

# Assessment of the Effectiveness of Health Information Management Department in Usmanu Danfodio University Teaching Hospital Sokoto

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<p><b>Abstract:</b> <i>Background:</i> Health Information Management (HIM) departments are central to clinical care, administration, research, and healthcare quality improvement in tertiary hospitals. However, Nigerian tertiary hospitals face numerous challenges that compromise HIM effectiveness, including inadequate infrastructure, insufficient trained personnel, and inefficient data management systems. <i>Objective:</i> This study assessed the effectiveness of the Health Information Management department at Usmanu Danfodiyo University Teaching Hospital (UDUTH), Sokoto, Nigeria, evaluating data quality, system effectiveness, impact on healthcare delivery, and challenges hindering optimal performance. <i>Methods:</i> A descriptive cross-sectional survey design was employed involving 130 HIM professionals at UDUTH. Data were collected using a structured questionnaire comprising six sections: socio-demographic characteristics, data quality, system effectiveness, impact on healthcare delivery, challenges, and recommendations. Data were analyzed using descriptive statistics and Likert scale analysis with SPSS version 16. <i>Results:</i> The workforce was predominantly male (61.5%) with 6-10 years' experience (30.8%), primarily using hybrid records systems (57.6%). Data quality was rated highly across all dimensions (mean <math>\geq 4.6/5</math>), with data security and confidentiality achieving a perfect score (mean=5.0). System effectiveness was rated positively for functionality (mean=4.7), efficiency (mean=4.8), and training (mean=4.8). However, data analysis and reporting capabilities for management decisions were significantly lower (mean=3.9). HIM practices were perceived as highly valuable for clinical care, supporting diagnosis (mean=4.8), facilitating communication (mean=4.8), and reducing medical errors (mean=4.7). Major challenges included insufficient funding (mean=4.7), lack of trained personnel (mean=4.5), poor internet connectivity (mean=4.5), and professional rivalry (mean=4.4). <i>Conclusion:</i> The HIM department at UDUTH performs operational functions effectively with high data quality and user satisfaction. However, it faces critical weaknesses in analytical capabilities for decision-support and significant resource constraints. Staff strongly endorsed targeted interventions including enhanced training, infrastructure upgrades, and digital system implementation.</p>	<p><b>Research Paper</b></p>
<p><b>Keywords:</b> Health Information Management, Data Quality, System Effectiveness, Tertiary Hospital, Nigeria, Electronic Health Records.</p>	<p><b>*Corresponding Author:</b> Abubakar Hamza School of Health Information Management, Usmanu Danfodiyo University Teaching Hospital, Sokoto</p>
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## 1.0 INTRODUCTION

Healthcare services in Nigeria, particularly in tertiary hospitals, rely heavily on accurate, timely, and accessible health information. The increasing complexity of healthcare services and the need for informed decision-making have made Health Information Management (HIM) a critical component of healthcare delivery (World Health Organization, 2017). HIM departments play a vital role in ensuring the availability and integrity of health data, supporting

clinical care, administration, research, reimbursement, and quality improvement.

Health Information Management involves the collection, protection, and analysis of patient health information to ensure quality and availability while complying with legal requirements and organizational policies (Steve Alder, 2024). The ultimate purpose is to improve the healthcare experience from initial consultation to insurance claim, combining data, information technology, and compliance. HIM

professionals are the custodians of quality data in medical records, ensuring privacy, security, and accurate representation of information through controlled terminologies and vocabularies (Meryl Bloomrose & Eta S. Berner, 2020).

In tertiary hospitals, the HIM function underpins timely patient care, accurate disease surveillance, and hospital financing. However, Nigerian tertiary hospitals face numerous challenges, including inadequate infrastructure, insufficient trained personnel, and inefficient data management systems, often struggling with the transition from paper-based to electronic health information management systems (Nwachukwu, 2017). These challenges can compromise health information quality, leading to errors, delays, and poor patient outcomes.

Despite the well-established importance of robust HIM systems, there is limited recent empirical evidence on the specific nature and extent of deficiencies within Nigerian tertiary hospitals. This study addresses this gap by assessing HIM effectiveness at Usmanu Danfodiyo University Teaching Hospital (UDUTH), Sokoto, Nigeria.

