Management of Electronic Records for Service Delivery at the University College Hospital, Ibadan, Nigeria

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Chapter 11
Management of Electronic Records for Service Delivery at the University College Hospital, Ibadan, Nigeria

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EXECUTIVE SUMMARY

Healthcare providers have, over the years, struggled with the management of patient records. The struggle became exaggerated as information became increasingly large and convoluted. The contemporary healthcare environment is characterised by information overload; without the proper organisation of information resources, access to valuation resources can become an albatross, if not properly managed. Health information is the data associated with the medical ailment of a patient's history, containing symptoms, diagnoses, procedures, and results. Quick access to this vital information may be a life-and-death decision that must not be taken for granted. This chapter aims to investigate how electronic records are managed in a contemporary method as adopted by the University College Hospital (UCH).

INTRODUCTION AND BACKGROUND OF THE STUDY

Effective medical record is an enabler of prompt service delivery in a health institution because it contains a critical description of the patient's medical history which includes management and treatment comprising medical procedures and complications a person has experienced. Therefore, it's an essential tool in the management of the patient. Implementation of electronic medical records increases the ease of access to health records, meanwhile handwritten medical records may be poorly legible and constitute problem readability which can lead to medical errors (Luthuli and Kalusopa, 2017).

The notion of Electronic Records management has attracted the attention of wide variety of scholars for instance Corbett, Deardorff & Kovar-Gough (2014) distinguished between Electronic Health Records (EHR) which is a patient's digital medical records which is available via network that can enable information access from different location, on the other hand, Electronic Management Record (EMR) is an electronic and local record within a particular health institution to enable access to patient's information online. The health sector is an information demanding industry in which exact, trustworthy and appropriate information constitutes an essential resource for the establishment and monitoring of service provisions at all stages of health care delivery whether primary, secondary or tertiary level (Oweghoro, 2015).

The implementation of electronic health records (EHR) is of immense advantage in any hospital environment for enabling patient care, stimulating clinical practice, as well as improving patients and service providers' communication and risk error reduction. Besides, caregivers testified to extraordinary levels of satisfaction and general reliability of the system by embracing Electronic Health Records. Regardless of the benefits, the application of EHR system is happening at a slow pace to become fully incorporated in into different levels of clinical management (Seri, Nurussobah and Ahmad, 2018).

Electronic Health Records have positive influence in health care delivery, it has a significant effect on data quality by recording patient information, this automated storage of patient information enables prompt and timely access to information which could assist in speedy health care provision which is capable of improving treatment outcome by reducing errors and having access to patient health history to promptitude of decision. (Hamade, 2017: 9). As a result of the importance of electronic records in health facilities, it is also imperative for health care providers to expand the application of this technology by incorporating new and enhanced EHR features because computer software program entails persistent monitoring and maintenances, interrupting the use of these facilities could upset and hamper workflow in health care delivery. Therefore, the accessibility of technical support is vital for the uninterrupted use of this modern facility (Hamade, 2017: 9).

One of the significant challenges facing record keeping is the repeated modifications in software and hardware which often time put pressure on the managers of this records, in terms of migrating to a new platform, which warrant exposure to new training skills, storage media deterioration and the problem of rapidly changing storage devices. It requires the effort of records managers to ensure the integrity of the records after constantly changing the device that hosts the health records throughout the life cycle of the information (Yaya et al. 2015: 9).

Management of Electronic Health Records (EHRs) is a contemporary software application used in a health institution, which requires computer operating skill to manage. This skill, even though it is essential, is not common among health care providers in developing countries (Hamade, 2017:8). Given this, the foremost barrier to the use of EHRs is the appropriate skill necessary for the utilisation of the resources. Utilising the essential module of the EHRs is to acquire a good understanding of the integrated management system that will promote the seamless operation of the application software to optimise the advantage and enhance continuous information flow in the health institution (Price and Singer, 2013). Using this application software warrant the use of basic computer understanding combined with the familiarity with features and structures of the electronic health records system. Other challenges are the time required to earn the knowledge of the application and its effects on personnel, periodic disruptions and regular interval of delays in schedule activities as a result of learning new skills (Price and Singer, 2013).

