



## Organisational Readiness as Correlates of Digitisation of Medical Records in Selected Federal Medical Centres in North Central Nigeria

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### ABSTRACT

*The study investigated organisational readiness as correlates of digitisation of medical records in selected federal medical centres in North-central Nigeria. This was aimed to evaluate the current state of digitisation of medical, assess level of organisational readiness for digitisation of medical records in selected federal medical centre in North-central Nigeria. A mixed research design was adopted with population of 134 participant's selected using executive sampling technique across two federal medical centres in North-central Nigeria. This comprised unit heads, medical record staff and ICT staff from two selected federal medical centres in North-central Nigeria. Data was collected using a structured questionnaire, interview and checklist. Data analysis was carried out using descriptive statistics (such as frequency, percentages and mean) and Braun and Clarke thematic analysis with the statistical package for social science (SPSS) version 26. The findings unveiled low state of digitisation medical records and organisational readiness coupled ICT infrastructures deficit. The study concludes that organisational readiness is a critical catalyst for successful digitisation of medical records. The present readiness level in the studied centres is insufficient to drive effective and sustainable digitisation initiatives. The study recommended among others that the management of these hospitals and Federal Ministry of Health prioritise significant investment in technological infrastructure, allocate dedicated funding, and implement comprehensive training programmes to enhance staff preparedness before and the during deployment of digitisation projects.*

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### INTRODUCTION

Medical record is appropriately preserved health information by the healthcare organisation as evidence of its function, policies, procedures, decisions, operations, and activities. These medical records are valuable paper-based data created, used and housed over decades which are usually referred to when the need arises for health services. Medical records include the patient's name, all written and visual information on his medical history, clinical symptoms and indicators, diagnostic and therapeutic processes,

prescription drugs and reasons for their usage, and the continuity of follow-up (Lorkowski & Pokorski, 2022). Such documents produced are received through jurisprudence, by individual or health organisation in the course of discharging responsibilities.

Maintaining accurate and complete medical records is vital for patient safety. Paper-based medical records are particularly difficult to manage, which can lead to poor patient outcomes, inaccurate diagnoses, improper to treatments, and paperwork errors. Protecting sensitive patient

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information from unauthorised access and breaches is a critical concern, especially in the era of paper. The ability to share and access medical records across different healthcare systems and providers can be time consuming due to vast volume of records. Over decade's medical professionals and nurses kept records of diseases and treatments on paper. In order to promote accessibility, preserve information, and create a conducive environment for records to be given to new and wider end-users, paper records are being transformed or converted into electronic through the process called digitisation.

In recent years, the digitisation of medical records has emerged as a critical component of healthcare innovation, particularly in tertiary hospitals where the complication of patient record management necessitates efficient information systems. Digitisation of medical records is the transformation of paper-based medical records into electronic version with the means of digital tools designed to improve patient service delivery. Digitisation of medical records is the application software that entails automated provider pharmacy order entry, admission registration entry, clinical data repository, and clinical documentation applications (Adegboro & Omowumi, 2021). Tsvuura & Ngulube (2020) digitisation is the methodical process of using 21<sup>st</sup> century tools paper-based medical documents into machine-readable format. The creation of a health databases will greatly be enhanced by the digitisation of medical information, which also increase exposure and provide as a cornerstone for expanding record access, remix, reuse, and retention.

The transition from traditional medical paper-based record-keeping to digital formats is influenced significantly by the construct of organisational readiness, coupled with demand for better healthcare service delivery. This readiness encompasses the preparedness of healthcare institutions in terms of technological infrastructure, staff competency, and leadership support, all of which are essential for successful implementation. Organisational readiness for digital novelty is an organisation's assessment of its state of being prepared and worked toward effective

introduction, adoption, assimilation and exploitation of digital transformation for innovation (Lokuge *et al.*, 2019).

