

Influence of Preservation and Conservation of Records Practices on Healthcare Delivery System in Nigeria

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ABSTRACT

The influence that proper preservation and conservation, practices will have on health records will determine the sustainability, availability and access for use in health care sector. Health records play a significant role in improving the quality, safety and value of health care services. In recent times, health records have improved health care services, reduce medical errors and provide safety benefits due to development approaches undertaken by introducing electronic health records (her) system in the public health sector. There are cases where the absence of records at the time of assessing a patient will negatively affect appropriate testing, drug administration and patent treatment. It then means that health records facilitate good care, allow subsequent care giver to understand patient condition, allow basis for the current investigation or treatment provided, show method of communication with other team members, satisfy legal ethical and legislative requirement as evidence. Quality patient record is defined by how it is being processed, preserved and conserved, hence the concept of preservation and conservation of records have to be taken seriously. Many reasons for record deterioration should be given serious attention. Some of the reasons for deterioration of records are due to nature of records and nature of materials that are used for creation of records. For instance many records are created on the paper materials that are acidic. Other causes are excessive temperature and relative humidity, excessive exposure to light, air pollution and water as well as destruction caused by biological agents such as moulds, insects etc. Utilization of preserved and conserved patient information is very important in meeting user's need and also satisfying the objective of the organization. Due to incomplete, inaccessible and poorly maintained patient records in most of the tertiary health institutions in Nigeria, lack of information has become a hindrance to efficient delivery of health care, hence preservation and conservation of records encompass a series of activities designed to extend life expectancy of records and facilitate long term accessibility to the information therein.

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INTRODUCTION

In the health sector, good and quality healthcare service delivery is based on proper keeping of health records and quality of healthcare services rendered to the patients. A healthcare service is rendered to cure illnesses and health conditions, to prevent future healthcare problems, to reduce pain and

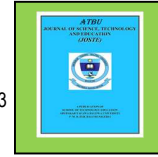
increase quality of life, and sometimes to obtain information about patient's health status and prognosis. According to institute of medicine (2001), healthcare delivery is described as the degree to which health services for individuals and populations are rendered and to know the desired health

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outcomes and consistent with current professional knowledge.

The World Health Organization (WHO) (2008) defined healthcare delivery system as a "situation where care providers have effectively established close relationships and used mechanisms for communicating and working to coordinate patient care across health conditions, services and care setting overtime." WHO made it clear that the proper practices and use of records within healthcare systems will determine the systems effectiveness in detecting problems within the health sector. Anderson (2003) agreed with the World Health Organization that proper practicing of health records system raises the question of how relevant the quality of health information is and its impact on effective healthcare service delivery. The healthcare delivery system in Nigeria is composed of a three tier structure which is owned, implemented and maintained at the federal, state and local government levels.

According to Federal Ministry of Health (FMOH) (2005), the federal government is responsible for tertiary healthcare which comprises teaching and specialist hospitals as well as federal medical centre. These facilities are referral centre's receiving referrals from secondary and primary healthcare centres, the federal government is also responsible for setting the overall healthcare policies and providing technical support to the healthcare system. The state government is responsible for secondary healthcare which is essentially the general hospitals. The state government is also responsible for the regulation and provision of technical support for primary healthcare, while the local government is responsible for primary healthcare which is organized through the wards, health districts and health centre. Therefore, good healthcare service is very essential and it cannot be properly delivered if there is no improvement in effective and efficient records keeping following adaptation of standardized preservation and conservation practices. For this reason, the role of proper records keeping cannot be overemphasized.

Records which are described by Quazi (2008:20) as "the glue holding the health sector together and as the oil keeping the

health system running are a valuable resource because of the information they contain and high quality services rendered". In addition, Logan (2001) identified records as important documents that have value when they are accurate, up-to-date and accessible when needed. Mann and Williams (2008) opined that records serve as learning, legal and reimbursement tools which need to be kept properly for both formative and summative assessment which promote patient safety, continuity of care across time and care settings and support the transfer of information when the care of a patient is transferred.

Campbell (2006) opined that healthcare services delivered to patients are due to the availability and accessibility of patients' health records provided and on many occasions when accessibility, availability and proper utilization of health records are denied, good healthcare services can be stalled. Mishra (2009) also considered healthcare as a continuous process in which information is progressively accumulated, therefore records must function as a pre-birth to post-death system that meet the requirement for any clinical services. The importance of health records in healthcare delivery has been recognized for a long time, its relevance to patient care and health administration cannot be underestimated (Terry, 2001).