CONTEXTUAL OVERVIEW OF ELECTRONIC RECORDS MANAGEMENT

The teaching hospital is a sanatorium affiliated to a University established to deliver medical training to health professionals, which also include conducting medical research. Apart from offering professional training to medical students, teaching hospitals also treat and attend to a wide variety of ailment. The Health Records Department of the University Teaching Hospital (UCH) has been in existence since the commencement of the Hospital in 1957. This Department has subdivision in all of the Outpatient Clinics of the Hospital which are handled by an experts in Health Records Personnel. The health records officers have role and responsibilities which include the maintenance of health record policies, educating the hospital staff about the polities, coding of clients' diagnosis and medical procedures, collection, storing and preservation of patients' information, managing of data to protect the legal interest of the hospital, patients and medical staff, maintain hospital statistics and finally to safeguard the medical records of discharged patient in line with the law. The School of Health Information Management, University College Hospital,

Ibadan, was started in 1976 to provide the above-identified services (University Teaching Hospital Ibadan, 2017).

Based on available information there is no evidence that there exist comprehensive policies and procedures for the management of information life circle in health facilities in Nigeria; therefore the extent of records health management is relatively low in relation with developed countries. Patient records are stored in paper form, because there are no established guidelines on preservation, discarding and destruction of health records in Nigeria health facilities. Few health facilities implement their policy in organising their health records; the implication is that patient health records are not accurately managed (Oweghoro, 2015).

SIGNIFICANCE OF THE STUDY

This study is vital because of the contribution to the body of knowledge; this research added to the scarce body of expertise in the area of health records management in Nigeria. This research will inform action, learning, accountability, and funding allocation decisions. Appropriate literature in the field of health records management was evaluated and reviewed to bring out what is novel, recognise a gap in research, and analyse and appraise the existing study to uncover strengths and weaknesses of the subject matter. The study likewise makes several recommendations that can enrich the practice of records management in a health institution. The research also added value that will enable policy change without going through the tedious bureaucratic mean of policy change.

Objectives of the Study

The aim of this study is to explore the Management of Electronic Records for Service Delivery at the University College Hospital Ibadan, Nigeria. The objectives of the study are to:

i.   Investigate the challenges and possible solutions of records management in the University College Hospital.
ii.   Examine the Records management policy framework at the University College Hospital.
iii. Identify types of records created in the University College Hospital.
iv.   Evaluate electronic records management system in the University College Hospital.
v.   Identify strategies used to create, recieve and access electronic records in the University College Hospital.

vi.   Identify skills and competencies for electronic records management in the University College Hospital.
vii. Ascertain the strategies used to ensure security and integrity of electronic records in the University College Hospital.

Methodology

This research was guided by interpretive research paradigm, which is a type of study based on the notion that reality is not singular or objective, but is reasonably depend on personal experiences and social settings (ontology). The interpretive researcher is usually anchored on qualitative research methods and approach, in which interview or observation can be used as means of accessing social realities, through direct interaction to individuals with the purpose of understanding of how parts transmit to a whole (Mackenzie and Knipe, 2006). In this case, an open-ended interview was conducted, which is a free communication that allows first-hand, eye-witness accounts on the subject matter of the research (McQuerrey, 2015). Interviews were used as a means of data collection from the Senior Health Records Officer in the Health Record Department of the University College Teaching Hospital (UCH) affiliated to the University of Ibadan. This Hospital was purposively selected because of its status as one of the foremost in the Country. Interviewing is a technique of conducting investigations about a social environment through one-to-one or with a group, and face-to-face, or electronic means. Having acquired the essential information, quantitative approach was used to present and analyze some of the data. In other words, it is a detailed study of the interaction of people in their natural environment. The reason for this is to enable researchers to understand how people cope with daily activities in terms of how meaning is constructed in their natural setting (Neuman, 2011: 82).

Scope of the Study

The range of this research is restricted to activities that surround the management of health records at the University College Teaching Hospital (UCH) Ibadan. This health institution is affiliated to the University of Ibadan which is the premier University in Nigeria.

