The Use of Information and Communication Technology in Hospital Records Management: A Case Study of General Hospital, Katsina

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Abstract

The major purpose of this study was to find out the use of information and communication technology in hospital records management for sustainable development. In carrying out this study three (3) research questions were posed. The entire population which consisted of all fifty (50) record staff in the General Hospital, Katsina was used because of the smallness of the population. Instrument used for data collection is questionnaire titled: Use of ICT in Records Management Questionnaire (UICTRMQ). Respondents' responses were used to answer the research questions and the data were analyzed using frequency and percentages. The major findings of the study revealed that: ICT is used in keeping patients master index which view patient records as the first interface in all the departments in the hospital. ICT has improved staff effectiveness in the performance of their duties. There is high level of awareness among the recordkeeping staff regarding the use of ICT for record keeping. Some staff were trained in the use of ICT for record keeping. ICT equipments were inadequate. There is shortage of power supply. Human resources were not enough. Record staff lacked funds for maintenance of the few ICT infrastructure. Manual methods of record keeping were used along with the computers. Based on the findings, it was recommended that Katsina State Government should provide adequate funds for the management of General Hospital, Katsina to enable them purchase more ICT facilities for the Record Department. That there is need for regular power supply, that more staff should be recruited and trained in the use of ICT for record keeping.

Keywords: ICT, hospital, records management, sustain ability, master index.

1.1 Introduction

Despite commitment to the principles of sustainable development, action has not moved beyond the margins and certainly has not led to the case changes needed to support a transition to development that is sustainable. A change in orientation to adapt to digital mode of operation from analogue is

imperative. Hence there is need for the use of information and communication technology for record management in General Hospital, Katsina.

In the view of Soar, Gow and Caniogo (2012), ICT is the acquisition, analysis, manipulation, storage and distribution of information, the design and provision of equipment and software for these purposes. Information and communication technology (ICT) provides the best opportunities for developing countries for sustainable development to meet up with the developed world and provide its citizens with greater opportunities than ever before.

Moore (2009) stated that information and communication technology (ICT) has been referred to as a key investment in healthcare delivery and public health internationally. Bukachi and Pakenham-Walish (2007) opined that ICT can improve access for geographically isolated communities, provide support for health care workers, aid in data sharing, provide visual tools linking population and environmental information with disease outbreaks, and it is an effective electronic means for data capture, storage interpretation and management. In their context, ICT for health refers to any tool that facilitates the communication processing by electronic means for the purpose of improving human health.

Hospitals deal with the lives and health of their patients. Good medical care relies on well trained doctors and nurses and on high-quality facilities and equipment. Good medical care also relies on good record keeping. Without accurate, comprehensive, up to date and accessible patients' case notes, medical personnel may not offer the best treatment or may in fact misdiagnose a condition which can have serious consequences. Associated records such as X-rays, specimens, drug records and patient registration, must also be well cared for if the patient is to be protected. Good records care

also ensures that the hospital's administration runs smoothly. Unneeded records are transferred or destroyed regularly, keeping storage areas clear and accessible, and key records can be found quickly, saving time and resources. Records also 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.

In many hospitals each department is given autonomy to keep records of its department. Unfortunately, this decentralization of records often leads to poorly designed filing systems, lose of information, premature destruction or unnecessary retention of records and ultimately leading to inefficiency and wasted resources. Patients care will be adversely affected if correct records are not maintained as when records are not adequately managed. Structured and effective records management programme covering all departments should be part of activities of all hospitals. Comprehensive records programme will in no small measure aid in ensuring that staff have access to clinical information and administrative records on a broad range of issues including policy precedents, legal right and obligations, personnel and financial obligations that can be defended when the need arises.

Managing hospital records addresses specific issues involved in managing clinical hospital records, indicating where particular approaches are needed to meet specific requirements of records service within the hospital. In the General Hospital Katsina one should reasonably assume that the record keepers are effectively utilizing ICT in performing their duties. But the researcher's interview with some record officers in the hospital showed that many of them are still using manual method of record keeping. The researcher's was worried about the non- total application of ICT in recording keeping. The

researcher therefore became interested in this topic in order to make in-depth study on the extent of use of ICT in record keeping in the records department of the General Hospital, Katsina.

