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Knowledge, Attitudes, and Challenges of E-Coding Use in Health Information Management: A Case Study of Lagos University Teaching Hospital

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Annotation:Introduction:

The adoption of electronic health information systems has become increasingly important in improving healthcare delivery and data management. Electronic coding (e-coding), a key component of this transformation, enhances the accuracy of clinical documentation, supports timely billing, and facilitates reliable health data reporting. Despite its benefits, implementation challenges persist, especially in resource-limited settings like Nigeria.

Objectives:

This study aimed to assess the level of knowledge, attitudes, perceived benefits, and challenges related to e-coding among Health Information Management (HIM) personnel at Lagos University Teaching Hospital (LUTH). It also sought to determine the association between knowledge and the actual practice of e-coding.

Method of Analysis:

A descriptive cross-sectional research design was employed. Total enumeration sampling was used to administer structured questionnaires to 150 HIM personnel. Descriptive statistics (frequency, percentage, mean, and standard deviation) were used for data presentation, while Chi-square analysis tested the relationship between knowledge and practice of e-coding.

Result:

Findings revealed that 88% of respondents were aware of e-coding, although only 54% had received formal training. While 78% agreed that e-coding improves documentation accuracy and 82% acknowledged its role in enhancing record accessibility, only 60% expressed confidence in its use. Key challenges included inadequate training (62%), poor infrastructure (58%), and incomplete clinical documentation (50%). A significant association was found between knowledge and e-coding practice ($\chi^2 = 9.09$, $p = 0.0001$), confirming that increased knowledge correlates with higher adoption.

Conclusion:

Despite positive perceptions of e-coding, its effective implementation is hindered by infrastructural deficits and a lack of comprehensive training. Enhancing workforce capacity, improving infrastructure, and addressing documentation quality are essential steps toward optimizing e-coding usage in health

institutions. Addressing these barriers will be critical in leveraging digital tools to improve healthcare data quality and service delivery in Nigeria.

Keywords: *electronic coding, health information management, clinical documentation, e-health, coding practice, hospital information systems, Nigeria*.

Background

The growing digitization of health information systems has reshaped how medical data is recorded, processed, and utilized across healthcare environments. One crucial component of this digital transformation is clinical coding the systematic translation of textual health information into standardized alphanumeric codes based on international classification systems, such as the International Classification of Diseases (ICD). These codes serve numerous purposes, including facilitating statistical reporting, ensuring accurate billing and reimbursement, supporting epidemiological surveillance, and enhancing health policy decision-making. With the adoption of electronic health records (EHRs), coding practices are increasingly embedded within digital workflows, leading to what is commonly referred to as "e-coding." This evolution from manual, paper-based coding systems to electronic platforms is particularly significant in low- and middle-income countries like Nigeria, where efforts to modernize health information management remain inconsistent and under-researched (Al-Muammar et al., 2023; Oladele et al., 2022).

E-coding systems, when effectively implemented, offer the potential to improve the quality, consistency, and timeliness of health data. These systems often incorporate automated tools that prompt clinicians to input more accurate documentation and assist coders in assigning precise diagnostic and procedural codes. Evidence suggests that electronic coding not only enhances coding accuracy and reduces administrative workload but also plays a vital role in driving data-informed clinical and managerial decisions (Evans et al., 2021). However, the transition to such systems is not without challenges. Studies have pointed out persistent issues including poor ICT infrastructure, lack of standardized training for health information management (HIM) professionals, and inadequate clinical documentation by physicians (Okafor & Chukwudi, 2021). In Nigeria, despite national initiatives aimed at strengthening digital health infrastructure, many healthcare facilities still struggle with low digital literacy, staff resistance to technological change, and unreliable internet access, all of which hinder the successful adoption of e-coding systems (Afolabi et al., 2020; Oladele et al., 2022).

In addition to technical and operational challenges, the adoption of e-coding also poses socio-behavioral and organizational concerns. The Health Belief Model (HBM), originally developed by Rosenstock in the 1950s and expanded by Becker and others, provides a valuable theoretical framework for understanding the factors influencing the acceptance and use of electronic coding systems among HIM professionals. According to the HBM, health behavior change (in this case, the adoption of e-coding tools) is influenced by an individual's perception of the severity and susceptibility to a problem (e.g., errors in manual coding), the perceived benefits of taking action (e.g., enhanced efficiency and accuracy of e-coding), perceived barriers (e.g., lack of training or technical support), cues to action (e.g., institutional policies or training programs), and self-efficacy (confidence in one's ability to use e-health systems effectively) (Glanz et al., 2015; Champion & Skinner, 2008). Applying this model to e-coding adoption helps to conceptualize how individual, institutional, and systemic factors interact to shape practice outcomes.