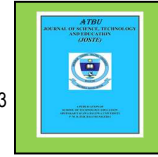
Ideally the health records should be the primary repository of all information regarding patient care, provide decision support and be a tool for supporting and maintaining ancillary healthcare activities such as administration, quality assurance, research and epidemiology. The influence that proper preservation and conservation practices will have on health records will determine the sustainable availability and access for use in healthcare sector. Health records play a significant role in improving the quality, safety, and value of healthcare services. In recent times, health records have improved healthcare services, reduced medical errors and provided patients safety benefits due to development approaches undertaken by introducing Electronic Health Records (EHR) system in the public health system. This innovation is a welcome development, but how far have preservation and conservation

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practices been adapted in order to ensure its sustainability. Obviously, improving healthcare services will lead to significant proper keeping of health records. Good and quality healthcare services rendered can be achieved by complete, accurate and availability of health records in all our health institutions.

The issue of records keeping in the healthcare service delivery sector is very important, Akanji (2006) asserts that the services of healthcare rendered to the clients provide data for statistical evaluation of cases to determine the strength and weaknesses of treatment processes, provide information for training and educating healthcare providers through seminars or workshops, to protect the legal interest of patients, hospitals and health professionals against litigation, serve as reference services where physicians can refer to previous cases to treat current and future ailment and provide information for research. Olivia (2012) supported the view that health records serve a number of important functions such as an archive of important patient document for use by other healthcare providers and patient, source of data to access performance in practice such as treatment of specific chronic medical conditions, as the documentation of clinical decisions and educational and evaluative purposes and provide means of communication to facilitate the safe care and treatment of patient. No organization can achieve its goals without maintaining its records and these records are the strong backbone of the entire operation of healthcare service delivery. Therefore conservation and preservation of records are necessary.

Gunter and Nicholas (2005) define health records as a systematic collection of information about individual patients or populations. Huffman (1990) supported the view that record is a primary repository of information including medical and therapeutic treatment and intervention for the health and well being of the patient during an episode of care and informs care in future episode. He established the fact that the health record is a documented account of a patient history of illness, healthcare plans, health investigation and evaluation, diagnosis, care, treatment, progress and health outcome for each health

service intervention or interaction. Kerr (2008) agreed that it can be used for communication with external healthcare providers, statutory and regulatory bodies in addition to facilitating patient safety improvements, investigation of complaints, planning and audit activities research (subject to ethics committee approval as required), education, financial reimbursement and public health services. Finally it can promote safety and effective communication with the healthcare team (National Academy of Medical Science 2009).

Also, they are records that are collected and being shared across different healthcare setting. These records can be created either as tangible object such as case notes/folder that contain all texts, diagnosis, treatments, nursing care, auditing, post clinical records, personal records, administrative records, financing and audit and others as they affect the lives of patient. Records started as information created, received and maintained as evidence or as information by an organization or person in pursuance of legal obligation or in the transaction of business. In a health organization where inadequate records are being delivered, it can have a direct adverse effect on the lives and well-being of citizens, especially the poor and uneducated person. In the hospital where healthcare records are incomplete, inaccessible and poorly maintained, and where there is no preservation and conservation practice in place, information can become an impediment to efficient delivery of high-quality healthcare.

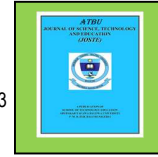
It has been noted that many tertiary health institutions in Nigeria have not been able to tap into its full potential to improve on healthcare services. In view of this, access to patient information are often times difficult and cumbersome which has cost them a huge fortune yearly due to duplication and waste of resources. There are cases where the absence of records at the time of assessing a patient will negatively affect appropriate testing a patient, drugs administration and patient treatment. In view of this, records are required to deliver effective treatment and to provide the data from which information is extracted and aggregated for health planning, delivery and monitoring process at local, regional and national level. The Canadian Medical

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Protective Association (2015) asserts that health records facilitate good care, allow subsequent care giver to understand patient condition, show basis for the current investigation or treatment provided, show method of communication with other team members, satisfy legal, ethical and legislative requirement as evidence.

McDonald, Chace and Jain (2014) opined that records may be termed as any information and document kept in a systematic, scientific and easy way that can be retrieved when required. Similarly health record is also a systemized way of storing the required data, information and other relevant document with the objective of making easy availability of necessary data at the time of its need. With the increase in the demand for high quality medical services, there should be need for proper and effective keeping of records which should be paramount in the hospitals by introducing preservation and conservation policy. Above all, most of our health institutions have not been able to keep their health records properly to improve on healthcare delivery because of lack of preservation and conservation policy put in place which causes waste and unavailability of information that can enhance good healthcare delivery and for these reasons many challenges have been facing healthcare industry.