1.2 Objectives of the study

The general objective of this study was to ascertain the use of information and communication technology for records management in the General Hospital Katsina. Specifically the study was designed to:

1. Determine the use of information and communication technology in the management of hospital records.
2. Find out the level of awareness by hospital staff in the use of ICT for records management.
3. Find out constraints to the use of ICT for hospital records management.

1.3 Research Questions

The following research questions guided the study:

1. What are the uses of ICT in the management of hospital records?
2. What are the levels of awareness by hospital records staff in the use of ICT for records management?
3. What are the constraints to the use of ICT for hospital records management?

2.1 Review of Related Literature

2.2 Health Records Management Programme

Many authors and scholars have written on health records management system. Heath records management programme is done in various ways in different area of the world. In the view of Cosmas and Herselman (2008), hospitals are information intensive enterprises. Hospital managers must understand that only those with vast knowledge of information management can have a smooth running of the enterprise. Yeo (2010) stated that records provide evidence of the hospital's accountability for its actions and they form key source of data for medical research, statistical reports and health information systems. A comprehensive records management programme will aid staff to have access to clinical information and to administrative records on a wide range of issues such as policy, precedents, legal rights and obligations, personnel, buildings, equipment and other resources. Besides keeping records needed for their duties, proper records management will enable the hospital meet up with its legal and financial needs and can defend its actions when necessary.

Sharon, Jennifer and Diana (2012) opined that managing hospital records addresses specific users involved in managing clinical and non-clinical hospital records, indicating where particular approaches are needed to meet the specific requirements of a record service within a hospital environment. In the view of Fuji and Galt (2008) the major effect of the use of ICT in record management on patient safety and quality of health care delivery is its increasing role of compliance with guideline or protocol-based care of the patients.

Sekoni (2010) asserted that the growth of information and communication technology in the 1980s with improvement in information literacy saw the advent of the first breed of hospital information systems. According to him, researchers in hospital information systems categorized hospital information system into three types: consumer informatics, medical and clinical informatics and bio informatics based on areas of application. Consumer information focuses on communications between patient and the public.

According to Sekoni (2010), consumer informatics helps to create virtual communities for sharing of health care

information. Medical and clinical informatics applications related directly to health care organizational processes, structure, and clinical outcomes. Electronic medical records system is a major medical and clinical information system aimed at lowering cost of health care therapies. In its earliest applications, hospital information systems, were mostly used for patient's electronic records keeping, but has advanced into almost all areas of medical discipline. Common applications of hospital information technologies include computerized physician order entry, pharmacy information systems, laboratory information systems, radiology information system and picture archival and communication systems telemedicine and many others as these technologies are constantly evolving.

William and Boren (2008) acknowledged that most European countries and United States are increasingly adopting electronic medical record (EMR) technology to enhance health care outcome and quality. William and Boren posited that Nigeria lacks robust healthcare infrastructures and policies for implementation of information and communication technology (ICT). Complicated by challenges of epidemics and civil wars, African countries lack ICT in their health care systems. The authors asserted that historically, lack of human expertise and inadequate financial resources is a bane to robust adoption of ICT in sub-Sahara Africa.

2.3 DONAK Medical Records System

Okeke (2009) introduced the DONAK Medical Records System Software (DMRS-2010tm) which offers an easy to use suite of health records software modules relevant in general hospitals, teaching hospitals, orthopedic hospitals and health centres. The system runs on the popular Microsoft Windows environment and is designed to utilize the power and capabilities of today's windows-based programs.

The design of the system is menu driven and user friendly. The friendly nature of the system is due to the incorporation of reference (parameter) tables discussed below. Enough security and control features are designed into the system to check possible abuses and/or mistakes by operators of the system. There are levels of authorization and each level is in line with usual manual security and control procedures.