Understanding the correlation between organisational readiness and the digitisation process is crucial, as it can provide insights into the challenges and opportunities faced by medical facilities in the region. Organisational readiness is the Organisational members' willingness and commitment to take positive changes and to share beliefs that might enhance their performance which include operational commitment, resources readiness, and managerial preparation for innovations. Ajayi *et al.*, (2021) perceived organisational readiness as mental and physical condition that prompt willingness and commitment of members to effectively secure and share belief that could promote their performance in the organisations. Organisational readiness provides the foundation that ethically guides the process, and secures the outcomes of digital transformation. When these factors work together simultaneously, they enable tertiary hospitals in North-central, Nigeria to successfully implement digitisation of medical records in a way that is efficient, ethical, and secure.

### Research Objectives

The study aims to investigate the of organisational readiness as correlates of digitisation of medical records in selected federal medical centres in North-central Nigeria. The specific objectives are to

1. find out level digitisation of medical records in selected federal medical centres in North-central Nigeria;
2. determine organisational readiness for digitisation of medical records in selected federal medical centres in North-central Nigeria;
3. determine existing ICT infrastructure for the digitisation of medical records in selected federal medical centres in North-central Nigeria;
4. determine staff competence for the digitisation of medical records in selected federal medical centres in North-central Nigeria.



### Research Questions

1. What is the level of digitisation of medical records in selected federal medical centres in North-central Nigeria?
2. What is the level of organisational readiness for digitisation of medical records in selected federal medical centres in North-central Nigeria?
3. What are the available ICT Infrastructures for digitising medical records in federal medical centres in North-Central, Nigeria?
4. What is the level of staff competence for digitisation of medical in selected federal medical centres?

### LITERATURE REVIEW

In the study conducted by Ajayi (2022) to investigate electronic medical records adoption in selected hospitals in South-west, Nigeria. The objectives were to find out existing type of medical record practice and readiness in the selected hospitals. The research study employs a survey method approach, based on population of two thousand eight hundred and eighty-nine (2889), drawn a sample of 341 respondents from selected hospitals questionnaire was used as instrument for data collection. Krejcie and Morgan model to draw sample size and purposive and stratified were used as sampling technique.

Data collected was analysed using descriptive statistics approach. Findings reveal that hospitals medical records are predominantly paper-based, and low management readiness, includes insufficient technical infrastructure, poor staff preparedness and limited EMR penetration even where partially implemented. The study concludes that hospitals in South-west Nigeria are inadequately prepared for EMR adoption and recommends securing international funding, prioritising budgetary allocations, enhancing staff training, and ensuring robust technical support to facilitate successful EMR implementation.

Addition, Afolabi et al. (2022) assessed adoption of electronic health records (HER) management at the University of Medical Science Teaching Hospital, Ondo State, Nigeria, using a

survey design and population of one thousand one hundred and eighty-nine clinical and non-clinical staff with a sample of three hundred (300) clinical and non-clinical staff selected via multistage sampling. Data collected through semi-structured questionnaire were analysed using SPSS, employing descriptive statistics and relative importance index (RII).

Findings uncovered areas that have implemented electronic medical record include patient registration (RII=0.063), documentation (RII=0.062), and lab/X-ray reporting (RII=0.060), with desktop computers (RII=0.059) and barcode scanners (RII=0.091) being used technologies. The discoveries further highlighted resistance to technology (RII=0.063), and computer illiteracy (RII=0.058), as obstacles to the adoption. The study concludes that HER adoption is critical for efficient health records management but pointed out the need for workforce motivation and training to overcome resistance. It recommends expanding HER implementation in all hospital units.

Onuogu (2023) conducted research on examines challenges of electronic medical records (EMR) adoption in Federal Capital Territory (FCT) hospitals, Abuja, Nigeria. A quantitative approach was used, three hundred and ten copies of research questionnaire administered to participants. The data collected were analysed using thematic method. The findings identified inconsistent funding and inadequate ICT infrastructure as inhibitor factor for sustainable EMR implementation. The study recommends prioritising ICT investments and policy frameworks to support EMR integration, ensuring its potential is fully realised in Nigeria's health system.