DISCUSSION OF FINDINGS

Challenges and Possible Solutions to Electronic Records Management

Respondents were asked to mention the factors that contribute to ineffective and inefficient records management at the hospital. Figure 1 shows that 30 (79%) of the respondents indicated unclear records management policy and procedures to handle electronic records; 35(92%) indicated absence of electronic records management system; 20(53%) indicated periodic records management survey; 30 (79%) indicated inadequate funding dedicated to records management unit.

Figure 1. Challenges to e- records management
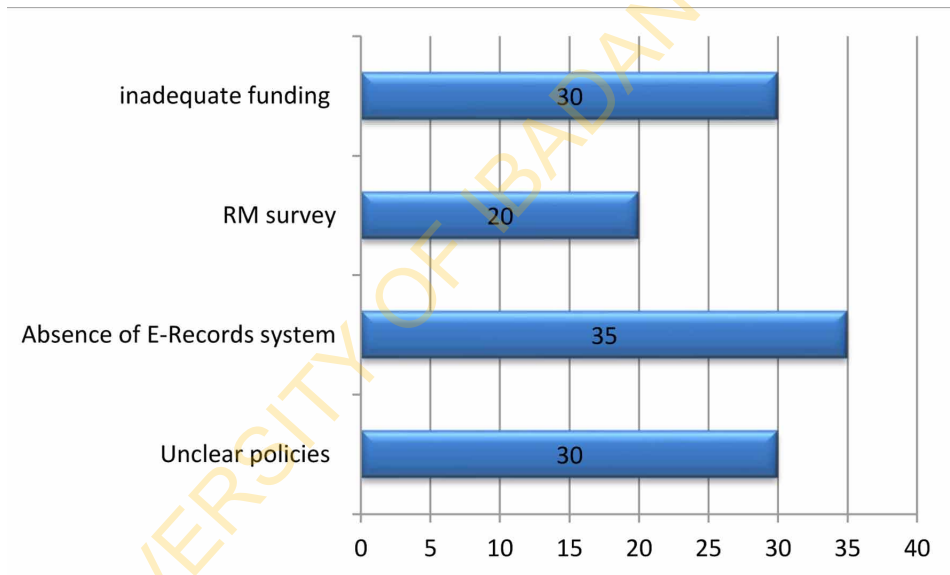
Possible Solutions to Electronic Records Management

Following the cited challenges, the respondents were asked to suggest what they felt could be done to improve electronic records management in the hospital. Their suggestions are shown in Table 1 and represent the views of officers and Records officers concerning the possible solutions that could contribute to the successful management of electronic records.

Table 1 shows that 30 (79%) of the respondents indicated creation of awareness of electronic records to officers, 35 (92%) indicated increased budget allocation for records management unit, 20 (53%) indicated adequate provision infrastructure for electronic records and lastly 30 (79%) indicated enactment of records management policy and procedures.

Table 1. Possible solutions to electronic records management (N38)

Response	Frequency	Percentage
Creation of awareness of electronic records to officers	30	79
Increased budget allocation for the records management unit	35	92
Provision adequate infrastructure for electronic records	20	53
Enactment of records management policy and procedures	30	79

Of the proposed solutions, increased budget allocation for the records management unit was cited by a majority so that the records office would have enough funds for proper management of records. Creating awareness of the value and urgently streamlining the records management practices to meet international standards was also cited as a solution.

Examine the Records Management Policy Framework at the University College Hospital

The study sought to find out if there is any legal and policy framework governing the management of e-records at UCH. These consist of statues, laws, regulations, codes of conduct, best practice guidelines and ethics governing the working environment that relate to records management.

The study findings indicated that the current Records Management Policy does not reflect specific values, principles, aims and objectives of e- records management. Also, it was the view of this study that the policy does not seem to provide the necessary guidance which is expected to assign and define responsibilities and authorities on e-records management to health management officers. Similarly, a comprehensive e-records management standard guideline throughout their continuum was non-existent in this health institution.

The above observation is in line with the recent study by Oweghoro (2015) that there is no all-inclusive policy document and guideline on the management of information life circle in health facilities in Nigeria, the implication is that

patient records are stored in paper form which exposed the vulnerability in terms of misplacement of files, preservation challenges, disposal and damage of health records in Nigeria health facilities.