DONAK medical records system is designed for health institutions that desire to have value for their money. These are institutions that know and treasure the value of timely and comprehensive health records information in effective health management of patients. The system consists of the following family members:- -
General patient records
- Disease/operation diagnosis
- Library
- Statistics
- Ante-natal
- Accident and emergency
- Eye clinic
- Dental
- Pediatrics
- Ear, nose and throatThe DONAK medical records system will generate the following standard reports as recognized by the Federal Ministry of Health national health management information system health facility summary report:
❖ Monthly summary antenatal care and pregnancy outcome (NHMIS/ANC/001)
❖ Monthly summary of in-patient cases (NHMIS/IPC/001)
❖ Monthly summary of in'-patient deaths (NHMIS/IPD/001)
❖ Monthly summary of out-patient attendance (NHMIS/IPD/001
❖ Monthly notification of diseases (NHMIS/DSN/001A)

❖ Monthly summary of routinely notifiable disease (NHMIS/DNS/001)

Other statistical reports to be requested are:
  Benefits of Hospital Information Systems
  Improve Quality

2.4 Importance of Automated Hospital Information System

Automated hospital information system can help improve quality of care because of their far-reaching capabilities. An example is the HELP system, one of the first information systems in a hospital to combine the use of computers for storing and transferring information with using them for giving advice to solve clinical problems. In addition to alerting physicians to abnormal and changing clinical values, computers can generate reminders for physicians. For example problems, computer workstations can integrate patient records, research plans, and knowledge databases. Computers and databases can be used to compare expected results with actual results and to help physicians make decision. The lives of patient can be improved if they use computer systems to obtain information, make difficult decisions, and contact experts and support groups (Sisniega 2009).

In the view of Kola, Shoewu and Segun (2013) when a physician orders a test by computer, it can automatically display information that promotes cost-effective testing and treatment. Physicians ordered 14 percent fewer tests per outpatient visit when using computer workstations at a large primary care facility in Indianapolis workstations showed prior test results, predictions of abnormal results, and test prices. Ouma and Herselman (2008) asserted that the applications of information and communication technology facilitate ubiquitous and instantaneous communication between organizations and their stakeholders. ICT enable people and organization to achieve seamless workflow and effective processes through improved interactions. Electronic health technologies enable effective networking by physicians, allow online review of patients' treatment, and provide for accurate prescription of drugs. Radiology information systems enable the transmission for radiological images for evaluation in remote sites (Weimar, 2009).

As rightly observed, Ouma and Herselman (2008), view Nigeria as a heterogeneous society with significant disparity in accessibility of health care facilities between urban and rural communities. Sammon and Leo (2009) associated patient data analysis systems (PDAs) with enhanced storage and analysis of patient data enabling physicians to reach improved clinical decisions on patient care. Health care policy makers seeking ways of improving quality of patient care at a reduced cost are leveraging hospital information systems to achieve these objectives. Similarly, clinical information systems capture clinical data to enhance prompt and efficient decision making (William and Boren 2008).

Electronic physicians order entry and medication reconciliation helps patients to understand better, the beneficial effect of drugs and deleterious effects of drug misuse (Kramer, Weger and Sharma (2013). Fuji and Galt (2008) opined that more than 1.5 million united state residents suffer injuries from prescription errors and other medical errors annually. To err is human, the authors suggested that the above figure might represent only a fraction of patients exposed to adverse medical errors when patient's own mix up is taken into account. Fuji and Galt (2008) surmised that some elements of hospital information system increase patient participation in care process; thereby reducing unwanted outcome of treatment. Electronic interchanging between entities helps avoid

delays in the approval process and decrease the possibility of poor outcome because of a delay in treatment. Information technology enables decisions made on organizational processes to be timely and effectively disseminated to the workforce.

In the same vein, Sharon, Jennifer and Diana (2012) emphasized that electronic health record (EHR) systems enable hospital to store and retrieve detailed patient information to be used by health care providers, and sometimes patients, during a patient's hospitalization over time and across care settings. An EMR is an electronic medical record of a patient and the history of health and medical care that is used by practitioners including doctors, healthcare facilities and insurance companies. Embedded clinical decision support and other tools have the potential to help clinicians operate safer, more effective care than is possible by relying on memory and paper base systems.

Finally, Ayodele (2011) identified hindrances to the adoption of hospital information systems in Nigeria to include: the high cost of full implementation of a hospital information system, inadequate human capital, corruption, and problems associated with poor infrastructure in Nigeria.

3.1 Research Methodology

Case study research design was used to carry out this study because the study is geared towards understanding the use of information and communication technology in hospital records management for sustainable development. Benard (2012) attested that case studies are those studies which usually provide thorough, in-depth, comprehensive and well ordered information concerning the social unit in question. The target population was the entire fifty (50) record staff in the General Hospital, Katsina. The entire population was therefore used because of the smallness of the population size.

