the ward and catchment area. Also in tracing out a particular record, the staff suffered unbearable discomfort and premature death. There are areas where the use of EHR can proffer a solution.

Litigation

The health information can serve as a documentary evidence to defend the patient or wrong treatment given or claiming of insurance benefit. Also, the health information as evidence can be of great value in a court case brought against the hospital as a whole. Therefore, electronic health information can help both patient and the hospital in court case when the information is complete and accurate.

Potential clinical

Trial participant may be more easily identified, administrative overhead cost may be lessened, data errors may be reduced and adverse outcomes may more rapidly be identified. Some institutions have already been partially successful in implementing and integrating co-ordinate data collection and analysis system. For example, the Shared Pathology Network of the national cancer institute AHS Effectively established a web - based network for locating pathological tissue samples at project and been found suitable for EU purposes (Walker et al., 2005).

Electronic prescription (E-Rx)

Electronic prescribing or e-prescribing (e-Rx) is a method of sending prescriptions of an individual patient to the pharmacy electronically through a doctor or healthcare providers. Instead of writing out a prescription and taking it to the individual's drug store, the doctor orders the medication through the office computer which then sends a secure electronic prescription to the pharmacy.
Electronic prescription helps to:

(i) Avoid mistakes due to the doctor's handwriting or the pharmacist misreading of the doctor's prescription abbreviations.
(ii) It allows the doctor to see what medications are on the individual's health plan drug formula to make sure the drug being ordered is covered.
(iii) Avoid harmful drug interactions by letting the doctor know the drugs being ordered and may interact with a medication that is already taking (Baron, 2007).

The role of ICT in assessment of e-health information management system

The role of ICT in assessment of information management system are numerous, these include the followings:

(i) ICT plays an important role in the delivery of better and efficient healthcare services.
(ii) ICT increases the quality and safety of patient case.
(iii) The potentials or ICT in health Information Management practice improve quality safety or documents, files and efficiency.
(iv) They improve the process of healthcare delivery and can carry primarily in streamlining administration and putting information into the hands of care professionals.
(v) It provides opportunities for individual, medical professional and healthcare providers, to obtain information, communicate with professionals and deliver first-line support especially where distance is a critical factor.
(vi) ICT will help in the enhancement of quality of life by increasing access to medical knowledge and medical interventions to health workers.
(vii) Primary healthcare cost can be cut where remote access can be facilitated through innovation in telemedicine, cutting down the need for those in remote access to forgo today's work and wages in trying to get to a doctor for minor ailments.
(viii) ICT has the potentials to impact almost every aspect of the health sector.
(ix) ICT can also help patients become more involved in their own care which is especially important in managing chronic conditions like diabetes, asthma or heart diseases (Abdulsalami, 2013).

Advantages of electronic medical records

Our world has been transformed by digital technology-

Smart Phones, tablets, and heels-enabled devices have transformed our daily lives and the way we communicate. Medicine is information - rich enterprise. A greater and more seamless now of information within a digital health care infrastructure, created by electronic health records (EHRs), encompasses and leverages digital progress and can transform the way care is delivered and compensated. With electronic health records (EHRs), information is available whenever and wherever it is needed.

(i) Physicians and nurses have more time to spend with patients: With paper records, healthcare professionals spend as much time performing administrative tasks as caring for patients; too much valuable time is spent searching for and waiting for information in a paper-based system.

(ii) Your health information is up to date: There is no delay as hand-written notes waits to be transcribed. Test result and all your medical history are recorded directly into your EMR.

(iii) Improved legibility, accuracy and completeness. With an EMR there is less potential for medical errors as well as improve quality and safety in patient care. There is no substitute for having accurate, information about a patient's condition and medical immediately accessible.

(iv) Allergies and adverse drugs reactions are prominently displayed.

(v) EMR permits more than one user to access your record at the same time. For example: while the nurse documents your vital signs and reason for visit, the provider can simultaneously review your chart prior to seeing you.

(vi) Reminders are activated when certain health maintenance test and/or procedure are due.

(vii)Your prescription is electronically ordered directly to your pharmacy (Osayi 2007).

Just like paper record, electronic health record must comply with the Federal Health Insurance Portability and Accountability Act, (FHIPAA) in regard to protecting patient privacy, unlike paper records, electronic health records can be encoded so that only authorized individuals can view them.