Research Objective Three: Identify Types of E-Records Created in the University College Hospital

The study sought out to find out the types of electronic records created by officers in the process of carrying out their functions. This question was directed to the senior health records officer to identify the nature of the electronic records created. The findings revealed that UCH's core activities include generating records bio-data, administrative data, clinical information and patient health records. Records produced and received electronically include patient financial records, minutes and reports, email correspondence from within and outside the hospital; pharmacy and drug records; administrative records; nursing and ward records; educational records among others.

An analysis of the business processes at UCH indicates that the institution was generating records electronically. The study observed that at the various UCH departments and administrative offices, computers were used to create and receive records in electronic formats. The study sought to find out the importance of e-records management, majority of the respondence indicated that they enhance faster communication, easy to update and retrieve patient information, they facilitate the production of patients reports and assist in making effective decision in a short period.

Computerisation has led to an increase in paper records that emanates from the printing of e-records. From the respondents' remarks, therefore, it is deducible that e-records contribute to the functions of UCH.

Upholding the above information, Teviu, Aikins, Abdulai, Sackey, Boni, Afari, and Wurapa (2012) confirms that medical records are kept to self the interest of the patient and medical personnel. Appropriate filing of patient's health records guarantees stress-free retrieval system and decreases patient delay at the hospital and stability of care. Furthermore, medical records filing system requires adequate training, logistics and systematic monitoring and management to minimise multiple folders and misfiling of patient information.

Evaluate Electronic Records Management System in the University College Hospital

The study established that numerous strategies were used by staff to manage e-records from creation to disposition. The specific factors investigated were about

e-records: creation and receipt; access; security and integrity; storage; preservation and appraisal and disposition.

Strategies used for managing electronic records are approach designed to address the principles and practice for organising health records within a particular hospital environment. Many organisations can use both computer and paper-based records to maintain patient health information. The strategy institutes and establishes the whole process of information life circle of patient's records. The purpose of managing consistent health records service is to ensure that adequate measures are put in place and at the disposal of health professionals. It also ensures precise and appropriate patient documentation and location to guide the patient care and foster the decision of the health care providers. Other strategies for managing health records entail, managing patient's appointment with the doctors, enabling privacy and confidentiality of patients' records, maintaining accurate records, compiling demographic data, establishment of a managerial facility to react to medico-legal and data requests and every other support to aid health care provision (HYWEL DDA University Health Board, 2018).

ICT Infrastructure and Resources Available to Cater for the Management of Electronic Records

The study sought to determine what ICT infrastructure and resources were available to provide for the management of electronic records. Those who reported they were adequate were (11.5%) while barely adequate were (19.2%). The study findings revealed that management offices had appropriate computers, printers, including internet connection. There was concern about inadequate equipment such as storage devices. The insufficient supply of these devices led to staff acquiring the tools using their own money and treating the information contained in these devices as *'personal information'*. Only (15.3%) respondents reported that the ICTs and resources were adequate while (53.8%) did not respond to the question.

The study established that UCH registries were not facilitated with computers. The records staff interviewed had the perception that registry services were not regarded as important compared to other services. This does not augur well for a hospital such as UCH because essentially, a hospital registry is charged with the responsibility of managing patients records throughout their life-cycle. The study established that the ICT infrastructure and resources available at UCH to cater for the management of electronic records was not adequate. The ICTs and resources that were available were not equipped with electronic records management functionalities.

Reasons that contributed to lack of adequate ICT infrastructure and resources to management of electronic records comprise: lack of financial resources to buy hardware and software, the benefits of using ICT to manage electronic records were

not well recognised, there was a lot of inertia by those accountable for managing electronic records at the hospital and lack of administrative will among those responsible for making policy decisions regarding the management of the hospital records to accord full attention to the use of ICTs in records management.

On the other hand, in regard to upgrading of computer systems, the researchers observed that this was not done frequently. Some offices had computers that were old and slow. The research results revealed that some staff did not migrate data whenever they received new computers, and this had, in turn, led to the loss of vital data. The research also sought to find out whether computers had an electronic document management system (EDRMS) (48%) reported that computers did not have an EDRMS while (25%) reported that computers had an EDRMS. Some respondents (26.9%) were not sure. Although (2 5%) respondents reported that computers had a record-keeping system, the study established that there is an EDRMS system that is used by the hospital. This system is meant to effectively manage electronic patient records.

