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ELECTRONIC RECORDS ORGANIZATION, ACCESSIBILITY AND UTILIZATION IN PUBLIC HEALTHCARE INSTITUTIONS IN KANO METROPOLIS

BY

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Abstract

This study explored Records Organization, Accessibility and Utilization in Public Healthcare Institutions (PHIs) in Kano Metropolis. The objectives were to find out the procedures used for organizing the electronic records (ERs) in PHIs under study; to find out the extent e-records are accessibility in PHIs under study, the purpose for which the e-records are utilized by the PHIs and to find out the challenges associated with the organization, accessibility, and utilization of e-records in PHIs in Kano Metropolis. Qualitative research methodology was adopted for the study using narrative based-design. Structured interview with open-ended questions was used as instrument for data collection and the population of the study consist of eighty-four (84) participants from nineteen (19) PHIs in Kano Metropolis out of which fifteen (15) participants from ten (10) PHIs were purposively sampled. The data was collected by conducting interviews and analyzed using thematic analysis with open coding. The findings of the study revealed that the PHIs under study use folder, database and metadata to organize their e-records, access to ERs was enabled via different units and also utilized ERs for clinical purposes. Likewise, the challenges associated with the organization, accessibly and utilization of ERs were duplication of effort, lack of skilled manpower and poor network among others while the measures to overcome the challenges were found to be effective network performance, provision of anti-virus, training and retraining of staff etc. The study concluded that PHIs organized, accessed and utilized their ERs with few lapses and recommended training and retraining of staff among others.

Keywords: Accessibility, Electronic Records, Kano Metropolis, Organization, Public Healthcare Institutions, Utilization.

Introduction

The emergence of information and communication technology is changing the ways healthcare institution operates today; these technologies contribute significantly to the rapid transformation of traditional record keeping which led to the advents of e-records. E-records refer to those data or information that are created and retained using computer technology or handheld devices. Unlike traditional records which are static, e-records are dynamic and require more maintenance in order

to ensure effective and efficient accessibility and utilization. Therefore, e-records refer to any information that is recorded in a form that only a computer, handheld devices or electronic machine can process and disseminate the information for use (Festus & Nkezie, 2016).

E-records play a vital role in changing the nature of medical care, reducing medical errors, and fostering information organization, accessibility and utilization. Corroborating the above submission, Mukred and Yusof (2015:3) stated that "e-records reduce costs by volume control, de-cluttering by implementing a records management program, choosing an offsite storage facility for the safe storage of business records, organizations reduce the amount of space up to 40% and helps in speedy retrieval of information in the organization, it provides better customer service and also it helps law compliance and reducing litigation risks". This implies that effective e-records organization prevents litigation risks and drawbacks.

The organization of e-records plays a dynamic role in the provision of healthcare services. Healthcare institutions are regarded as the providers of health services to humanity. In this regard, the organization of e-records is regarded as a systematic classification, storage and maintenance of electronic data or records to ease accessibility and utilization with the use of Electronic Health Record System (EHR) system. In light of this, Idris (2016:65) states that "e-records are organised by way of classifying, controlling and organising them to ease identification, storage and accessibility by end users". This depicts that, the organisation of e-records facilitates easier accessibility.

Access to records is the ability to harness and exploit the vast store of relevant records buried in diverse formats that hold the key to individual empowerment in every part of the world. In public healthcare institutions, access to e-records is a critical aspect of providing timely and quality services. Therefore, it simply refers to the ability of authorized personnel to view, retrieve and share clinical and non-clinical e-records for effective services delivery. Records managers and medical officers tend to use only what is easily accessible. Moreover, it is important to ensure quick access to this information as it is associated with life-and-death decisions that must not be taken for granted (Duradolu, Mamudu & Tsabedze, 2020). Currently, records accessibility in PHIs in kano metropolis reveals significant barriers, health workers often experience delays in retrieving patient files, especially in facilitating with poor storage system or heavy patient volumes. The absence of centralized or digitized systems means that information retrieval is time consuming and error-prone. In facilities where electronic systems exist, issues such as inadequate training,

intermitted power supply and limited computer availability further hinders real-time access to records.