Ajayi *et al.* (2021) studied electronic medical records (EMR) adoption across South-west Nigeria hospitals. Using a sample of 397 healthcare professionals' strategic managers and operational staff) from selected hospitals, the research employed questionnaire as instrument for data collection and descriptive analysis to assess EMR readiness. Findings revealed significant shortcomings, particularly in management readiness both financial and political



as well as poor technical infrastructure, including a lack of trained electronic record managers, ICT support staff, and compatible medical devices. The study concludes that Nigerian hospitals are ill-prepared for EMR implementation and recommends securing sustainable funding, investing in staff training, and upgrading ICT infrastructure before adoption.

Abdulai and Adam (2020) inquired on implementation of digital medical records adoption in hospitals in Ghana. The objective was to assess readiness (computer literacy and knowledge) for implementing digital medical record in hospital. The study covered Tamale teaching and Tamale central hospital in Northern Ghana. A cross sectional study was used as research method with population of sample size of three hundred and fifty (350) medical professionals. Random sampling method was used to select the population. Data were harvested through questionnaire administered on health professionals. Research analysis was conducted on statistical package for social science (SPSS) by using various degree of tools frequency, percentages, mean and standard deviation. The findings of the study highlighted computer ability and knowledge as readiness for adoption of digital medical record in the hospital in Ghana.

Leeuw *et al.* (2020) investigated factors promoting adoption of medical information technology among Nurses. The objective of the study was to ascertain digital skills health professionals in using medical information technology. The study was carried out at Radboud University Medical Centre. The population consists of ten (10) registered nurses. Interview was used to reap data for the study. The data collected were analysed thematically and the findings showed that nurses lack digital skills thus affect their competence in using medical information technologies. The study does recommend that training is needed to improves and enhances their digital competencies in this contemporary age.

## METHODOLOGY

This study employed a mixed research approach. The population consisted of 33-unit heads, 118 medical record officers and 28 ICT personnels from federal medical centres in Bida Niger and Makurdi, Benue State, North-central, Nigeria. This implies the total population of the study was 179 hospital staff. The instruments captured total number of 134 hospital staff using sampling frame; 19-unit heads, 98 medical record officers, and 17 ICT personnel in the two federal medical centres in North-central, Nigeria.

Table 1: population of the study

Group of Staff	Unit Heads	Medical record staff	ICT Staff	Total
FMC Bida, Niger State	16	68	17	101
FMC Makurdi, Benue State	17	50	11	78
Total	33	118	28	179

An executive sampling technique was used for selecting sample size for this research study. This was done by administered questionnaire and interview for those respondents

that are available in the course of data collection. The sample size was calculated according to number of questionnaires administered in each area of the two federal medical centres.

Table 2: Sampling frame of the population

Group of Staff	Unit Heads	Medical record staff	ICT Staff	Total
FMC Bida, Niger State	8	51	10	69
FMC Makurdi, Benue State	11	47	7	65
Total	19	98	17	134

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Therefore, for this research study the sample population consisted of 134 hospital staff in selected federal medical centres in North-central Nigeria which consist of 19 unit heads, 98 medical record officers, and 17 ICT personnel. The study used questionnaire, interview and observation check list as the instrument for data collection. The questionnaire was titled 'Medical Record Officers and ICT Personnel Influence of Organisational Readiness as correlate of Digitisation of Medical records in Federal Medical Centre (MROICTPIORCDMDFMC)' while interview entitled "Unit Heads Organisational Readiness as Correlates of Digitisation of Medical records in Federal Medical Centre (UHORCDMDRFMC)".

The data gathered were analysed using statistical package for social science version 24 tools such as mean and standard deviation to answer research questions. Data collected through interview schedule was analysed using Clarke and Braun thematic analysis with respect to descriptive qualitative analysis (QDA) Miner.

## RESULTS

### Research Question One:

What is the level of digitisation of medical records in two federal medical centres?