In addition, Ball (2003) identified that preservation and conservation of records in healthcare services are one of the major prerequisites to improve the quality of patients' treatment. However, due to lack of preservation and conservation of records, it is generally difficult to provide records for secondary use. There are different types of records used in healthcare sectors which include admission registers, patient case notes, nursing charts, x-rays films, investigation forms, financial records, personnel records, patient index/records, pharmacy/drugs records, pathological specimen, central administrative records etc. Okelo (2014) describes records as "a subset of patient information and record keeping requirement demand that it should be managed and maintained with authenticity and reliability that is, with high quality. Marinic (2015) affirm that records serve as the basis

for realization of individual rights, both in civil and legal transactions as well as the exercise of rights relating to privacy; record helps patient to acquire the right and apt treatment. Moreover, it acts as a tool for the doctor who is consulting with the patient.

In addition, health records stated how qualitative information is gathered to determine eligibility for insurance payment and for documenting the extent of injuries or the quality of care, for use in legal proceeding. According to The Canadian Medical Protective Association (TCMPA) (2015) health records may be used to provide data for evaluating the quality and appropriateness of care for pre review, accreditation, or other quality assurance programme and for authorities. With the advent of integrated healthcare organization, clinical record has become information source for analyzing the resource requirement, outcome and profitability of healthcare practices. Also patient health records could serve a range of purpose apart from diagnosis, treatment provision and other importance mentioned above, for example information could be used to improve education efficiency within healthcare system.

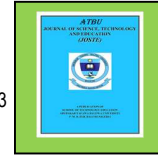
According to Hodge (2003) healthcare providers may use records to manage their operation to access service quality and to identify improvement opportunities. Furthermore healthcare providers may share records through a regional health records organization to facilitate care services. Medical information of patient also used for common good through federal and state government intervention reporting, public health management hospital accreditation, medical research and for management social and welfare system. The health records are often the first significant materials to be scrutinized in various ways, like medico-legal matters, billing audits and other proceeding undertaken in the delivery of patient care. It is a good practice to maintain records, in order to have access to information when the need arises. Over the years, there have been many damages in health records library at the University College Hospital, Ibadan due to improper keeping of health information and most crucially of all, no policy has been put in place to introduce good health

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records management. Therefore, proper management of health records and accurate comprehensive records keeping are essential to effective patient care and continuity of care between different health professionals.

Statement of the Problem

Record is subject to loss because of the improper keeping of information. On many occasions patient suffer when records get missing and this has sent many into their early graves. Lack of information flow has affected the accessibility and utilization of health records in the treatment of people that have challenges in the hospitals. It has become obvious that improper keeping of patient's health records has reduced the quality of healthcare rendering in the hospitals which has great effect on efficient and effective healthcare delivery. It has been observed that many of Nigerian health institutions lacked proper method of keeping records because of non-availability of preservation and conservation policy on ground. This brings a lot of problems like inadequacy of information, duplication of records, loss of records which are some of the factors that inhibit good and proper records practices.

Also, health institutions did not give proper recognition to the records managers to encourage them to take cognizance of the need to preserve, conserve and restore the patient records when it is necessary. If records are not well protected physically throughout their life-cycle, they will not survive long enough to serve their purposes of providing evidence of present and past activities. Health records should be maintained and sustained in spite of the environment, weather variations, pest infestation and man-made disasters. Therefore, adequate professional training and continuous preservation training should be given to the records staff in the form of seminar and workshops. As we cannot undermine the importance of health records in healthcare delivery, therefore this study will focus on the influence of preservation and conservation of records on healthcare delivery in selected teaching hospitals in South West, Nigeria.

Objectives of the Study

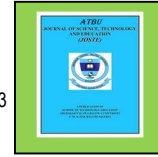
1. To assess the current practices of preservation and conservation of records in the University of Ilorin Teaching Hospital.
2. To determine the impact of record preservation and conservation on healthcare delivery in the hospital.
3. To identify challenges faced in preserving and conserving healthcare records within the hospital.
4. To propose recommendations for improving record preservation and conservation practices in the healthcare sector.

Research Questions

1. What are the existing practices of preservation and conservation of records in the University of Ilorin Teaching Hospital?
2. How does proper record preservation and conservation influence healthcare delivery in the hospital?
3. What challenges are encountered in preserving and conserving healthcare records within the hospital?