Similarly, utilization to EHRs involves the active use of patient data for clinical administration, research, health planning and policy making purposes. Accurate utilization of records support continuity of care, monitoring of patient outcomes and identification of public health trends. However, despite the presence of health records whether it is electronic or manual, many PHIs in Kano metropolis underutilize this information due to poor documentation culture, limited awareness of data value to clinical records among others, Thus, lack of proper education and training on EHRs can deters its utilization and negatively impact the quality of health documentation (Pugal, Villar & Nashwan, 2021). Additionally, lack of structured data use policies and decision support tools reduces the potentials for evidence-based practices in public healthcare settings. As a result, this, improve patient outcomes, monitor service delivery and inform health policy through data are frequently missed. previous studies showed that nurses were willing to use EHRs system but lacked training and necessary technological devices.

Given this context, the present study examines the organization, accessibility and utilization of EHRs in PHIs in kano metropolis. By investigating the procedures used for organizing the electronic records (ERs) in PHIs under study, the extent of e-records accessibility, purpose for e-records utilization, and the challenges associated with the organization, accessibility, and utilization, the study seeks to contributes to the current improvement of health information systems and support the delivery of more efficient and effective healthcare services in Kano metropolis.

Siang, Prakash and Ramaiah (2010:6) reported that "the level of access is also crucial for e-records. Therefore, some ERs are available only to the public and some to the entire organization or designated people of that organization". However, with the advent of e-records and access to medical information online, there has been an increasing demand from patients to access their health information electronically (Jones, shipman, plant & seldom, 2010). This shows that, integration of ICTs in record management plays a significant impact in enhancing access and utilization for improved care coordination and patient engagement in public healthcare institutions.

In an empirical literature, Ayamolowo, Irinoye and Olaniyan (2023:7) on the utilization of electronic health records and associated factors among nurses in a faith-based teaching hospital, Ilishan, Nigeria found out that majority of participants reported availability of EHR computer software (62.8%), internet facility (84.2%), and desktops (76.3%), but EHR was poorly utilized

(27.3%). Factors significantly associated were nurses who were females (OR (odds ratio) ¼ 1.5, 95% CI (confidence interval), 0.21–11.24), BNSc degrees holders (OR ¼ 4.3; 95% CI, 1.06–17.43]; had computer EHR software (OR ¼ 7.4, 95% CI, 0.83–3.81), and sponsored EHR training (OR ¼ 2.10; 95% CI, 0.24–18.6). Non capturing of nursing tasks and nursing standardized language by EHR software, lack of institutional enforcement on EHR use, and absence of clear EHR policies were the main identified themes for the key barriers to using EHRs. The study concludes that, EHR was poorly utilized among nurses. gender, educational qualification, EHR resources, and sponsored training were factors significantly associated with the use. There is an urgent need for comprehensive EHR packages, sustained sponsored training, and formulation of HER policy for effective EHR implementation.

Related researches were conducted by Duradolu, Mamudu and Tsabedze (2020:210) on management of e-records for service delivery at the university college hospital, Ibadan, Nigeria, revealed that respondents made printed copies of e-records and filed copies manually in different folders to make sure that the files are accessible. 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 e-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.

Statement of the Problem

The deployment of e-records is of enormous benefit in any healthcare institution as it enables effective organization, easier accessibility and utilization of e-records. This is supported by the submissions of Alpert (2018) who stressed that "electronic records of healthcare institutions reduce medical errors, guide patients visit, provide up-to-date information, it has a lot of storage space, fast access, retrieval, evaluation of reports and also helps research activities".

However, due to continued reliance on traditional record-keeping in healthcare institutions, organization, accessibility and utilization of their e-records are hindered by certain problems which have to do with the massive creation of e-records leading to technical challenges in the process of organization. Also, the complexity of e-records, difficulties associated with identification, duplication of copies in the same email and classification in a decentralized computing environment hinder the effective organization of e-records.