Table 3: Level of Digitisation of Medical Records in two federal medical centres

S/N	Statement	VHL (5)		HL (4)		ML (3)		LL (2)		VLL N		FX	X̄	Decision	
		Fq	%	Fq	%	Fq	%	Fq	%	Fq	%				
1	Registration and admission	40	29.8	35	26.2	3	1.9	27	20.0	29	22.0	694	2233	3.22	High
2	Outpatient and inpatient records	43	32.1	36	26.9	5	3.7	19	14.2	31	23.1	694	2299	3.31	High
3	Doctor's order sheet, nurse's recording and diet sheet records	18	13.4	30	22.4	7	5.0	39	29.1	40	29.9	694	2001	2.88	High
4	Laboratory examination records or reports	25	18.7	26	19.3	8	6.0	31	23.1	44	32.8	694	1873	2.70	MID
5	Consent form for operations and anaesthesia	17	12.7	27	20.1	6	4.5	43	32.1	41	30.6	694	1926	2.77	Low
6	Intake and output chart	16	11.7	31	22.9	9	6.6	38	28.7	40	30.1	694	1786	2.57	Low
7	Report of anaesthesia physiotherapy, occupational therapy and other special treatment records	22	16.4	29	21.3	5	3.9	33	24.6	45	33.7	694	1819	2.62	Low
8	Medico legal cases records or reports	17	12.4	24	18.0	10	7.1	45	33.6	39	29.0	694	1744	2.51	Low

Decision: Average Weighted Mean =2.70

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Table 3 revealed low of digitisation of medical records in selected federal medical in North-Central Nigeria. Low level of digitisation of medical records in tertiary hospitals in North-Central Nigeria was revealed. The decision was based on the average weighted mean of ( $\bar{X}=2.7$ ). All means equal and above the average weighted mean ( $\bar{X}=2.7$ ) show that few of the items are perceived a high level of digitisation while all means below the average weighted mean show a low level of digitisation.

The following units were perceived to have a high level of digitisation: Registration and admission with a mean of ( $\bar{X}=3.2$ ), outpatient, and inpatient records with a mean of ( $\bar{X}=3.3$ ). Other low levels of digitisation of medical records include: recording and diet sheet records ( $\bar{X}=2.5$ ), laboratory examination records or reports ( $\bar{X}=2.70$ ), consent form for operations and anaesthesia ( $\bar{X}=2.5$ ), intake and output chart ( $\bar{X}=2.3$ ), report of anaesthesia physiotherapy, occupational therapy and other special treatment records ( $\bar{X}=2.6$ ), and medico-legal cases records or reports ( $\bar{X}=2.5$ ). Generally, level of digitisation of medical records in two federal medical centres is low with the average weighted mean of ( $\bar{X}=2.7$ ). In the interim, the in-depth analysis of qualitative data supported quantitative data on level of digitisation of medical records in the tertiary hospitals in North-central, Nigeria. The findings reveal that levels of digitisation of medical records are low with laboratory examination records or reports, consent form for operations and anaesthesia, intake and output chart, report of anaesthesia physiotherapy, occupational therapy and other special treatment records, and flow sheets such as progress notes as verbally revealed by the respondents thus:

The low pace of digitisation of medical records is general problems among the tertiary hospitals in two federal medical centres toward attaining full implementation of emerging technology. To be candid, the management of health care centres have not done well in terms of implement digital laboratory examination records or reports, consent form for operations and anaesthesia. Can you comment on the level of digitisation of intake and output chart, and report of anaesthesia physiotherapy? As you can see only few departments or unit has their medical records digitised".

Another interviewee said when he was asked about level of digitisation: views and efforts on digitisation of registration and admission records in your hospital. "Our hospital has fully digitised patient registration and admission, Output and input records. We used digitised medical record system that captures demographic details and medical history at point of entry. However, some legacy paper-based processes remain for specialized cases and manual entries still occur during emergencies or system downtimes. Are doctor's order and diet sheets receiving digitisation in your hospital? Yes of course, physician order entry is fully digitised. Doctors enter medication, lab, and procedure orders directly into the digital medical system, but verbal communication or paper records are later transcribed into system".

#### Research Question Two:

What is the level of organisational readiness for digitisation of medical records in selected federal medical centres in North-central Nigeria?