### 1.1 Objectives

The main objective was to assess the effectiveness of the Health Information Management department at UDUTH. Specific objectives were to:

- i. Evaluate the current state of health information management department in Usmanu Danfodio University Teaching Hospital Sokoto
- ii. Assess the effectiveness of health information management departments in terms of data quality, timeliness, and accessibility of effectiveness of HIM
- iii. Identify challenges and opportunities for improvement in health information management departments

## 2.0 LITERATURE REVIEW

### 2.1 Conceptual Framework

Health Information Management is a critical component of healthcare delivery, ensuring accurate data collection, timely analysis, and relevant health information to support patient care, decision-making, and healthcare planning (American Health Information Management Association, 2020).

Health Information Management (HIM) plays a crucial role in healthcare delivery in every society, ensuring that accurate and timely information is available to support patient care, decision-making, and healthcare planning. Assessing the effectiveness of HIM is essential to evaluate its impact on healthcare outcomes, identify areas for improvement, and optimize

resource allocation. Health Information Management (HIM) is a critical component of healthcare delivery system, ensuring that accurate data collection, timely analysis, and relevant health information is available to support patient care, decision-making, and healthcare planning (American Health Information Management Association, 2020).

### Data Quality

High-quality data is essential for effective policy-making and efficient planning. Data quality encompasses multiple dimensions including accuracy, completeness, timeliness, consistency, and relevancy (World Health Organization, 2020). Poor data quality decreases care quality, increases costs, raises privacy concerns, reduces healthcare worker satisfaction, and may lead to dangerous decisions (Abbas Daneshkohan *et al.*, 2022).

The multidimensional nature of data quality in healthcare settings requires systematic assessment frameworks to identify and address deficiencies. According to Hossein Ghalavand *et al.*, (2024), data quality in health information systems has a complex structure influenced by environmental, organizational, technical, and behavioral factors. Their systematic review identified that common data quality elements include intrinsic dimensions (accuracy, objectivity, believability, reputation), contextual dimensions (relevancy, timeliness, completeness, appropriate amount of data), and representational dimensions (interpretability, ease of understanding, concise representation, consistent representation). The interplay between these dimensions means that improvements in one area may inadvertently affect others, necessitating holistic approaches to data quality management. Healthcare facilities must therefore implement comprehensive data quality assurance programs that address not only technical aspects but also human factors such as training, standard operating procedures, and feedback mechanisms for continuous improvement.

The consequences of poor data quality extend beyond immediate clinical decisions to affect entire healthcare systems and population health outcomes. In the United States, an average of 71,000 deaths is reported annually due to medical errors related to poor data quality, though figures for African nations remain largely undocumented due to inadequate data management systems (Abbas Daneshkohan *et al.*, 2022). Beyond mortality, poor data quality undermines health system performance monitoring, distorts resource allocation, compromises disease surveillance, and limits the ability to evaluate intervention effectiveness. Real-world evidence generated from electronic health records holds unprecedented potential to bridge gaps between

controlled clinical trials and actual healthcare delivery, but this potential hinges entirely on high-quality data (Michael Adcock *et al.*, 2024). Without reliable data, healthcare organizations cannot accurately track performance indicators, identify at-risk populations, or implement evidence-based improvements, perpetuating a cycle of suboptimal care delivery and missed opportunities for health system strengthening.

### Information Systems

Electronic Medical Records (EMRs) and Electronic Health Records (EHRs) have transformed healthcare operations by digitally storing patient records, providing instant access for medical staff, and improving doctor-patient interactions (Ayse Gedikeci Ondogan *et al.*, 2023). Health Information Systems manage data collected and stored in healthcare facilities, supporting medical research, policy-making, revenue cycle analysis, and decision-making (Annette Bell, 2022).