The instrument was face validated by presenting it to three senior colleagues in the field of library and information science. These experts were requested to examine the clarity of expression used as well the appropriateness of language. The researchers administered and collected the questionnaire from the respondents. Thus there was 100% rate of return. The data from the retrieved questionnaire are therefore analyzed using simple statistics like frequencies and percentages.

4.1 Data Presentation and Analysis

All the 50 (100%) copies of the questionnaire that were administered to the record staff were retrieved. The data from the retrieved questionnaire are hereby analyzed using simple statistics like frequencies and percentages.

Table 1: Frequency distribution of sex of respondents

Sex	Frequency	%
Male	35	70
Female	15	30
Total	**50**	**100**

Table 1 showed that 35 (70%) of the record staff were male while 15 (30%) were female.

Table 2: Frequency distribution of working experience of respondents

Years of working experience	Frequencies	%
5-15	12	24
16-25	14	28
26-35	15	30
36-above	9	18
Total	**50**	**100**

Table 2 revealed that record staff with highest years of working experience were between 26-35 years with 15 (30%) followed by those from 16-25 years with 14 (28%) those that acquired between 5-25 years of working experience were 12 (24%) while those with 36 years and above were with 9 (18%).

Table 3: The use of ICT in the management of hospital records

The use of ICT	Frequency	%
ICT is used in keeping records in all the departments of the hospital	20	40
ICT is effectively used for hospital records management	14	28
ICT has helped in easy input and retrieval of patients records	16	32
Total	**50**	**100**

From the above table it showed that 20(40%) of the record staff agreed that ICT is utilized in all the department of the hospital, 16(32%) of the record staff affirmed that ICT has helped in easy input and retrieval of patients records while 14(28%) of the record staff confirmed that ICT is effectively used for hospital record management.

Table 4 : The level of awareness by hospital record staff in the use of ICT for records management

The level of awareness by hospital record staff in use of ICT	Frequency	%
Hospital records staff are aware of the use of ICT on hospital records management	21	42
Hospital records staff are trained in the use of ICT	15	30
The use of ICT has improved hospital record staff effectiveness in record keeping	14	28
Total	**50**	**100**

From table 4, 21(42%) of the record staff indicated that they were aware of records management. 15(30%) stated they were trained in the use of ICT for records management. While 14(28%) of the record staff elaborated that the use of ICT has improved hospital record staff effectiveness in record keeping.

Table 5 : The constraints to the use of ICT for hospital records management

Constraints to the use of ICT	Frequency	%
Inadequate power supply	10	20
Inadequate training of hospital record staff in the use of ICT for record keeping	14	28
High cost of installation	12	24
System failure	8	16
Cyber crime	6	12
Total	**50**	**100**

Table 5: revealed that t he major constraints hindering the use of ICT for hospital records management is inadequate training of hospital record staff in the use of ICT for record keeping 14(28%). This is followed by the high cost of installation 12   (24%), inadequate power supply 10(20%), systems failure 8(16%) and cyber-crime 6(12%).

Conclusion and Recommendations

From the outcome of the findings, it is established that record staff in the General Hospital Katsina use ICT for records keeping in all the departments. That ICT has helped in easy input and retrieval of patients records. The study also revealed that some members of hospital record staff are trained in the use of ICT. That the use of ICT has improved some hospital record staff effectiveness in records keeping. From the finding of the study it was discovered that some constraints deprive the hospital record staff from effective utilization of ICT in record management, such constraints include: inadequate power supply, high cost of installation, system failure and cyber crime.

Based on the findings of the study, the following recommendations are made:

1. Katsina State Government should encourage the use of ICT in record management in the general hospital through provision of adequate fund to enable the general hospital management purchase the necessary ICT tools for record keeping.

2. Health record staff should be trained on the use of ICT.

3. There is need to update the automated system to avoid frequent system failure

4. All the record functions should be automated. This is because most record staff will prefer and would find it easy to use electronic record management system.

5. The problem of frequent blackouts can be avoided by installing a standby generator that will serve at the times of power blackouts.

6. Frequent consultation between the record management staff with the hospital management will be very helpful to enable the management to get the challenges being faced by the staff. This will enable them handle each issue as it arises hence providing a conducive environment for the record staff.

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