Table 4: Organisational Readiness for Digitisation of Medical Records in Tertiary Hospitals in North-Central Nigeria

S/N	Statement	SA (5)		A (4)		D (3)		SD (2)		N (1)		N	FX	$\bar{X}$	Decision
		Fq	%	Fq	%	Fq	%	Fq	%	Fq	%				
1	ICT policy is in place to accommodate DMR	63	47.0	38	28.4	3	2.4	19	14.0	11	8.2	134	525	3.92	Ready
2	A cost benefit analysis was	28	20.9	31	23.1	8	6.0	35	26.1	32	23.9	134	390	2.91	Not Ready

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S/N	Statement	SA (5)		A (4)		D (3)		SD (2)		N (1)		N	FX	X̄	Decision
		Fq	%	Fq	%	Fq	%	Fq	%	Fq	%				
3	performed prior to the implementation Funds are set aside for maintenance of the DMR in the hospital budget	26	19.4	28	20.9	8	6.0	41	30.6	31	23.1	134	379	2.83	Not Ready
4	There resources available to help with the planning, implementation, and training that may be needed	28	21.0	21	15.7	5	3.7	55	44.0	25	18.7	134	374	2.79	Not Ready
5	There is confidentiality and privacy policies available to govern DMR	19	14.2	17	12.7	23	17.2	58	43.3	17	12.7	134	365	2.72	Not Ready
6	There is birth and death registration act promoting DMR	18	13.4	11	8.2	21	15.7	57	42.5	27	20.1	134	338	2.52	Not Ready

Average weighted mean=2.95

Table 4 revealed organisational readiness for digitisation of medical records in in selected federal medical centre in North-Central Nigeria with average weighted mean of 2.95. The Table 4 revealed that majority of the respondents perceived low that organisations were not ready for the digitisation of the medical records in selected federal medical centre in North-Central Nigeria. The study revealed high in item statement on ICT policy is in place to accommodate DMR ( $\bar{X}=3.92$ ), while five of the item statement had low readiness: cost benefit analysis was performed prior to the implementation ( $\bar{X}=2.91$ ), funds are set

aside for maintenance of the DMR in the hospital budget ( $\bar{X}=2.83$ ), resources available to help with the planning, implementation, and training that may be needed ( $\bar{X}=2.79$ ), confidentiality and privacy policies availability to govern DMR ( $\bar{X}=2.72$ ), and hospital reform archival act supports DMR ( $\bar{X}=2.52$ ).

#### Research Question Three:

What are the available ICT Infrastructures for digitising medical records in federal medical centres in North-Central, Nigeria?

Table 5: Checklist on Available of ICT infrastructures for digitisation of medical records in federal medical centres in North-Central, Nigeria

S/N	Item	FMCB	FMCM
1	Computer and laptop	√	√
2	Scanner and printer	√	√
3	Saver, storage devices, network equipment, workstations and mobile devices	-	-
4	Graphic user interface that is compatible with the various hardware platform	-	-
5	Machine-encoded text	-	-
6	Portable document file (PDF)	-	-
7	Electronic Health Record (EHR) system software	-	-

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S/N	Item	FMCB	FMCM
8	Database Management System (DBMS)	-	-
9	Management software	-	-
10	Medical imaging software	-	-
11	High-speed internet for cloud-based services and telemedicine	-	-
12	Cyber security, backup and recovery software for DMR	-	-
13	Encryption, access control, audit trails, and authentication systems	-	-
14	User training programs and technical	-	-

Key Available= ✓ Not Available= -

The Table 5 shows distribution of available ICT infrastructure in selected federal medical centre in North-centre Nigeria for the digitisation of medical records. The observation checklist revealed computer, laptop, desktop, scanner, and printer as the available ICT infrastructures for the digitisation of medical records in selected federal medical centres in North-centre Nigeria. The study revealed not available on item statements: server, storage devices, network equipment, workstations and mobile devices; graphic user interface that is compatible with the various hardware platform; machine-encoded text; portable document file (PDF); electronic Health Record (EHR) system software; database management system (DBMS);

management software; medical imaging software; high-speed internet for cloud-based services and telemedicine; cyber security, backup and recovery software for DMR; encryption, access control, audit trails, and authentication systems; and user training programs and technical in selected federal medical centre in North-centre Nigeria. Generally, the results showed the paucity of ICT infrastructures (for the digitisation of medical records in selected federal medical centre in North-centre Nigeria.

#### Research Question Four:

What is the level of staff competence on the digitisation of medical records selected federal medical centres in North-Central, Nigeria?