According to John Martinez (2025), as healthcare organizations adopt more applications and store increasing volumes of patient information, interconnected systems expose records to higher risks of unauthorized access, necessitating comprehensive approaches to data safeguarding. The healthcare sector has become a prime target for cybercriminals due to the high value of medical records on the black market, which can sell for significantly more than financial information. Medical data typically includes personally identifiable information, medical history, diagnoses, treatment plans, insurance details, and payment information—all of which can be exploited for various fraudulent activities. The consequences of breaches extend beyond immediate financial losses to include compromised patient safety when medical records are altered, loss of trust in healthcare institutions, and legal liabilities under data protection regulations. Healthcare organizations must therefore implement defense-in-depth strategies incorporating encryption, access controls, regular security audits, intrusion detection systems, and comprehensive incident response plans to protect against evolving cyber threats.

Beyond technical safeguards, the human element remains both a critical vulnerability and the first line of defense in healthcare information security. Sara Gironi Carnevale (2025) emphasizes that if healthcare professionals cannot trust an organization to protect records, they may become reluctant to record all information collected from patients, potentially compromising care quality. Conversely, inadequately trained staff may inadvertently create security vulnerabilities through poor password practices, falling victim to phishing attacks, improper disposal of sensitive documents, or unauthorized sharing of access credentials. Effective information security programs

must therefore combine robust technical infrastructure with comprehensive staff training, clear policies and procedures, regular security awareness campaigns, and a culture of security consciousness. The security of patient data encourages individuals to share their personal health information for current or future care, making trust a fundamental prerequisite for effective healthcare delivery. As healthcare technology continues to evolve, organizations must balance the imperative for data accessibility against equally important requirements for confidentiality and integrity, recognizing that information security is not merely a technical challenge but a fundamental ethical obligation to patients.

The digitalization of patient health information has created new threats to information security and privacy. Medical data containing sensitive information about patients' health and personal life are vulnerable to breaches, leading to serious consequences including identity theft, fraud, and medical malpractice (Parisasadat Shojaei *et al.*, 2024). The Nigeria Data Protection Act (2023) provides the legal framework for safeguarding personal information.

### User Satisfaction

User satisfaction is vital to successful HIM implementation. Factors influencing user satisfaction should be considered when designing, developing, or adopting information systems (Zahra Nasiry *et al.*, 2021). Healthcare professional satisfaction influences patient satisfaction and the quality of healthcare services delivered (Dimitris Charalambos Karaferis & Dimitris A. Niakas, 2025).

Electronic Medical Record (EMR) systems have become essential for proper patient information management, particularly in developing countries where their adoption aims to improve healthcare quality; however, these systems risk being abandoned if users are not satisfied with implementation. According to Abiy Tasew Dubale *et al.*, (2023), user dissatisfaction has been identified as a primary factor in EMR system failures globally. Their study in Ethiopian hospitals revealed that healthcare professionals' satisfaction with EMR systems is influenced by multiple factors including system quality, information quality, service quality, perceived usefulness, perceived ease of use, and organizational support. When users find systems difficult to navigate, slow to respond, or misaligned with clinical workflows, they may develop workarounds, revert to paper-based methods, or actively resist system adoption—ultimately undermining the substantial financial investments made in health information technology. The challenge is particularly acute in resource-constrained settings where systems may be adopted without adequate customization to local contexts, insufficient user training, or limited technical support, highlighting the need for user-centered

design approaches and participatory implementation strategies that actively engage end-users throughout the system development lifecycle.

The relationship between healthcare professional satisfaction with information systems and broader healthcare quality outcomes operates through multiple interconnected pathways. Ahmed Sharafadeen Oloyede *et al.*, (2023) demonstrated that satisfied users are more likely to utilize system capabilities fully, enter data accurately, and leverage information for clinical decision-making, thereby enhancing data quality and patient care. Furthermore, efficient information systems reduce administrative burden, allowing healthcare providers more time for direct patient interaction and reducing frustration associated with cumbersome documentation requirements. Zahra Nasiry *et al.*, (2021) identified that user satisfaction is influenced by both tangible factors (system response time, interface design, functionality) and intangible factors (perceived autonomy, professional status, alignment with professional values). Their systematic review concluded that organizations must assess end-user satisfaction continuously to gauge system acceptability and sustainability, as dissatisfaction often manifests in subtle ways—such as incomplete data entry, resistance to system upgrades, or negative attitudes that influence new users—before resulting in outright system rejection. Given the substantial investments required for health information systems and their critical role in modern healthcare delivery, understanding and promoting user satisfaction should be considered not merely a desirable outcome but an essential precondition for successful HIM implementation and sustained organizational benefit.