Furthermore, Diffusion of Innovations Theory (Rogers, 2003) offers a complementary perspective, emphasizing how new technologies such as e-coding spread within a social system over time. The theory categorizes adopters into innovators, early adopters, early majority, late majority, and laggards, and highlights the roles of perceived attributes of innovation—relative advantage, compatibility, complexity, trialability, and observability—in influencing adoption decisions. Understanding where HIM professionals in Nigerian tertiary hospitals fall within this adoption curve is critical to designing interventions that promote wider and more effective uptake of electronic coding tools.

Despite the apparent benefits of e-coding, concerns remain over the quality of documentation that feeds into these systems. Coders often rely on physicians' notes, which may be incomplete, ambiguous, or inconsistent, thereby undermining the accuracy of the assigned codes. Moreover, as automated coding tools continue to develop—particularly those incorporating natural language processing and artificial intelligence—there are fears among HIM staff that such systems may eventually displace their roles (Naylor et al., 2022). Yet, most scholars argue that technology is more likely to complement than replace human input, by automating routine tasks and enabling professionals to focus on complex coding and data validation tasks (Hasan et al., 2021; WHO, 2023).

In light of these complexities, there is a pressing need to examine the readiness and perceptions of HIM staff toward e-coding systems, especially within major Nigerian healthcare institutions like the Lagos University Teaching Hospital (LUTH). Such investigations are essential for identifying knowledge gaps, infrastructural needs, and behavioral factors that influence the effective integration of electronic systems into clinical workflows. As Nigeria continues to pursue digital health transformation, the successful implementation of e-coding will be a key indicator of progress in modernizing its health information systems and aligning with global standards in data governance and healthcare delivery.

Methods

Research Design

This study adopts a descriptive research design, which is appropriate for systematically investigating and presenting the characteristics, perceptions, and experiences of health information management professionals regarding the adoption and impact of electronic coding systems. The descriptive approach allows for the capture and analysis of current practices, attitudes, and challenges within a real-world healthcare setting without manipulation of variables

Study Area

The Lagos University Teaching Hospital (LUTH) is a premier tertiary healthcare institution located in Lagos, Nigeria. It was established in October 1962 following a policy directive by the Federal Ministry of Health, in response to the recommendations of the Eric Ashby Commission on post-secondary education in Nigeria. The Commission had advocated for the establishment of a full-fledged medical school in Lagos, leveraging existing medical infrastructure. Initially known as Mainland Hospital, LUTH began operations in mid-August 1962 with a capacity of 330 beds.

Over the years, LUTH has evolved into one of the largest and most comprehensive teaching hospitals in Nigeria, currently operating approximately 761 beds across its wards. It functions not only as a healthcare provider but also as a training and research institution of international repute. Its corporate mandate includes the provision of quality patient care, the education and training of medical and allied health personnel, and the pursuit of medical research aimed at addressing pressing health challenges.

The hospital comprises several specialized departments and units, including the Psychotherapy Department, Laboratory Services, Pharmacy, Electroencephalography (EEG) Unit, Physiotherapy Department, and the Health Records Department. These departments collectively support the hospital's mission to deliver prompt, effective, and evidence-based healthcare services.

Study Population

The target population for this study comprises Health Information Management (HIM) personnel working at the Lagos University Teaching Hospital (LUTH), Idi-Araba, Lagos. This includes professionals involved in medical record keeping, clinical coding, data processing, and health information system management within the institution. The total population size is approximately 150 HIM staff, encompassing both senior and junior cadres actively engaged in the hospital's health information management operations.

Sampling Technique and Sample Size

This study employed a total enumeration sampling technique, which involves including the entire population in the study. Given the relatively manageable population size of 150 Health Information Management personnel at Lagos University Teaching Hospital (LUTH), all eligible staff were selected to participate. Accordingly, 150 structured questionnaires were distributed to capture comprehensive data from the entire study population.