LITERATURE REVIEW

Maravilla (1994) states that preservation includes all the managerial and financial considerations including storage and accommodation, provisions, staffing levels, policies, techniques and methods involved in preserving health records and the information contained therein." Feuder, cited by Akande (2009) opined that preservation is indeed a central issue in all our tertiary health institutions and one which will continue to be of concern to the end of this century and beyond. Therefore, the importance of preserving and conserving health records which is the strong back bone of the hospitals cannot be over emphasized. Alegbeleye (2012) pointed out that preservation is necessary to prolong the life span of materials, posterity, reduce cost and for research purpose. Supporting the above statement, Adeleke, Olusanya and Lateef (2011) are of the opinion that there should be awareness of the various agents of



deterioration of health records and the possible methods for their preservation.

Basically, the primary issues in preservation of records is the need to prolong the life of patient records by taking appropriate preservation and conservation measures that retard the deterioration of records of patients and the organization as a whole at any point in time but unfortunately, most of them are deteriorating and the problems of preserving them becomes acute because of many enemies of information materials.

Preservation of record encompasses a series of activities designed to extend the life expectancy of record and facilitate long term accessibility to the information contained therein. This presents a serious challenge for the healthcare industry, in that the process itself is complicated and requires consideration of a series of actions to be taken before such records can efficiently be preserved for future use.

Sarika (2014) defines preservation as an activity associated with maintaining records for use either in their original format or in a form more durable, through retention under proper environmental conditions or actions taken after the documents has been damaged to prevent further deterioration. Conservation is the use of physical or chemical methods to ensure the survival of records and other documents. Preservation and conservation are used synonymously. Conservation is an aspect of preservation. It implies the active use of preventive measure or process to repair damaged material and ensure continuity in existence of individual items (Jaw and Lasen 2013).

The art of preservation is as old as human civilization itself. It is a way said to be derived from the instinct of self-preservation common to all animate beings (Sarika, 2014). Preservation can be seen as a branch of information science that is concerned with maintaining or restoring access to records through study, diagnosis, treatment and prevention of decay and damages. It is necessary in the hospital as records are memory of the internal and external transaction of an organization. Technically, preservation has different implication though they are related to conservation. They are ways of

keeping an object safe from harm, loss, damage, destruction or decay and maintaining it in a reasonably sound condition for present and future use (Ovowoh and Iwhiwhu, 2010).

Preservation deals with regular maintenance whereas conservation deals with curative treatment. The preventive measure can extend the useful life of records and it is usually much more cost effective than curative measure. It is necessary in the hospital to practice preservation and conservation method in record-keeping as records are memory of the internal and external transaction of an organisation (Mecuri 2004).

Barakasi (2000) stated that preservation of health records enhances easy access to patient information. The information that are assembled in a note, referral letters from health centres or family doctors about patient are kept together in a file for continuity of care. Osundina (2007) supported this view by refer to health records as all information collected, processed and held in both manual and in electronic formats pertaining to the patient and patient care which includes demographics, unique identification numbers, clinical data, images, investigations, correspondences, and communications relating to the patient and his/her care. In view of this, health record is designed to provide an overview of the patient's state of health before, during and after treatment. However, a health records in hospital organization is the systematic and consistent control of all records pertaining to patient care throughout their life cycle (Smith, 2002).

Concept of Health Records

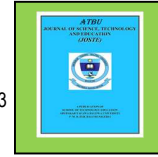
The health records existed as a feature of patient care since 3000B.C. when the Egyptians started keeping the oldest form of health records (Huffman, 1993). He asserted that the contents of health records based on the doctors treatment given to the patients including advice on nutrition. According to Splegel and Spruger (1997). Diseases, causes, treatment and therapy outcomes were collected and recorded as health records. They established the facts that four principle modern health records were identified and the modern records resembles those both in substance as well as in functions, they are; the

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case records that looked like dairies, the bedside charts on which an individual patients vital signs and observations were recorded, the physician request notes used for communication of directives about patient care to staffs member and financial ledger in which doctors charges and transactions were recorded. As a result of expansion of science, Sand (2006), Kolawole (2015), Popoola (2002), and Osundina (2014), established the fact that there were increase in the value of accurate health records and there is much broader concept than in the past because then, it was the doctor alone who recorded information (Bain, 2000). Health records are the most important data base of health treatment of the patient, different authors defined health records in different ways.