## 2.2 Theoretical Framework

This study was guided by the Donabedian Model of healthcare quality assessment, which evaluates quality across three domains: structure (context in which care is delivered), process (actions contributing to health services), and outcomes (results of health services) (Avedis Donabedian, 2024). The model provides a comprehensive framework for assessing HIM effectiveness by examining structural elements (staffing, infrastructure), processes (coding, filing, retrieval), and outcomes (data quality, user satisfaction).

The DeLone and McLean Information System Success Model informed the assessment, highlighting information quality, system quality, and service quality as key determinants of user satisfaction and net benefits (Adebowale I. Ojo, 2017).

## 3.0 METHODOLOGY

### 3.1 Study Design and Setting

This study adopted a descriptive cross-sectional survey design conducted at Usmanu Danfodiyo University Teaching Hospital (UDUTH), Sokoto, Nigeria. UDUTH is located at Dr. Garba Nadama Road, Gawon Nama, Wamakko Local Government Area, Sokoto State. Established in 1989, the hospital serves as a referral and training center for Sokoto, Kebbi, and Zamfara states, with approximately 653 beds and 36 departments.

### 3.2 Target Population and Sample

The target population comprised all staff of the Department of Health Information Management and the School of Health Information Management at UDUTH. Using a census approach, all 131 staff members were targeted, with 130 valid questionnaires returned (99.2% response rate).

### 3.3 Research Instrument

A structured, validated questionnaire developed by the researcher comprised six sections:

- Section A: Socio-demographic characteristics
- Section B: Data quality assessment (5-point Likert scale)
- Section C: System effectiveness and use (5-point Likert scale)
- Section D: Impact on healthcare delivery (5-point Likert scale)
- Section E: Challenges hindering HIM effectiveness (5-point Likert scale)
- Section F: Recommendations (5-point Likert scale)

### 3.4 Validity and Reliability

The instrument was validated through supervisor review ensuring content and face validity. Reliability was ensured through a pilot study and submission to supervisor's constructive criticism and approval.

### 3.5 Data Analysis

Data were analyzed using SPSS version 16. Descriptive statistics (frequencies, percentages, means) and Likert scale analysis were employed. Mean scores were interpreted as: 1.0-1.4 = Strongly Disagree; 1.5-2.4 = Disagree.

## 4.0 DATA PRESENTATION AND ANALYSIS

### 4.1 Introduction

#### 4.1.1 Section A: Personal and Professional Information

**Table 4.1: Socio-Demographic Characteristics of Respondents (N=130)**

Characteristic	Category	Frequency	Percentage (%)
Gender	Male	80	61.5
	Female	50	38.5
Years of Experience	1-5 years	35	26.9
	6-10 years	40	30.8
	11-15 years	18	13.8
	16-20 years	22	16.9
	21-25 years	7	5.4
	26-30 years	2	1.5
	31-35 years	6	4.6
Primary Method of HIM	Paper-based records	36	27.7
	Electronic Health Records (EHR)	19	14.6
	Hybrid (both paper and electronic)	75	57.7
Qualification	ND	52	40.0
	HND	52	40.0
	BSc	22	16.9
	MSc	3	2.3
	PhD	1	0.8

**Analysis of Socio-Demographic Characteristics**

**Gender:**

Out of 130 total respondents, 80 were male (61.5%) and 50 were female (38.5%). This indicates a male predominance in the Health Information Management workforce at UDUTH.

**Years of Experience:**

The most common experience brackets were 6-10 years (40 respondents, 30.8%) and 1-5 years (35 respondents, 26.9%). These two groups collectively represent 57.7% of the total sample. The distribution shows that 70.8% of respondents have 15 years or fewer of experience (1-5, 6-10, and 11-15 years combined), indicating a relatively young but experienced workforce.