Physical records usually requires significant amount of space to store them, when physical records are no longer required. Paper, film, and other expensive physical media usage (and there cost) is also reduced with electronic record storage. Handwritten paper records can be associated with poor legibility, which can contribute to medical errors, therefore, Electronic records helps with the standardization of forms, terminology and abbreviations, and data input, Digitalization or Corms facilitates the collection of data for epidemiology and clinical studies.

In contrast, EHRs can be continuously updated. The ability to exchange records between different EHR systems (Interoperability) would facilitate the coordination of healthcare delivery in non-affiliated facilities. In addition, data from an electronic system can be used anonymously for statistical reporting in matters such as quality improvement, resources management and public health communicable disease surveillance (Nainil, 2007).

Ownership of patient's record

Ownership and keeping of patient's records varies from country to country.

In the United States, the data contained within the medical record belong to the patient, whereas the physical form i.e. the data takes belong to the entity responsible for maintaining the record (per the Health Insurance Portability and Accountability Act). Patients have the right to ensure that the information contained in their record is accurate, and can petition their health care provider to amend factually incorrect information in their records.

In the United Kingdom, ownership of the National Health Service (NHS.s) medical records has in the past generally been described as belonging to the secretary of State for Health and this is taken by to mean copyright also belong to the authorities.

In Germany, a relatively new law, which has been established in 2013, strengthens the right or patients, it states, among other things, the statutory duty of medical personnel to document the treatment of the patient is either hard copy or within the electronic patient record (EPR). This documentation must happen in a timely manner and encompass each and every form of treatment the patient receives, as well as other necessary information, such as the patient's care history, diagnosis, findings, treatment results, therapies and their effects, surgical interventions and their effects, as well as informed consents.

Medical health record information according to Abdulsalami (2013) must include virtually everything that is of functional importance for the actual, but also for future treatment. This documentation must also include the medical report and must be archived by the attending physicians for at least 10 years. The law clearly states that these records are not only memory aids for the physicians, but also should be kept for the patient and must be presented on request.

Accessibility

In the United States, the most basic rules governing access to a medical record dictate that only the patient and the health-care providers directly involved in delivering care have the right to view the record. The patient, however, may grant consent for any person or entity to evaluate the record. The full rules regarding access and security for guidelines of the Health Insurance Portability and Accountability Act (HIPAA) is

being improved internationally. The rules become more complicated in special situations.

Capacity

When a patient does not have capacity (is not legally able) to make decisions regarding his or her own care, a legal guardian is designated (either through next of kin or by action of a court or law if no kin exist). Legal guardians have the ability to access the medical record in order to make medical decision on the patient's behalf.

Destruction

In general, entities in possession of medical records are required to maintain those records for a given period. In the United Kingdom, medical records are required for the lifetime or a patient and legally for as long as that complaint action can be brought. Generally in the UK, any recorded information should be kept legally for 7 years, but for medical records additional time must be allowed for a child to reach the age or responsibility (20 years). Medical records are required many years after a patient's death to investigate illness within a community (e.g. Industrial or environmental disease or even deaths at the heads of doctors committing murders, as in the (Harold Shipman Case).

Data breach

Given the series of medical data breaches and the lack of public trust, some countries have enacted laws requiring safeguards to be put in place to protect the security and confidentiality of medical information as it is shared electronically and to give patients some important rights to monitor their medical records and receive notification for loss and unauthorized acquisition or health information.

METHODOLOGY

Non experimental descriptive study design using survey was adopted. This is because it involves no administration or treatment as is found in the experiment; the aim is to describe what exists with respect to the variables or conditions in a situation. The study population involves 36 staff of Health Information Management in various departments of ABUTH, Zaria; starting from School of Nursing, ABUTH, Zaria; School of Midwifery and Post Basic Nursing ABUTH; School of Health Information Management, ABUTH Zaria; School of Medical Laboratory Technology, ABUTH Zaria School of Biomedical Engineering, ABUTH Zaria; Residency, Training Programmes ABUTH Zaria. The research instrumentation use was a structured questionnaire for collecting relevant data pertaining to the research topic. The data collected was analyzed using tabulation and simple percentages.