Identify Strategies Used to Create, Recieve and Access Electronic Records in the University College Hospital

The question was directed to hospital administration staff, registry staff /accounts officers and dispensary staff whose responsibilities include: creation and receipt, use, maintenance and disposal of e-records as part of their day to day work activity at the hospital. The researchers observed that the different offices create and received e-records by using various strategies such as create and save on computer files, create and save on storage devices such as CD and USB, create and make printed copies, receive and save on the computer hard disk, receive and store on storage devices.

It can be concluded from the research findings that majority of the respondents made printed copies of records they created and received. This could be attributed to the fact that despite computerisation of some of the UCH work transactions, the hospital had not done away with the use of paper records as a means of transacting business. Respondents maintained soft copies of the e-records they created and received. Once a printed copy was made of the e-record, the soft copy was no longer considered important to the business transaction that led to its creation or receipt. This can be attributed to the staff's lack of awareness of the importance of e-records as official records. Only a small percentage of the respondents saved e-records on storage media for future reference. The strategies used to create and receive official e-records at UCH were individual measures that were undertaken by the respondents without necessarily involving the hospital. It was apparent, therefore that the creation and receipt of e-records did not adhere to any records management values or strategy.

The study observed that some respondents kept printed copies of electronic records in their office cabinets without essentially filing the records. Paper records had continued to clog the office space, thus, resulting in the inaccessibility of records whenever they were required for reference and assistance of patients — the findings showed that there were no control measures after the creation and receipt of electronic records. Records registration, organisation, indexing and tracking of electronic records were non-existent.

Keeping accurate record forms an integral part of the provision of health care management of the patient and helps the flow of information among the different health management team handling patient's treatment. Precise record-keeping can also assist in protecting health personnel from liabilities that may arise as a result of legal conflict, and enable them to defend the decision.

Strategies Used to Access Electronic Records

Study findings revealed that respondents made printed copies of electronic records and filed copies manually in different folders to make sure that the files are accessible, respondence used storage devices such as memory sticks as a strategy to ensure that whenever the information was required it was available for reference, some of the respondent's back up their records in their different computers, while some of the respondents used e-mail to distribute e-records to staff and users. The study observed that microfilming was used by the X-Ray Department to ensure that x-rays records were made available and accessible whenever required. The study noted that the microfilms were stored in the basement of the administration building at the hospital. The microfilms were exposed to environmental hazards such as water and fire. Microfilming technology has been evolving over the years, and despite these changes, the hospital had not moved the microfilms to newer platforms. Though UCH was making a transition from traditional paper-based records to electronic records, making this information accessible to users and stakeholders was mainly done by maintaining printed copies of e-records. Access to e-mail was minimal because not all staff have access to computers.

The medical records of patients comprise sensitive and confidential information, which contains current and past records of medical history. The constitution of the Federal Republic of Nigeria recognized Freedom of Information (FOI) which was designed to grant unrestricted access to vital information and public records as long as it will not jeopardize public peace, individual right and constitute significant embarrassment to public officers if such information is exposed (Anyanwu, Akanwa; and Ossai-Onah, 2013). Patients have all the rights to the information in their hospital files; nevertheless, the medical records remain the property of the hospital

that created them. The patient can only make copies of any medical records they desire to have at their disposal.

Identify Skills and Competencies for Electronic Records Management in the University College Hospital

The findings revealed that (10.6%) respondents had knowledge and skills in e-records management while (89.4%) comprising general administration, accounts and secretarial staff did not. The (10.6%) respondents who had knowledge and skills in e-records got knowledge and skills from colleges and universities that offered education and training in Information Sciences. The study established that most staff (85.7%) were computer literate and hence, they were able to use computers to create, receive, distribute, store and dispose of e-records but not from a records management point of view. The (10.6%) respondents with knowledge and skills in records management were staff manning UCH registries, however the study established that they were currently incapable of using their knowledge and skills because the registries were not facilitated with computers.