Table 6: Staff Competence on the Digitisation of Medical records in Tertiary Hospitals in North-Central, Nigeria

S/N	Statement	SA (5)		A (4)		D (3)		SD (2)		N (1)		N	FX	Mean	Decision
		Fq	%	Fq	%	Fq	%	Fq	%	Fq	%				
1	Digital literacy enhances my ability to use the scanner and printer for DMR	49	36.6	26	19.4	14	10.4	24	17.9	21	15.7	134	460	3.43	Competence
2	My knowledge of Computer boosts encryption, access control, audit trails, authentication systems	41	30.6	31	23.1	23	17.2	15	11.2	24	17.9	134	452	3.37	Competence
3	My technical skill abilities support uses of high-speed internet for	39	29.1	37	27.6	21	15.7	17	12.7	20	14.9	134	439	3.27	Competence

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S/N	Statement	SA (5)		A (4)		D (3)		SD (2)		N (1)		N	FX	Mean	Decision
		Fq	%	Fq	%	Fq	%	Fq	%	Fq	%				
	cloud-based services														
4	My digital experience enhances cyber security, backup and recovery software for DMR	21	15.7	31	23.1	27	20.1	35	26.1	20	14.9	134	400	2.99	Competence
5	I believe understanding of digital ethics support the uses of database Management System (DBMS) for managing patients data	17	12.7	19	14.2	21	15.7	43	32.1	34	25.4	134	344	2.57	Competence

Average weighted mean=3.12

Table 6 revealed staff competence for digitisation of medical records in selected federal medical centre in North-Central, Nigeria. The decision was based on the Average weighted mean of ( $\bar{X}$ =3.12). Table 4 revealed high staff competence for digitisation of medical records in selected federal medical centre in North-Central, Nigeria with item statements such as digital literacy enhances ability to use the scanner and printer for DMR ( $\bar{X}$ =3.43); and knowledge of computer boosts encryption, access control, audit trails, authentication systems ( $\bar{X}$ =3.37); technical skill abilities support uses of high-speed internet for cloud-based services ( $\bar{X}$ =3.27); digital experience can enhance use of graphic user interface ( $\bar{X}$ =2.99) and I believe understanding of digital ethics support the uses of database Management System (DBMS) for managing patients data ( $\bar{X}$ =2.57).

### SUMMARY OF THE FINDINGS

1. Digitisation of medical records in selected federal medical centre in North-Central Nigeria is low with the average weighted mean of 2.70

2. The organisational readiness for digitisation of medical records in in selected federal medical centre in North-Central Nigeria is low with an average weighted mean of 2.95
3. The ICT infrastructures for the digitisation of medical records in in selected federal medical centre in North-Central, Nigeria were not adequately available.
4. The overall finding, based on average weighted mean of 3.12, indicated a high level of competence among the staff of selected federal medical centre in North-centre Nigeria.

### DISCUSSION OF FINDINGS

The Table 3 and the qualitative interviews established the baseline with an average weighted mean of 2.7 which revealed low digitisation of medical records in selected federal medical record centre in North-central Nigeria. This overall score is evidence from the findings of quantitative, it is powerfully validated by the candid frustrations and confirmations of the hospital staff in the qualitative interviews. The

interviewees' statements such as "*the low pace of digitisation is a general problem*" and the description of some processes as paper-based, provide that the implementation is severely lagging behind in digital transformation. The results from Table 3 showed that registration and admission, and outpatient and inpatient records had as the most digitised areas. "*Our hospital has fully digitised patient registration and admission.*" This implies that digitisation efforts have primarily concentrated in the area related to patient demographics, scheduling, and billing. These areas often see the first investment because they can streamline operations and improve revenue cycle management, offering a clearer and faster return on investment.