Response rate

A total of 36 questionnaires were distributed and retrieved from the field. The 36(100%) were duly filled, retuned and found usable for the study. From Table 1a; it can be observed that 22 respondents representing 61.11% are aware and use electronic health record, while 14 respondents representing 38.89% were undecided, those undecided could be taken to be, not in use since the medical records cut across various department/schools under ABUTH like school of nursing, school of midwifery etc. Hence, from the findings one can clearly say that majority of the respondents are aware of the electronic health records in ABUTH, Zaria. Table 1b; observe the respondents views on the existing electronic health record in ABUTH, result revealed that 8 respondents representing 22.22% agree that there is an existing electronic health record in ABUTH, while 19 respondents representing 52.78% disagree and 9 respondents representing 25% were undecided. This implies that majority of the respondents disagree on the fact that there is an existing electronic health record in ABUTH. From Table 1c, it can be observed that 18 respondent representing 50% agrees that electronic health record have an implication in the healthcare service, while 10 respondents representing 27.78% disagree and 8 respondents representing 22.22% were undecided. However, based on the findings result shows that majority of the respondents agree with the assertion that electronic health records have an implication in the healthcare services.

Table 1d; The opinion of the respondents were seek whether the EHIM system was very complicated and cumbersome to operate, result revealed that 19 respondents representing 52.78% agreed that the system is very complicated and too cumbersome to operate, while 11 respondents representing 30.56% disagreed and 6 respondents representing 16.67% were undecided. From the finding, one can conclude that majority of the respondents affirmed that EHIM system is very complicated and cumbersome to operate. From Table 2a; it can be observed that 20 respondents representing 55.56% agrees that Application of Electronic Systems in the Management of Patient Records in ABUTH, Zaria has benefits while 9 respondents representing 25% disagree and 7 respondents representing 19.44% were undecided. This can be summarized that ABUTH have qualified users of HER among Staff in the Health Information Management Department. From Table 2b, it can be observed that 23 respondents representing 63.89% opine that electronic system takes too long to upgrade a file, while 6 respondents

Table 1a: What is the level of Use of Electronic Systems in Management of Patient Records in ABUTH

Options	Respondents	Percentage (%)
Level of Use	22	61.11%
Not in Use	-	-
Undecided	14	38.89%
Total	36	100%

Table 1b: Respondents view on whether there is *an* existing electronic health record in ABUTH

Options	Respondents	Percentage (%)
Existing	8	22.22
Not Existing	19	52.78
Undecided	9	25
Total	**36**	**100%**

Table 1c: Respondents views were seek on the implication of electronic health record in the healthcare services.

Options	Respondents	Percentage (%)
It has Implication	18	50
No Implication	10	27.78
Undecided	8	22.22
Total	36	100%

Table 1d: Respondents opinion were seek if EHIM system is very complicated and too cumbersome to operate

Options	Respondents	Percentage (%)
Cumbersome	19	52.78
Not Cumbersome	11	30.56
Undecided	6	16.67
Total	36	100%

Table 2a: What are the Benefits of the Application of Electronic Systems in the Management of Patient Records in ABUTH, Zaria?

Options	Respondents	Percentage (%)
It has Benefits	20	55.56
No Benefits	9	25
Undecided	7	19.44
Total	**36**	**100%**

representing 16.67% disagreed and 7 respondents representing 19.44% were undecided. From the findings, it is clear that majority of the respondents disagreed with the electronic system, hence it takes too long to upgrade a file. Table 2c, is on prompt access to patient's record. Result shows that the respondents 30 representing 83.33% agreed that there were accurate and prompt access to patient's record despite the epileptic power supply, while 6 respondents representing 16.67% disagreed. From the research analysis, it is believed that majority of the respondents were of the view that the epileptic power supply in the country alter the accurate and prompt access to patients record. Table 2d, dwells on the duplication of laboratory test result as regard to whether electronic healthcare record can reduce duplication of laboratory test result. The result shows that 26 respondents representing 72.22% agreed that EHR can reduce duplication of laboratory test result, while 10 respondent representing 27.78% disagree. It is clear that, those who agreed have the highest percentage as of the

Table 2b: Respondents opinion on whether the electronic system takes too long to upgrade a file?

Options	Respondents	Percentage (%)
Easy upgrade of file	6	16.67
Uneasy upgrade of file	23	63.89
Undecided	7	19.44
Total	36	100%

Table 2c: With the epileptic power supply in the country will there be accurate and prompt access to patient's record?

Options	Respondents	Percentage (%)
Prompt access to patient's record	30	83.33
Unable to access patient's record at good time	6	16.67
Undecided	0	0
Total	36	100%

Table 2d: Does EHR reduce duplication of laboratory test result?

Options	Respondents	Percentage (%)
Yes	26	72.22
No	10	27.78
Undecided	0	0
Total	36	100%

Table 3: What are the Challenges to Effective Application of Electronic System in the Management of Patients Records in ABUTH, Zaria.?