Equally, the researcher observed that, healthcare institutions understudy lacked substandard ICT devices while the existing ones are outdated. Meanwhile, these devices serve as the key in facilitating organization, accessibility and utilization of e-records. Furthermore, this problem was exacerbated by lack of proper implementation of the Electronic Health Records (EHR) system in Kano PHIs, while the few facilities that have been implemented these systems often struggle with insufficient training of health workers, inefficiency including delay in accessing patient records, loss of data, low utilization rates as well as inaccuracy that compromised the quality of healthcare delivery. This depicts that, the extent of electronic records organization, accessibility and utilization is comparatively low compared to developed countries (Seri, Nuarssobah and Ahmad, 2018).

In light of the above background, this study seeks to investigate the current state of e-records organization, accessibility and utilization in PHIs in the Kano Metropolis by identifying the barriers to effective-records organization, accessibility and utilization and provides actionable insight that can help to improve healthcare delivery through better management of health information records.

Research Objectives

This study is set to achieve the following objectives:

1. To find out what procedures are used for organizing the e- records in public healthcare institutions in Kano Metropolis
2. To find out the extent of e- records accessibility in public healthcare institutions in Kano Metropolis
3. To find out the purposes for which the e-records are utilized by the public healthcare providers in public healthcare institutions in Kano Metropolis
4. To find out the challenges associated with the organization, accessibility, and utilization of e-records in public healthcare institutions in Kano Metropolis.

Literature Review

Electronic Records Organizing in Healthcare Institutions

Literature indicated the notion of healthcare institutions has considerably changed over the years the modes and forms of records as well as means of organization, accessibility and utilization have drastically expanded. In terms of organization, ERs are easily accessed and utilized because the records are classified and prepared methodically in such a way that users will find information. Freda (2014) sees records organization as the "systematic arrangement of objects, ideas, books, or other items which have qualities or characteristics into groups or classes". This indicates that, organization is the systematic arrangement of records or documents in all media by their subject matter. As such, classification has to do with grouping documents according to their content for easier accessibility and utilization.

According to Afshar and Ahmad (2015) "file classification scheme is a tool that identifies categories for business activities and records as well as grouping them into files for simple access, control and description". The classification scheme makes the titling, retrieval, maintenance and disposition processes easier than before and it is a vital item for any record management program. Siang, Prakash and Ramaiah (2010) opined that "metadata is a contextual information of a record in an institution". Metadata is structured information that enables users to describe, locate, control, and manage information/ records.

Furthermore, Obotu, Solomon and Ogezi (2018) argue that "indexing applications are useful for capturing the metadata of each transaction such as the name of the person retrieving the file, the name of the person requesting the file, the date and time of transaction, and the number of copies generated". This indicates that records can be captured automatically for reporting purposes, creating a verifiable audit trail. Also, a single, reliable, and searchable location for institutional records, can reduce the incidence of lost and misplaced files. The three main approaches/schemes for organizing records are the subject, organization, and function base approach (Akuso, 2014).

Electronic Records Accessibility in Healthcare Institutions

Health records are the data associated with the medical ailment of a patient's history, containing symptoms, diagnoses, procedures, and results consequently, rapid access to this vital record may be a life-and-death decision that must not be taken for granted (Duradolu, Mamudu & Tsabedze, 2020). Siang, Prakash and Ramaiah (2010) reported that "the level of access is also crucial for e-records. Similar to paper records, they can be classified as restricted or confidential". Hence, some

ERs are available only to the public and some to the entire organization or designated people of that organization.

However, with the advent of e-records and access to medical information online, there has been an increasing demand from patients to access their health information electronically (Jones, shipman, plant & seldom, 2010). This indicates that integration of information and communication technologies promote easier access to e-records regardless of time and space by both patients and healthcare professionals.

In an empirical review conducted by Duradolu, Mamudu and Tsabedze (2020) on the management of e-records for service delivery at the university college hospital, Ibadan, Nigeria, they found out that respondents made printed copies of e-records and filed copies manually in different folders to make sure that the files are accessible. Additionally, 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, though UCH was making a transition from traditional paper-based records to e-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.