However, the core clinical and diagnostic functions showed low level of digitisation. These are clearly unveiled in laboratory reports, consent forms, physiotherapy reports, and medico - legal records. The interviews revealed that: "*Lab records have not digitised, "pre-operative consents and anesthesia records remain paper based," and "Medicolegal documentation is physical copies-based."* This severely affects clinical decision-making, as doctors lack an integrated, real-time view of lab results, treatment notes, and patient progress. The findings of this study is line with Ajayi (2022) findings which revealed that hospitals in South-west had their medical records predominantly paper-based. The findings of this study concur with Afolabi *et al.* (2022) findings which uncovered areas that have implemented electronic medical record include patient registration, documentation, and X-ray reporting at the University of Medical Science Teaching Hospital, Ondo State.

Table 4 revealed high readiness for ICT policy suggests that hospital leadership has endorsed digitisation of medical records. However, the marginal scores in all other areas indicate a failure to translate this policy into a concrete, actionable, and sustainable plan. The low score was evidenced in the item statements for cost-benefit analysis, maintenance funds, lack of dedicated resources for training, confidentiality policies and supporting archival

acts a concerning implementation. This implied that hospitals are not committed to adopt electronic medical system. It indicates that the legal infrastructure for managing digital patient data responsibly is underdeveloped. The findings of Ajayi *et al.* (2021) low management readiness both financial and political as well as poor technical infrastructure, including a lack of trained electronic record managers, ICT support staff, and compatible medical devices collaborate the findings of this study. Afolabi *et al.* (2022) discoveries highlighted resistance to technology and computer illiteracy as obstacles to the adoption electronic health records at the University of Medical Science Teaching Hospital, Ondo State which is in consonant with discoveries of this study. The findings of this study is not in conformity with the findings of Abdulai and Adam (2020) highlighted computer ability and knowledge as readiness for adoption of digital medical record in the hospital in Ghana.

Table 5 revealed available ICT infrastructures such as computers, laptops, scanners, and printers for digitisation of medical in selected federal medical centre in Northcentral Nigeria. This basic hardware constitutes the absolute minimum for a scan-and-store approach, where paper records are converted into digital images (like PDFs). It does not enable the core functionalities of a modern Electronic Health Record (EHR) system, such as data searchability, interoperability, real-time updates, or clinical decision support. The presence of these items is akin to having a pen and paper instead of a typewriter, it allows for record-keeping but none of the efficiencies of advanced technology. However, Table 5 uncovered lack of servers, storage devices, and network equipment, DBMS, and management software, lack of high-speed internet, non-existence of cybersecurity software, encryption, access control, audit trails, and authentication systems, and absence of user training programs and technical support all generally had hampered progress toward actualisation of electronic health record system. Onuogu (2023) findings which identified inconsistent funding and inadequate ICT infrastructure as inhibitor factor for sustainable

electronic health record implementation is on the page with the findings of this study.

Table 6 showed staff competence for the digitisation of medical records (DMR) suggests a high level of competence in digital literacy enhances my ability to use the scanner and printer for DMR; knowledge of Computer boosts encryption, access control, audit trails, authentication systems; and technical skill abilities support uses of high-speed internet for cloud-based services. This implied the staff had required competency for digitising medical records. However low competence was exposed in item statements backup and recovery software for DMR; and digital ethics support the uses of database Management System (DBMS) for managing patient's data revealed that staff competence deficit would critically affect digitisation of medical record. , Leeuw *et al.* (2020) findings showed that nurses lack digital skills thus affect their competence in using medical information technologies..

## CONCLUSION

The study conclude that digitisation of medical records remains at a nascent and ineffective phase despite high staff competence. This is directly evidenced by the low level of digitisation. This poor outcome is not due a single factor but is the result of a critical failure in vital areas such as infrastructure and organisational readiness. The study found a severe lack of necessary ICT infrastructure, missing not just hardware but the entire ecosystem of software, security, and network systems required for a functional digital medical system. Compounding this is low organisational readiness, where vital policies are not supported by adequate financial planning, resource allocation, or legal frameworks for data government.

### Recommendations

Based on the findings, the following recommendations are proposed:

1. The hospital management and government should partner with private sector to improve level digitisation health sector.
2. Government couple with hospital management should formulate and enforce standard frameworks for implementing electronic health records in Nigerian hospitals.
3. Investment in ICT infrastructures should be given utmost priority for smooth take of digitisation of medical records.
4. Training and staff building capacity should be encouraged by the hospital management.

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