**Primary Method of Health Information Management:**

The hybrid system (combining both paper and electronic records) was the most prevalent, used by 75 respondents (57.7%). Paper-based records alone were used by 36 respondents (27.7%), while pure Electronic Health Records (EHR) systems were used by only 19 respondents (14.6%). This reveals that UDUTH operates

predominantly in a transitional phase between paper and fully electronic systems.

**Qualification:**

The most common qualifications were ND (52 respondents, 40.0%) and HND (52 respondents, 40.0%), followed by BSc (22 respondents, 16.9%). Diploma-level qualifications (ND and HND combined) account for 80.0% of the workforce. Postgraduate degrees (MSc and PhD) represent only 3.1% of respondents, indicating limited advanced academic preparation among HIM staff.

**Summary of Respondent Profile:**

The typical respondent is male, with 6-10 years of professional experience, working in a hybrid health information management system, and holding a diploma-level qualification (ND or HND).

**Section B: Data Quality Assessment**

This section explores respondents' perceptions of data quality dimensions including accuracy, completeness, timeliness, reliability, security, and accessibility. Respondents rated their agreement on a 5-point Likert scale (SA = Strongly Agree, A = Agree, N = Neutral, D = Disagree, SD = Strongly Disagree).

**Table 4.2: Perceptions of Data Quality in Health Information Management (N=130)**

S/N	Statement	SA (5)	A (4)	N (3)	D (2)	SD (1)	Total Score (FX)	Mean (x̄)	Decision
5	Patient records are accurate and free from errors	91	33	3	3	0	602	4.6	Accept
6	Health information is consistently complete for all patients	86	38	2	4	0	596	4.6	Accept
7	Information about patients can be timely obtained when needed	91	32	2	5	0	599	4.6	Accept

8	The data in our system is reliable for reporting and decision-making	96	31	0	3	0	610	4.7	Accept
9	Patient data is secure and confidentiality is observed	103	25	2	0	0	661	5.0	Accept
10	Patient information is easy to access for authorized personnel	94	32	1	3	0	607	4.7	Accept

### Detailed Analysis of Data Quality Perceptions

#### Overall Perception:

All statements received mean scores above 4.5 (range: 4.6 to 5.0), indicating strong to very strong positive agreement among respondents regarding the quality of health information at UDUTH. The decision to "Accept" each statement is statistically justified by these high means, confirming that from the users' perspective, data quality standards are being met.

#### Ranking of Attributes:

##### Highest Rated:

Statement 9 (Security and Confidentiality) achieved a perfect mean score of 5.0. An overwhelming 103 out of 130 respondents (79.2%) selected "Strongly Agree," with the remaining 25 (19.2%) selecting "Agree." This indicates absolute confidence among staff in the system's data security and privacy controls—a critical foundation for any health information system. This finding suggests that UDUTH has implemented effective security protocols and that staff are well-trained in confidentiality requirements.

##### Very High Rated:

Statements 8 (Reliability for Decisions) and 10 (Easy Access for Authorized Personnel) shared the second-highest mean of 4.7. For Statement 8, 96 respondents (73.8%) strongly agreed that data is reliable for reporting and decision-making, while 31 (23.8%) agreed. For Statement 10, 94 respondents (72.3%) strongly agreed that information is easily accessible to authorized personnel, with 32 (24.6%) agreeing. These high ratings suggest the system is not only secure but also usable and trustworthy for its core purpose of supporting reporting and clinical decisions.

##### High Rated (Slightly Lower):

Statements 5 (Accuracy), 6 (Completeness), and 7 (Timeliness) each received a mean of 4.6. While still excellent, these operational qualities show the slightest room for improvement as they can be affected by human data entry practices and workflow processes. For Statement 5, 91 respondents (70.0%) strongly agreed that records are accurate, while 33 (25.4%) agreed. For Statement 6, 86 (66.2%) strongly agreed on completeness, with 38 (29.2%) agreeing. For Statement 7, 91 (70.0%) strongly agreed on timeliness, with 32 (24.6%) agreeing.

#### Summary of Data Quality Findings:

The HIM department at UDUTH demonstrates exceptional strength in data security and confidentiality, with very strong performance across all data quality dimensions. The minimal neutral and disagree responses across all statements (ranging from 0-5 responses) indicate high consensus among staff regarding data quality.