National Academy of Medical Science (NAMS) (2009), defined health records as a documented account of a patient history of illness, healthcare plans, health investigation and evaluation, diagnosis, care, treatment, progress and health outcome for each health services intervention or interaction. They also considered it to be used for communication with external healthcare providers, statutory and regulatory bodies, investigation of complaints planning audit activities research (subject to ethics committee approval as required), education, financial reimbursement and public health. Maxwell-Stewart (1996) refers to record as a valuable resource that capture patient data, analyze the date and ensures the information are use for decision making for best healthcare. AHIMA (2010) affirmed that health records are kept for a number of reasons, the key one being to support patient care and continuity of care. Health records officers saddled with the responsibilities to plan information systems, develop health policy, and identify current and future information needs. In addition, they may apply the science of informatics to the collection, storage, analysis, use, and transmission of information to meet legal, professional, ethical and administrative records-keeping requirements of healthcare delivery (WHO, 2010).

Influence of Health Records on Health Care Delivery

Teorey (1999) defines records as information created, received, and maintained as evidence and information by an organization or person, in pursuance of legal obligations or in transaction of business because it serves as organizational memory and are used to support organizational management. Cox (2001) stated that the evidential value of a record can only exist if the content, structure and context are preserved and conserved. Department of Human Services (DHS) (2006) makes it clear that records provide evidence of the hospital's accountability for its actions and they form a key source of data for medical research, statistical reports and health information systems. It is still common in many hospitals to give each department total autonomy in the management of its records. Unfortunately, the decentralization of records care often leads to poorly designed filing systems, loss of information, premature destruction or unnecessary retention of records and ultimately to inefficiency and wasted resources (Dimick, 2008).

Walsham (2002) opined that it is important that the record which compiled and kept in a file is evidence of clinical transactions that occurred while a patient was in the health system must be properly managed, preserved and conserved for future references. He also emphasized that the information filed in the health record is intended to document both the significant events during the illness and the treatments prescribed and carried out during the hospitalization can be suitable and essential to organizations success. Some types of information that can be found in health records include patient demographics, health assessment and nursing care, social and medical history, diagnosis, treatment, test results and post clinical administrative reports are essential tools in running day to day activities of the organization, so it is important to preserve and conserved these records from agents of deterioration (Orlikowoki, 2002).

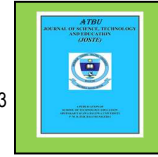
In effect, health records of a patient is the clinical representation of the patient that is built over a period of time by various clinicians with the consent, trust, privacy and confidence of the patient. It enables continuity

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of care and again, overtime, it becomes a comprehensive, clinical database from which various and salient clinical information is gathered through research. Moreover medical records serve many functions but their primary purpose is to support patient care. Mann (2003) and in almost all public health facilities in Nigeria, they are kept in folders. Structuring the record can bring direct benefits to patients by improving patient outcomes and doctors' performance. On the side of patients, the records function as medical identification (Norden 2004). Briyan et.al (2008) supported the earlier submission that health records play a significant role in improving the quality, safety and value of healthcare. He further explained that in the recent past, health records has improved health, reduced medical errors, and provided patient safety benefits. Effective health records preservation policy will save more if it is embraced by health records professionals and the entire organization as a whole.

Strauss and Corbin (1998) mentioned different reasons why records are preserved, the reasons are: legislation, that is; when there is mismanagement of fund in the hospital, business needs; like hospital business transaction, it could be drugs purchase or other transactions within the hospital and cultural and historical needs. Some organizations think some records are not valuable and not useful because they are never searched for again after their operational use has ended. Those records are saved because of their legal value but obviously have low or no business value (Reed, 2005). Above all, patient care will be adversely affected if correct records are not maintained or if records are inadequately managed or if there is no means of coordinating the care the same patient receives in different departments.

Agents of Deterioration of Health Records

Basu (2005:87) defined deterioration as "a change in the original state of any material caused by interaction between the object and the factors of destruction." He stress that the different types of deterioration of the paper-based materials of which comprises of records are reflected in wear and tear, shrinkage, cracks, brittleness warping, bio

infestation, discoloration, abrasion, hole, dust and dirt accumulation. However records are generally susceptible to deterioration by the following agents: environmental (climatic) agents; such as light, temperature, relative humidity, moisture, corrosive ink, dust, dirt and water, biological agents: include microorganisms, insects and rodents, chemical agents, human agents, disasters and environmental agents.