Equally, another study discovered that, while approximately 86% of US adults rated electronic access to their patient health records (PHRs) as important only 9% of them used the Internet for tracking PHRs (Wen, Kreps, Zhu & Miller, 2010). The utilization of the PHR aspect of My Health Space at the advent of this research was that only 18 out of 654 registered patient users had accessed their PHR (3%) (My Health Space, 2012). (Anyanwu, Akanwa and Ossai-Onah, 2013). Patients have all the rights to the information in their hospital files. However, 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.

Electronic Records Utilization in Public Healthcare Institutions

E-records utilization improves decision-making, collaboration of care and streamlines clinical care by accessing comprehensive medical data by the healthcare professions. E-records utilization by patients encompasses retrieving their medical records for improved communication, self-management, appointment schedules and reminders as well as improving their health literacy and informed decisions. Utilization of e-records by both patients and healthcare professionals fosters a more efficient, patient-centered healthcare environment.

In supporting the above assertions, Ajayi, Adeola, Daniel, Stephen and Gusen (2016:1) conducted a study among nurses at Jos University Teaching Hospital and found that the majority (73.2%) of the respondents knew standardized nursing languages (SNLs). They also adequately use NANDA-I diagnoses but have inadequate usage of Nursing Interventions Classification (NIC) and Nursing Outcomes Classification (NOC) in nursing documentation, for reasons such as inadequate manpower, lack of appropriate equipment, inadequate knowledge etc. More so, there was a significant relationship between knowledge and utilization of SNLs among nurses in Jos University Teaching Hospital (JUTH).

In another empirical review, Waithera, Muhia and Songole (2017) investigated the impact of electronic medical records on healthcare delivery in Kisii teaching and referral hospital (KTRH), revealed electronic medical records (EMR) utilization since 2011 when the use of EMR started in KTRH, the hospital together with the county government have been trying to meet the set guidelines and standards for EMR systems. It was noted that the EMR systems utilized did not support the clinical support functionality. The EMR systems in KTRH to some extent successfully support order entry and prescribing, health information and reporting, supporting confidentiality and security and exchange of electronic information. These functions have been made possible by the organized work-flow among the various departments in KTRH. From the analysis, fun soft was given an average score of 65.4% where patient identification and clinical information functionality was given 66.7%, order entry and prescribing100%, health information and reporting 100%, supporting confidentiality and security 62.5% and exchange of electronic information 28.6%.

Similarly, Gusen, Nanle, Dare, Rufai, Salisu, Umar & Ahmad (2016:1) explored the perception and utilization of standardized electronic health records among nurses in JOS University Teaching Hospital Plateau State, Nigeria. Found out that there was no significant relationship between perception and utilization of standardized electronic health records among Nurses in Jos University Teaching Hospital, Nigeria. In other words, the utilization of standardized electronic health records among nurses in Jos University Teaching Hospital was not dependent on their perception of the subject matter. Also, Ademuyiwa, Faleke & Otetubi (2020) found in their study on knowledge and use of Nursing Informatics among Nurses in a University teaching hospital in Nigeria, that almost all (96%) of overcome barriers affecting electronic medical record usage by physicians revealed that giving monetary incentives can overcome barriers to using EHR by physicians. Therefore,

staff incentive programs such as rewards and benefits are needed to be planned to attract, engage, and retain staff to feel more motivated in doing their best to continuously utilize EHRs (Love, Omolola and Abayomi, 2023).

Methodology

Qualitative research method was adopted for the study using narrative-based design. The population of the study consist eighty-four (84) participants from nineteen (19) PHIs in Kano Metropolis. Out of which fifteen (15) participants from ten (10) PHIs were purposively sampled. Structured interview with open ended questions was used as an instruments for data collection. The data was collected by conducting interviews and analyzed using thematically.