#### 4.8 Summary of Major Findings

This section summarizes the key findings from the analysis of survey responses from 130 Health Information Management professionals at Usmanu Danfodiyo University Teaching Hospital, Sokoto.

##### Socio-Demographic Profile:

- The workforce is predominantly male (61.5%)
- Most respondents have 6-10 years of experience (30.8%)
- Hybrid records systems (paper and electronic) are used by the majority (57.7%)
- Academic qualifications are mainly at the diploma level (ND/HND, 80.0%)

##### Data Quality (Section B):

- All data quality attributes were rated very positively (mean  $\geq 4.6/5$ )
- Data security and confidentiality received a perfect mean score of 5.0
- Accuracy, completeness, and timeliness scored slightly lower (4.6) but remain excellent
- Minimal neutral or disagree responses indicate strong consensus on data quality

##### System Effectiveness (Section C):

- High satisfaction with functionality (4.7), efficiency (4.8), and training (4.8)
- Overall user satisfaction is strong (4.6)
- Critical weakness: Data analysis and reporting capabilities for management decisions scored significantly lower (3.9), marking the only rejected statement
- Training programs are exceptionally well-regarded (80% strongly agree)

##### Impact on Healthcare Delivery (Section D):

- HIM practices are perceived as highly valuable for clinical care (means 4.6-4.8)
- Strongest impacts: supporting diagnosis (4.8) and facilitating provider communication (4.8)

- Significant contributions to error reduction (4.7) and public health monitoring (4.7)
- Over 95% agreement on four of five statements demonstrates unanimous recognition of HIM's importance

#### Challenges (Section E):

- Most severe hindrance: Insufficient funding (mean 4.7)
- Highly severe hindrances: Lack of trained personnel (4.5) and poor internet connectivity (4.5)
- Significant hindrance: Professional rivalry/lack of collaboration (4.4)
- Infrastructure/equipment inadequacy (4.3) remains a major concern
- All challenges were acknowledged by over 89% of respondents

#### Recommendations (Section F):

- Strong consensus on all proposed solutions (means 4.6-4.7)
- Most strongly endorsed: training and capacity building (4.7)
- Strong support for infrastructure upgrades (4.7), digital systems implementation (4.7), and collaborative training (4.7)
- Budget advocacy and funding strategies (4.6) recognized as foundational
- 96-98% agreement rates across all recommendations provide a powerful mandate for action

#### Overall Synthesis:

The Health Information Management department at UDUTH is perceived as secure and operationally effective, with exceptional strengths in data security, user training, and support for clinical care. However, the department is significantly constrained by resource limitations—particularly insufficient funding—and lacks robust data analysis tools for strategic decision-support. The workforce demonstrates remarkable consensus on both the challenges faced and the solutions required, providing hospital leadership with a clear, evidence-based roadmap for strengthening HIM effectiveness through targeted investments in human capacity, infrastructure, digital systems, collaboration, and financial resources.

### 5.0 SUMMARY OF FINDINGS

This study examined the effectiveness, user satisfaction, and systemic challenges of the Health Information Management (HIM) department at Usmanu Danfodiyo University Teaching Hospital (UDUTH) based on survey responses from 130 HIM professionals. The findings indicate that the department operates

effectively in its core operational and clinical-support functions, with high levels of user satisfaction across most assessed domains.

The workforce is experienced and predominantly operates a hybrid (paper–electronic) health information system. Respondents strongly affirmed the quality of data management processes, particularly in the areas of security and confidentiality, which recorded the highest mean score (5.0). The HIM system was perceived as functional, efficient, and supported by adequate training. Furthermore, respondents overwhelmingly acknowledged the department's positive contributions to clinical care, including improved diagnosis, enhanced communication among healthcare providers, and reduction of medical errors.

Despite these strengths, the study identified a significant weakness in data analysis and reporting capabilities for management decision-making (mean score 3.9). This suggests that while operational data management functions are robust, the department's strategic decision-support role remains underdeveloped.