Light

Alegbeleye (2012) asserted that light has a negative effect on information resources including health records. He emphasized that light produces lighting which causes paper materials yellow, whether natural or artificial light, paper gets deteriorate when it exposed to light. He opined that the ultra-violet ray of the sun (UV) is harmful to records. Sunlight especially has a serious damaging effect on written or printed paper materials, the ultraviolet radiation of light are mainly responsible for photochemical degradation of paper which takes place rapidly when some portion of cellulose is oxidized to oxy-cellulose, the long cellulose chains are broken and papers become weak and brittle. He stressed further that artificial light like fluorescent tube light also radiates a high percentage of ultraviolet rays which cause deterioration by yellowing the paper. However, the amount of damage by light depends upon the intensity of light: as the intensity of light increases, the rate of deterioration of the records also increases; duration of exposure: the duration of exposure of paper to light is directly proportional to its deterioration; and the distance from the source of light: the more the distance, the lesser the damage.

Heat

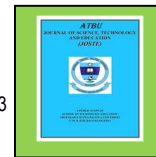
Uniyal (1995) opined that high temperature is as a result of heat which can be measure either in centigrade scale or Fahrenheit scale. He makes it clear that high heat with low humidity causes dehydration of cellulose fibres and the paper becomes brittle and this can make it loose its flexibility to the extent that it tends to crumble on touch. On the other hand, high temperature with high humidity creates the condition for the growth of

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moulds, he finally said that the electric bulbs also generates heat and extreme variation in temperature affects the physical condition of records documents.

Water

Water occurs in all the normal states of matter- solid, liquid and gas. It acts as a physical agent of deterioration by causing hygroscopic materials to undergo dimensional changes. Water which is harmful for the records collection may come from sources like natural calamities, human negligence, from leaking roofs, defective plumbing and through open windows at the time of raining. The effect of water brings about biological attack on paper, rotted leather, smeared ink, weakened adhesive, fungi and rusting of furniture (Hodgkinson and Stewart, 1996).

Temperature

Records deteriorate as a result of complex chemical reactions. It is an established fact in the physical sciences that chemical reactions vary directly with temperature. Thomas (1981) profound that "for every increase of 10 degree centigrade in temperature, the rate of chemical activity greatly double and thus the rate at which paper deteriorate also double. This means that if records are stored at low temperature, their life expectancy will be significantly lengthened. Uniyal (1995) opined that the cause of heat is high atmospheric temperature; it is measured in terms of temperature either in centigrade scale or Fahrenheit scale. He explained that high heat with low humidity causes dehydration of cellulose fibers and the paper becomes brittle. It loses its flexibility to the extent that it tends to crumble on touch. On the other hand, high temperature with high humidity creates the condition for the growth of molds.

Relative Humidity

According to Alegbeleye (2012), relative humidity is the quantity of water in given volume of air compared with the amount the air can hold at that temperature. Humidity is the amount of moisture in the atmospheric air and the moisture is measured in terms of relative humidity. Ogunmodede (2012) also defines relative humidity as the amount of

water vapor in a volume of air expressed as a percentage of maximum to amounts that the air could hold at the same temperature. He emphasized that humidity causes problems if it is either too high or low, it speed up deteriorative chemical reactions, that is, it can offset. Water soluble ink and coated papers can stick together which can make records dry and brittle. Henry (1993) opined that relative humidity below 45% endangers records; on the other hand, relative humidity above 65% will lead to an abnormal increase in bio-infestation (biological activity). All organic objects absorb water to a greater or lower extent and water goes inside the object through surrounding air. He explained further that because of this absorbency property, the paper absorbs more moisture and it speed up. Fiber of paper moisture is the root cause of various types of physical, chemical and biological deterioration of record. It weakens the paper document and makes it so soft, weakens the sizing elements of paper and the spreading of ink accelerate.

Dust and Dirt

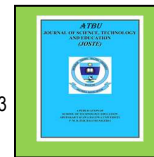
Adeleke, Aina and Lateef (2011) asserted that health record is the back bone of hospitals, so there is need to preserve its contents from dust and dirt; it is described as finedry particles of any matter present in the air which is highly dangerous to health records. It is composed of soil, tar, metallic substances, fungus spores and moisture among other things. Since dust is air borne it settles down on the surface of any object. Gupta (1992) in his own view established that, dust is hygroscopic in nature and when it is mixed with high humidity it is transformed into dirt and if this dirt sticks to the surface of the documents it becomes difficult to remove. Dust and dirt are sources of both physical and chemical degradation of the health records notes, dust acts as a nucleus around which moisture collects and this moisture provides the necessary humidity for the growth of fungus and for chemical reaction which leads to the formation of acids. Since dust and dirt are solid particles of varying size and hardness they exert abrasion on the surface of the papers.