Data Presentation and Analysis

The public healthcare institutions under study were coded from P1 to P15, where P stands for participant and collected data was presented and analyzed in line with the objectives of the study under the following sub-headings:

Electronic Records Organization by the Public Healthcare Institution in Kano Metropolis

In terms of organization of e-records, the participants were asked on how they organize e-records in their healthcare institutions, their responses are categorized into the following sub- themes:

Sub theme One (ST1) - Folder
Sub theme Two (ST2) – Metadata
Sub theme Three (ST3) – Database

The responses of the participants show that all the participants use folders to organize their e-records with the exception of p1, while p2, p3**,** p4**,** p5**,** p11and p13 organize their e-records in databases. P1, p3 and p4 organize their e-record by using metadata.

It is obvious that the PHIs under study use folders, database and metadata to organize their e-records as indicated by the participants. Below are the direct quotations of the participants in the aspect of storage; p5 and p13 reported that they use folders, database and metadata to organize their e-records:

P5*: We organize our radiographic images in folders and databases for easier access and retrieval.*
P13*: The records are organized in folders and databases.*

Electronic Record's Accessibility in Public Healthcare Institutions in Kano Metropolis

On the access of e-records in public healthcare institutions, the participants were asked to express how they enable access to e-records in their healthcare institution, responses were presented in the following sub- themes:

Sub-theme One (ST1) –Internet

Sub-theme Two (ST2) – Intranet
Sub-theme Three (ST3) – Local Area Network
Sub-theme Four (ST4) – Access from Different Unit
Sub-theme Five (ST5) – Direct Access from the Server

The responses of the participants show that p1, p2, p3, p4, p5, p6, p9, p11, p12, and p15 enable access through local area network, while p1, p2, p4, p5, p9, p10, p11, p12, p13 and p15 use Internet. However, p1, p2, p3, p5, p9, p11 and p12 enable access through the intranet. p2, p3, p4, p6, p8, p9, p11, p12, p14 and p15 access from different units. Direct access from the server was reported by p3 and p7 did not respond to the question.

It is glaring to note that the PHIs under study enabled access to their e-records. Below are some direct responses of the participants with respect to access to e-records.

P5*: We enable access to our e-records via LAN, the Internet and intranet within the PHI.*
P6*: Our e-records are accessed through the of LAN and from different unit of the hospital.*

Electronic Records Utilization by the Public Healthcare Institutions in the Kano Metropolis

Based on the purpose of utilizing e-records in the healthcare institutions under study, the participants were asked to kindly express their purpose of utilizing e-records in their healthcare institutions. Their responses are presented in the following sub themes:

Sub- theme one (ST1) -Research Purpose
Sub-theme two (ST2) - Legal Purpose
Sub-theme Three (ST3) -Administrative Purpose
Sub-theme Four (ST4) -Efficiency Purpose
Sub-theme Five (ST5) - Informational Purpose
Sub-themes Six (ST6) - Educational Purpose
Sub-themes Seven (ST7) -Clinical Purpose
Sub-theme Eight (ST8) - Security Purpose
Sub-theme Nine (ST9) -Accountability
Sub-theme Ten (ST10) –Generating Next Procurement.

The responses of the participants concerning to the purposes of utilizing e-records indicated that all the participants utilized their e-records for research purposes. P1, p2, p3, p4, p5, p6, p7, p8, p9, p11, p12 and p13 utilized their e-records for legal purposes. Additionally, p1, p2, p3, p4, p6, p7, p8, p9, p10, p11, p12, p14 and p15 utilize their e-records for administrative purpose. p1, p4 and p6 utilize e-records for efficiency purposes. p1, p2, p3, p7, p11 and p12 utilize e-records for informational purposes. However, p1, p2, p3, p4, p5, p6, p7, p11 and p12 utilize their e-records for educational purposes. P1, p2, p3, p4, p7, p8, p9, p10, p11, p12 and p14 utilize e-records for clinical purpose. P3, p4, and p9 utilize e-records for security purposes. Utilization of e-records for the purpose of generating results for Drug Revolving Fund and forecasting of next procurement was reported by p14 and p15 and only p4 utilized their e-records for accountability purposes.