Options	Respondents	Percentage (%)
Epileptic power supply	12	33.33
Lack of staff training and retraining	10	27.78
Lack of maintenance culture	14	38.89
Total	36	100%

Table 4: Improving the accuracy and clarity of medical record can EHR reduce the incidence of medical errors? (Strategies).

Options	Respondents	Percentage (%)
Yes	29	80.56
No	7	19.44
Undecided	0	0
Total	36	100%

time of this research.

Table 3; observed that 14 respondents representing 38.89% agreed that Lack of maintenance culture are the major effect of Electronic System in the Management of Patients Records, while 12 respondents representing 33.33% opine epileptic power supply, 10 respondents representing 27.78% posit impromptu staff training and retraining. This implies that majority of the respondents revealed that, Lack of maintenance culture, epileptic power supply, lack of staff training and retraining are amongst the challenges of Application of Electronic System in the Management of Patients Records in ABUTH, Zaria.

From Table 4, it can be observed that 29 respondents representing 80.56% agreed that EHR can reduce the incidence of errors by improving the accuracy and clarity of medical records, while 7 respondents representing 19.44% disagreed. Again, most respondents opined that EHR can reduce the incidence of errors by improving the accuracy and clarity of medical records.

DISCUSSION

From the findings 22 respondents representing 61.11% are aware and use electronic health record, while 14 respondents representing 38.89% were undecided, 8 respondents representing 22.22% agree that there is an existing electronic health record in ABUTH, while 19 respondents representing 52.78% disagree and 9 respondents representing 25% were undecided. It can be observed that 18 respondent representing 50% agrees that electronic health record have an implication in the healthcare service, while 10 respondents representing 27.78% disagree and 8 respondents representing 22.22% were undecided. The opinion of the respondents were seek whether the EHIM system was very complicated and cumbersome to operate, result revealed that 19 respondents representing 52.78% agreed that the system is very complicated and too cumbersome to operate, while 11 respondents representing 30.56% disagreed and 6 respondents representing 16.67% were undecided. it was observed that 20 respondents representing 55.56% agrees that Application of Electronic Systems in the Management of Patient Records in ABUTH, Zaria has benefits while 9 respondents representing 25% disagree and 7 respondents representing 19.44% were undecided. 23 respondents representing 63.89% opine that electronic system takes too long a time to upgrade a file, while 6 respondents representing 16.67% disagreed and 7 respondents representing 19.44% were undecided.

The result shows that the respondents 30 representing 83.33% agreed that there were accurate and prompt access to patient's record despite the epileptic power supply, while 6 respondents representing 16.67% disagreed. The duplication of laboratory test result as regard to whether electronic healthcare record can reduce duplication of laboratory test result. The result shows that 26 respondents representing 72.22% agreed that EHR can reduce duplication of laboratory test result, while 10 respondent representing 27.78% disagree. 14 respondents representing 38.89% agreed that Lack of maintenance culture are the major effect of Electronic System in the Management of Patients Records, while 12 respondents representing 33.33% opine epileptic power supply, 10 respondents representing 27.78% posit impromptu staff training and retraining. The results shows that 29 respondents representing 80.56% agreed that EHR can reduce the incidence of errors by improving the accuracy and clarity of medical records, while 7 respondents representing 19.44% disagreed.

Conclusion

During the research, the researcher analyzed the raw data from the area of study and show that Assessment of e-Health Information Management System can never be under estimated on enhancing effective and efficient healthcare system. The start-up cost, through adaption of full integration of health delivery processes, organizational fear for change, government policies, unavailability of resources among others are a major barriers to the implementation of an EHR system in the healthcare sector.

Recommendations

Based on the investigation and findings, the researcher recommended that the management and the government have a greater role to play through the following:

(i) Providing Internet resources and computer.
(ii) Providing adequate release of funds to purchase and maintain ICT tools.
(iii) Training / retraining of Health records personnel on computer hands on.
(iv) Provision of regular power supply and promoting good organizational design.
(v) Good maintenance culture to ensure its efficiency.
(vi) There should be proper maintenance of the databank to avoid system breakdown.
(vii) Each healthcare organization must determine the steps and policies that are medical as it evolves into using a fully functioning EHR.
(viii) Healthcare organization should ensure that the quality integrity of the health records remains intact during transition process.
(ix) The transitions from paper-based to electronic health records (EHR) must be addressed and managed on different levels such as the administrative, resources, financial and infrastructure.
(x) A focus on patient safety, best practices and return on investment and case of end-user.
(xi) System should also be easy to navigate.

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