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Biological Agents

Henry (1993) opined that the deterioration caused by biological agents like microorganisms, insects and rodents is known as bio-deterioration. Records and other documents are prone to attacks from these biological agents. He argues that insects flourish at higher humidity can as well damage documents According to Maravilla (1994), condensation or moisture due to high humidity always enhances biological growth such as contain proteins and carbohydrates in form of sizing, paste or starch and other organic substances attractive to insects. Adeleke, Aina and Lateef (2011) supported this view by stating that the nature and extent of damage by biological agents depends not only on the insect and material but also on how promptly the infestation is discovered and controlled. They concluded that common types of insects attack documents are termites, silver fish, cockroaches and booklice, rodents, and others.

Micro Organism

Fungus Alegbeleye (1996) described fungus as a large heterogeneous group or plant organism which its spores are present in the earth, water and the air. It can remain in a dormant state for a long period. These spores sprout and grow when they have the required moisture and heat. The type of fungal that grows where documents are kept is known as mould or mildew and they appear as brown-black vegetable growth on paper, leather and textiles. Fungus consume cellulose and also thrive on nutrients in leather, glues, pastes, binding threads e.t.c, hence they weaken and stain the paper and can cause discoloration. Other micro-organisms that deteriorate the documents include the following: Bacteria besides fungus, bacteria also decompose cellulose in paper and binding textiles. Insects even though there are thousands of insects, only certain insects badly damage the records. Other materials are silver fish, cockroaches, bookworms and termites.

Silver fish the main source of these insects are food materials like starch, glue and gelatin which are used in paper as sizing materials. Dust and dirt also attract this insect; they are found on dark places and are active at night only. Silver fish do not have wings and

are silvery or pearl gray in color and about 8 to 10mm in length. They eat the surface of the paper and also eat gum from postage stamps, envelopes e.t.c. They bore holes in paper, prints, photographs, index cards and images. They lay eggs on the cabinets, shelves, drawers and so on (Uniya 1995).

Cockroaches are common all over the world. They are brown or blackish brown in color. They eat paper, book binding fabrics and other organic materials. They are frequently found where documents are kept and are very active during the night. They live in corners which are damp, cleavages and in wooden cupboards. They excrete a dark-brown liquid which leave stains on the paper and becomes difficult to remove.

Book worms or book beetles bookworms affect very much documents as the name suggests, they feed on paper and damage the paper extensively. They lay their eggs on the edge of papers and surface of collection of documents.

Book lice they are found in dark dusty areas filled with unused papers and documents, dampness and warmth are essential requirements for the growth of book lice. They are gray or white in color, they injure the bindings of books by eating paste and glue and also eat the fungus formed in between the edge of inner cover of the documents.

Termites or white ants they eat wood and paper and can attack any type of material containing cellulose. If once they start destroying the documents they can do irreplaceable damage in no time. They leave mud encrustation on the attacked materials (Basu, 2005).

Weaker (1995) explained that they are of two categories like earth dwelling termites and wood dwelling termites. Earth dwelling termites live in the soil and in the libraries, their presence can be noticed by their mud tunnels on the walls, book cases and furniture while wood dwelling termites lives above the ground and enter the building through cracks and openings.

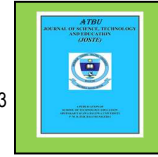
Rodents: rodents include mice, rats, squirrels and many other species. Mice and rats are mainly found in libraries and find their way into building through openings in doors and windows. In libraries they eat and destroy

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materials made up of paper, cloth, leather, glue, e.t.c. these animals are swift to move and hide in dark corners.

Chemical Agents

Adeleke, Aina and Lateef (2011) affirmed that acid is the arch enemy of records because it is a direct cause for hydrolysis. Hydrolysis is a chemical product. It contaminates paper and makes it lose its strength thereby increasing discoloration. However, Weaker (1995) establishes a direct correlation between paper acidity and longevity. He asserted that the more acidic the paper the more short lived it is. Hence, Alegbeleye (1996) agrees with other investigators that for permanence, PH should be below 5.4. In other words, PH of 5.4 and below is considered as being very acidic which can shorten life expectancy of health records.

Sahoo (2000) also opined that in manufacturing papers, fibers are used with low cellulose contents and some chemical deterioration of their valuable documents. He stressed that there are other chemicals that constitutes major threat to documents such as oxides of carbon, sulphur, nitrogen and hydrogen sulphides. He said that sulphur dioxide is hazardous to cellulose materials like paper which is used to clerking patient. The most familiar effect of these chemicals on these records is brown brittle edges of papers.