Systemic constraints were also identified as major barriers to optimal performance. Insufficient funding emerged as the most critical challenge, followed by inadequate trained personnel, poor internet connectivity, professional rivalry, and infrastructural deficits. Respondents strongly endorsed targeted interventions to address these systemic limitations.

### 6.0 CONCLUSION

The findings demonstrate that the HIM department at UDUTH performs its operational and clinical-support responsibilities effectively and is recognized as a valuable contributor to patient care delivery. High ratings in data quality, confidentiality, and user satisfaction represent notable institutional strengths.

However, the department's full potential as a strategic asset for hospital management is constrained by limited resources and inadequate analytical capacity. The transition from a primarily record-keeping function to a comprehensive data-driven decision-support system remains incomplete. The interrelated nature of identified challenges—particularly the central role of insufficient funding—suggests that sustainable improvement requires systemic intervention rather than isolated technical upgrades.

Addressing these structural limitations is essential for positioning the HIM department as a critical component of modern healthcare delivery and evidence-based hospital management.

## Recommendations

Based on the findings and staff consensus, the following recommendations are proposed:

### 1. Prioritize Funding and Resource Mobilization:

Hospital management should advocate for increased budgetary allocation to the HIM department and explore external funding sources such as grants, partnerships, and donor support. Strengthened financial investment is foundational to achieving sustainable improvements.

### 2. Enhance Data Analysis and Reporting Capacity:

Investment in advanced HIM software with integrated analytics, visualization dashboards, and automated reporting tools is essential to strengthen the department's strategic decision-support role.

**3. Improve Digital Infrastructure:** Reliable, high-speed internet connectivity and backup systems should be secured to ensure optimal performance of digital health information systems.

### 4. Strengthen Human Capacity Development:

Continuous professional development programs should emphasize advanced data management skills, digital competencies, and practical data analysis training for HIM professionals.

### 5. Promote Inter-Professional Collaboration:

Interdisciplinary workshops and structured team-building initiatives should be implemented to improve communication and collaboration between HIM professionals and clinical staff, thereby enhancing integrated health information use.

A phased implementation strategy beginning with funding advocacy is recommended to ensure systematic and sustainable transformation of the department into a strategic, data-driven unit that supports both clinical and administrative decision-making.

## Contributions to Knowledge

This study contributes significantly to the field of Health Information Management in resource-constrained healthcare environments.

First, it provides recent, context-specific empirical evidence on the operational realities of an HIM department within a Nigerian tertiary healthcare institution. By documenting frontline staff perceptions, it moves beyond theoretical assumptions to present grounded insights into system performance and challenges.

Second, the study identifies and quantifies a critical paradox: high operational efficiency in data entry, security, and access does not automatically translate into strong analytical or strategic functionality. This distinction advances scholarly understanding of HIM system effectiveness as multidimensional rather than monolithic.

Third, it validates the interlinked nature of systemic constraints, empirically ranking insufficient funding as the most severe barrier. This finding underscores the importance of addressing structural and financial determinants alongside technological and training interventions.

Finally, by capturing workforce-endorsed solutions, the study provides an evidence-based roadmap for institutional improvement, thereby bridging the gap between research and practical policy application.

## Suggestions for Further Research

Future research should extend the present findings through the following approaches:

**1. Impact Evaluation Studies:** Longitudinal or action-research designs should assess the measurable effects of implementing recommended interventions on reporting efficiency, managerial decision quality, and patient care outcomes.

**2. Comparative Institutional Studies:** Comparative analyses across multiple teaching hospitals—federal, state, public, and private—would help determine the generalizability of findings and inform broader policy recommendations.

**3. Qualitative Investigations:** In-depth interviews and focus group discussions could explore underlying causes of analytical weaknesses and professional rivalry, providing contextual nuance beyond quantitative data.

**4. Correlation and Outcome-Based Research:** Statistical analyses examining relationships between staff qualifications, years of experience, system usage patterns, and perceived effectiveness would further illuminate determinants of HIM performance.

**5. Economic and Policy-Oriented Research:** Cost-benefit analyses of HIM investments and policy studies on sustainable financing models—including public-private partnerships—would provide strategic guidance for long-term system strengthening in similar healthcare settings.

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