It is clear to see that the PHIs under study utilize their e-records. Beneath are some of the direct quotations from the participants in terms of the purpose of utilizing e-records:

P10*: Research, administrative and clinical purposes are the main purpose of utilizing our records.*
P11: *We utilize e-records for legal, informational, educational, evidential, administrative, research and clinical purposes such as examination of patient.*

Challenges Associated with E-records Organization, Accessibility and Utilization in PHIs in the Kano Metropolis

The responses of the participants on the challenges associated with e-records organization, accessibility and utilization are categorized into the following emerging themes:

Theme-one (T1) – Lack of Skilled Manpower
Theme-two (T2) – Poor Network
Theme-three (T3) – Computer Reflection
Theme-four (T4) _ Technical Know-How
Theme-five (T5) _ Virus Attack

Going by the responses of the participants on challenges associated with record's organization, accessibility and utilization, p8, p9, p10 and p13 reported technical know - how, while, p14 and p15 reported inadequate skilled manpower, virus attack was reported by p8 and p10, poor network was reported by p1 and p4. However, p2 reported computer reflection as one of the challenges they face in access and utilization of e-records in their healthcare institutions.

Corroborating the above findings, below are some of the direct quotations from the participants where p4, p14and p15 clearly indicated problem of inadequate skilled manpower in their healthcare Institution.

P4*: In this hospital, inadequate skilled manpower is our major challenge*
P14*: Here, we face problem like lack of skilled manpower.*

Measures to Overcome the Challenges Associated with E-records Organization, Accessibility and Utilization in Public Healthcare Institutions in the Kano Metropolis

On the measures can be taken to overcome the above challenges, the participants were asked to suggest possible measures to overcome the challenges associated with the access and utilization of e-records in their healthcare institutions, their responses are categorized as follows:

Sub-theme One (ST1) – Provision of Adequate Skilled Manpower
Sub-theme Two (ST2) – Effective Network Performance
Sub-theme Three (ST3) – Provision of Anti-virus
Sub-theme Four (ST4) – Training and Retaining of Staff
Sub-theme Five (ST5) – The Use of Eye Glasses

Finally, going by the provided challenges, p1, p3, p4, p5, p6, p7, p8, p9, p12, p13, p14 suggested training and retraining of staff as one of the measures to overcome their challenges, while the provision of effective network performance was indicated by p4 and p5. However, the provision of anti- virus was reported by only p8, whereas, the use of eye glasses was advocated by only p2.

From the foregoing, it is evident that the PHIs under study suggest measures to the challenges associated with the management of e-records in their healthcare institutions. Below are some of the direct quotations from the participants on the measures to overcome the challenges:

P1: *Well, the best solution to our problem is training and retraining of staff by organizing conferences, seminars and workshops within and outside the hospital.*

P4*: Here**, provision of adequate skilled manpower through training and retraining and provision of effective network will serve as the solution to the problems.*

Discussion of the Findings

The study titled "Electronic Records Organization, Accessibility and Utilization in Public Healthcare Institution in Kano Metropolis" was aimed to examining how electronic records are organized, accessed and utilized in public healthcare institutions (PHIs) within the Kano Metropolis. Specifically, the study sought to find out what procedures are used for organizing, the e- records in PHIs in Kano Metropolis, to find out the extent of e- records accessibility in PHIs in Kano Metropolis, to find out the purposes for which the e-records are utilized by the public healthcare providers in PHIs in Kano Metropolis and to find out the challenges associated with the organization, accessibility, and utilization of e-records in PHIs in Kano Metropolis.

The findings of the study in terms of e-records organization revealed that the majority of the PHIs in Kano Metropolis organize their e-records in folders, followed by databases and metadata. This negates the findings of Iwhiwu (2010) and Asogwa (2012) who testifies that "institutions and universities in Nigeria organized their e-records in database format". Similarly, Idris (2016) found that "43 (53%) of the respondents indicated creating a database as the method of organizing their e-records while 19 (23%) created electronic folders to organize their e-records".

Furthermore, the finding of the study with regards to access to e-records revealed that PHIs in Kano Metropolis popularly enabled access to e-records through various means, including via different units, Internet, local area network, intranet and in some cases direct access from server. This is possible simply because all the participants are computer literate. This multi-layered approach facilitates timely access to information, promotes workflow efficiency and support real-time decision-making. The result support the work of Durodolu, Mamudu and Tsabedze (2020) who found that "access to e-mail was minimal because not all staff have access to computers in University College Hospital, Ibadan. The study further established that most staff (85.7%) were computer literate. 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".