The study established that the head of UCH registry did not have knowledge and skills in e-records management and this had made it difficult for the officer to articulate electronic record keeping and ICT needs of the department among decision-makers at the hospital. Staff are trained from time to time on the use of computers. However, the training provided to staff was not specific to the management of electronic records.

The study sought information from the management staff who were interviewed on where staff obtained professional knowledge and skills specifically, in records management. All (100%) respondents reported that knowledge and skills were acquired through going to tertiary institutions while (75%) respondents reported that staff learnt on the job. Only (50%) respondents indicated that staff acquired knowledge and skills through attending workshops and seminars. The study noted that management staff had the notion that once staff was facilitated with a computer, they were capable of creating, receiving, using and maintaining electronic records. Kemoni (2007) noted that effective management of records was dependent upon staff responsible for records receiving education and training in records management. This study agrees with the author's opinion as records, and especially electronic records management is a specific field of records management, which one cannot grasp through orientation.

Ascertain the Strategies Used to Ensure Security and Integrity of Electronic Records in the University College Hospital

The study sought to establish the strategies that were used to ensure that security and integrity of electronic records was maintained.

The study revealed that all respondents used different strategies such as passwords to protect and ensure the security and integrity of electronic records they created and received electronically; and they use anti-virus; backed up information; physical security (UCH guards) and burglar proofing to safeguard the hardware and software. Entrusting responsibility and authority to people of integrity was another measure used to secure electronic records; this was not a necessity for all staff charged with the responsibility of creating or receiving electronic records. This was done in offices that dealt with sensitive information such as patient records.

The study observed that physical security in some departments was insufficient, and anybody could easily access electronic records. Security was lacking as some staff rarely used their passwords and those who did fail to regularly change their passwords. This had, in turn, led to unlawful access to electronic records, thus, exposing the data to hacking. Viruses were noted to be a security risk to electronic information. Some respondent indicated that many instances where " we have lost data due to attacks by viruses and the reconstruction of this data proved difficult because the paper records could not be retrieved among the masses of paper records that clog our office".

The above comment showed the frustrations felt by some of the UCH staff about the problems they experienced in their work caused by constant virus attacks. As computers take on a larger and larger share of business transactions at UCH, the need for data security and integrity has become evident. Hardly a memo, minutes or invoices are written without the assistance of computers. Safeguarding the security and integrity of electronic records is, therefore, crucial due to increased threats to the systems and the records they process, store and transmit. The study revealed that UCH did not have a disaster preparedness plan for electronic records. Although some staff back up the electronic records they created and received, it was done as an individual measure without necessarily involving the hospital. The hospital has a backup system for the network, but there is no policy on how staff and users should backup electronic records.

Maintaining the integrity of health records has become a challenge as a result of its implication for upholding high standards of patient care. The integrity of health records requires the precision of the documentation which includes patient identification and authentication by medical personnel and record improvements. Also, the value of data health records is dependent on accurate information when captured. When inaccurate information is captured the consequence is that the decision of the

medical personnel would be compromised and may result to irreversible adverse effects to the patient (Vimalachandran, Wang, Zhang, Heyward and Whittaker, 2018).

CONCLUSION AND RECOMMENDATIONS

Although electronic records are considered vital to the UCH activities in terms of patient's medical history and decision-making, there was no control measure for ensuring the care of electronic records and their availability over time. Electronic records were not well managed, and the existing strategies used for managing electronic records from creation to disposition were un-coordinated.

Majority of the staff made printed copies of the electronic records they created and received, and once a printed copy was made, the soft copy was no longer considered vital to the particular business transaction that led to its creation or receipt. The strategies used for managing electronic records were not effective, and this has led to the loss of vital information and hampered accessibility to records over time. The study made recommendations, which include:

- Staff responsible for records should be equipped with knowledge and skills in electronic records management;
- Staff/users should be equipped with ICT skills to enable them to work in an electronic environment;
- Hardware and software should be distributed evenly to all departments and administrative offices;
- Storage media should be provided to deter staff from personalizing official information stored in the storage media;
- Computers should be continuously upgraded to avoid hardware and software obsolescence and;
- The hospital should raise awareness amongst staff on the importance of managing records, among others.

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