Human Factors

Aside the environmental and chemical factors of deterioration of documents, a serious cause of deterioration often are non-challant attitude of staff as well as information users. According to Adams (1973) people pose the most constant threats to records, actions that may be considered abusive includes careless or rough handling. Ogunmodede (2012) affirmed that men are questionably the greatest enemies of the records on which they write patient information. He further reported that improper and faulty actions taken by the staff may cause deterioration to documents, such as, accumulation of dirt and dust from poor or careless housekeeping practices, introduction of food stuff to storage and filling areas, entry of insect-infested items into the documents, open windows, air vents or poorly

sealed windows and doors, unattended roof leaks and cracks in a deteriorated building and poor ventilation. In addition cheap and improper materials are often used for documenting patients; wrong insecticides are used for fumigation, repairing, restoration and lamination which are usually done by untrained personnel. And all these conditions cause deterioration or worse aggravated deterioration of records (Wamukoya, 2000).

Disaster

This is an unexpected event whose outcome is destructive. According to Adeleke, Aina and Lateef (2011), disaster either natural or man-made pose the ultimate threat to records. Disaster is defined differently by different authors, Alegbeleye (1993) defined disaster as an event that "result in the sudden removal of records and document from accessibility and use" stating further that the disaster can be regarded as an occurrence that temporarily or permanently render information contained in document inaccessible. A disaster can be seen as an overwhelming ecological disruption occurring on scale sufficient to require outside assistance at all time of happening. The Oxford Advanced Learners Dictionary (TOALD) (2004) defines disaster as unexpected event such as a very bad accident, flood or fire that kills many people or causes serious damage. Disaster can occur rapidly, instantaneously and indiscriminately (Khan, 2008). Since this is possible a disaster management plan should factor in speed in the management of disaster as they occur in other to minimize the effect on health records.

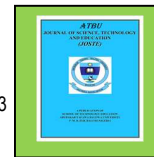
The results are immediate, calamitous and dramatic. In any business organization, there is a likelihood of fire as the documents used are often organic in nature, once fire starts it is difficult to save those documents and any items not directly engulfed in flames can be charred by soot and smoke. Alegbeleye (1993) supported the point that disaster can result from fire, flooding, storms, cyclones, earthquakes or broken pipes and no user of health records can be exempted from the devastation that can occur as a result of natural or man-made disasters. He opined that vigilance, preparedness and recovery plans are the best guards against disaster.

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METHODOLOGY

The primary research instrument for this study was structured questionnaires distributed to Health Information personnel in the University of Ilorin Teaching Hospital. The questionnaires will be designed to gather relevant data regarding the preservation and conservation of healthcare records and its impact on healthcare delivery.

The collected data was analyzed using descriptive statistical methods. The results will be presented in graphical and tabular forms to provide a clear and comprehensive understanding of the findings.

This section will present the analyzed data and discuss the findings, relating them to the objectives of the study. It will highlight the influence of record preservation and conservation on healthcare delivery and address identified challenges.

The research findings will include insights and observations gathered from the study's data analysis and discussions, shedding light on the state of record preservation and conservation within the University of Ilorin Teaching Hospital and its effects on healthcare delivery.

CONCLUSION

Health records has been described by so many scholars as the "glue" holding the health sector together and as the "one" keeping the health system running because of the information they contain and high quality services it renders in health care. Records need to be kept properly for both formative and summative assessment which promotes patient safety, continuity of care across time.

The influence that proper preservation and conservation practices will have on health records will determine the sustainability, availability and accessibility to records for patient's health care. Since preservation and conservation of records in health care services are one of the major pre-requisites to improve the quality of patients treatment, all efforts are to be put in place to ensure that health records are kept in safety condition for the benefit of the patients, the health care providers, the researchers, the government and the society at large.

The different agents of deterioration of records which are identified are to be monitored closely. Some of those agents of deteriorations are moulds, algae, water, high temperature etc.

Since preservation and conservation was set out mainly to ensure survival of information, then all hands must be on deck to see to the safety of health records in all our health care delivery system. Preservation and conservation of records is there sacrosanct in our health care industry.

RECOMMENDATIONS

Based on the research findings, recommendations will be proposed to enhance record preservation and conservation practices in the University of Ilorin Teaching Hospital and, by extension, the Nigerian healthcare sector. These recommendations will aim to address challenges and promote efficient healthcare record management.

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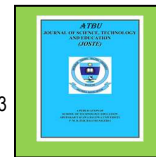
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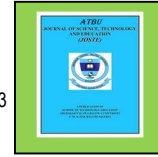
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