Moreover, on the purpose of utilization of e-records in PHIs under study, evident that, they all regularly utilize their e-records for research, legal, and administrative purposes. The finding was successful as the primary goal of every PHIs was undertaking research in almost all their activities, especially in the clinical aspect. However, the non-clinical aspects give more priority to on utilizing their records for administrative purposes. Healthcare practitioners depend heavily on these records to tract patient histories, monitor treatment progress and make informed clinical decisions. The findings align with that of Mohammad (2015) who discovered that "records in the state legislative houses of North Western Nigeria are basically used to facilitate decision making which has 44(25.0%). It is also used for verification/clarification of information with 11 responses (6.3%)". The responses further clarify that 39 (22.2%) accepted that "records in the state legislative houses are used for research purposes". The implication here is that legislative records are not made public or easily accessible to any researcher. On the contrary, the findings of this study disagree with those of, Nanle, Dare, Nanbur, Rufai, Salisu, Umar and Ahmad (2016) who revealed that the "majority of the respondents (75.4%) were not utilizing standardized electronic health records".

However, the study identified notable challenges associated with e-records organization, accessibility and utilization in the PHIs under study includes, poor disposal, complexity of r-records, poor maintenance culture, duplication of effort, encounter the problem of poor network, computer reflection, poor preservation culture, inadequate skilled manpower, technical know-how and virus attack. These findings are supported by that of Khalifa (2013) who suggested "the need to develop and enhance the taught computer science courses in medical schools, nursing education, and the training curriculum of other future healthcare workers". Corroborating the above submission, Sani, Manohar and Alkali (2017) on the factors hindering the adoption of electronic health records in Nigeria discovered that "lack of limited computer skills, poor electricity supply and lack of constant Internet connectivity, lack of prioritization of electronic health records, lack of effective network performance, and inadequate facilities to run the system are the major barriers hindering the adoption of EHRs in Nigeria".

The implication of the findings for healthcare practitioners and records managers in the PHIs, these findings underscore the need for strategic investments in infrastructure, especially in stable internet connectivity, power supply and server management. It also highlights the importance of continuous professional development and training staff to navigate electronic records systems will

not only increase efficiency but also reduce reliance on manual processes, minimize errors, and ensure better patient care.

To address these issues sustainably, PHIs should consider training and retraining of staff, effective network performance, provision of anti-virus and the use of eyeglasses as well as working with ICT experts to design user-friendly systems tailored to the institutional environment, as well as advocate for increased budgetary support from government and stakeholders for technology upgrades. These findings are supported by that of Khalifa (2013) who suggested that "the need to develop and enhance the taught computer science courses in medical schools, nursing education, and the training curriculum of other future healthcare workers".

Conclusion

Finally, the study confirmed that the PHIs in the Kano Metropolis organized their e-record in folders, databases and metadata and also enable access and utilize the e-records in different ways for different purposes. Furthermore, the findings revealed that despite the availability and use or electronic records, there are still challenges such as inadequate poor disposal, complexity of r-records, poor maintenance culture, duplication of effort, encounter the problem of poor network, computer reflection, poor preservation culture, inadequate skilled manpower, technical know-how and virus attack which need to be addressed to enhance the efficient and reliability of e-records management and utilization of electronic records in public healthcare institutions.

Recommendations

Based on the findings of the study, the following recommendations were offered:

1. There is a need for the heads of PHIs in Kano Metropolis to make possible efforts to ensure the provision of skilled and knowledgeable staff that will serve as e-records managers through regular training and retraining by attending lectures, seminars, conferences and workshops.
2. The management of the PHIs in Kano Metropolis need to provide reliable Internet connectivity for effective accessibility to e-records.
3. Provision of standard software and other modern ICTs that would enable e-records organization, accessibility and utilization in PHIs in Kano Metropolis.

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