Instruments for Data Collection

The primary instrument for data collection in this study was a structured, self-administered questionnaire designed to obtain relevant quantitative data from Health Information Management (HIM) personnel. The questionnaire was developed in alignment with the study objectives and informed by existing literature on electronic health records and clinical coding practices. It was organized into sections that addressed demographic information, knowledge and awareness of electronic coding systems, perceived benefits, challenges, and the level of adoption in daily operations.

To ensure the validity of the instrument, the questionnaire was reviewed by subject matter experts in health information management and public health. A pilot test was also conducted with a small group of HIM professionals outside the study setting, which helped refine the instrument for clarity, structure, and appropriateness of language.

Data Collection Methods

Data were collected through the direct distribution of structured questionnaires to all 150 HIM personnel at the Lagos University Teaching Hospital (LUTH). The questionnaires were administered in person to facilitate prompt completion and to address any questions or clarifications from respondents. Participants were given adequate time to respond, and the completed questionnaires were retrieved either immediately or within a short agreed timeframe. Participation was entirely voluntary, and ethical research standards were strictly followed, including obtaining informed consent and ensuring the confidentiality and anonymity of all responses.

Data Analysis

The data collected from the completed questionnaires were sorted, coded, and entered into the Statistical Package for the Social Sciences (SPSS) version 25.0 for analysis. Descriptive statistics such as frequencies, percentages, means, and standard deviations were used to summarize demographic characteristics and responses to key variables related to knowledge, use, and perceptions of electronic coding systems among Health Information Management (HIM) personnel. Inferential statistical analysis was conducted to test the stated hypothesis and to determine the relationship between variables. Specifically, the Chi-square test of independence was employed to assess the association between knowledge and practice of electronic coding. The level of statistical significance was set at $p < 0.05$. Results were presented in tables and interpreted in relation to the study objectives.

Results

Table 1: Demographic Characteristics of Respondents

Variable	Category	Frequency	Percentage (%)
Sex	Male	54	36.0
	Female	96	64.0
Age Group	19–25	57	38.0
	26–32	69	46.0
	33–39	15	10.0
Mean±S.D	40–46 27.8±5.84	9	6.0
Years of Experience	0–3	39	26.0

	4–6	63	42.0
	7–9	12	8.0
	10–12	18	12.0
	13–15	18	12.0
Education Level	IT	33	22.0
	Clerk	33	22.0
	ND/Technician	27	18.0
	HND	57	38.0
Religion	Muslim	51	34.0
	Christian	84	56.0
	Others	15	10.0
Tribe	Yoruba	102	68.0
	Hausa	18	12.0
	Igbo	30	20.0
Marital Status	Married	48	32.0
	Single	99	66.0
	Others	3	2.0

The demographic characteristics of the respondents reveal a predominance of female participants, accounting for 64% of the sample, while males constituted 36%. The age distribution indicates that the majority of respondents were between the ages of 26 and 32 years, representing 46% of the total population, followed by those aged 19 to 25 years at 38%. A smaller proportion fell within the age ranges of 33 to 39 years (10%) and 40 to 46 years (6%). The calculated mean age of respondents was approximately 27.8 years with a standard deviation of 5.84, suggesting that the sample was relatively youthful with moderate age variability. In terms of years of professional experience, the highest proportion of respondents (42%) had between four to six years of experience, while 26% had between zero to three years. Additionally, 12% each had experience spanning 10 to 12 years and 13 to 15 years, whereas 8% had between seven to nine years of experience. These figures indicate a workforce composed largely of early- to mid-career professionals.

With respect to educational qualifications, 38% of the respondents held a Higher National Diploma (HND), making it the most common qualification among the sample. This was followed by 22% each who were either trained as Information Technologists (IT) or occupied clerical positions, while 18% possessed a National Diploma (ND) or equivalent technical training. Religious affiliation showed that 56% of the participants identified as Christians, 34% as Muslims, and the remaining 10% adhered to other religions. Ethnic representation was predominantly Yoruba at 68%, followed by Igbo at 20% and Hausa at 12%, reflecting the regional composition of the hospital's location in southwestern Nigeria. Marital status data indicated that a significant majority of respondents were single (66%), while 32% were married and a small minority (2%) identified with other marital arrangements.

Table 2: Knowledge of E-Coding Among Respondents (N = 150)

Statement	Response	Frequency	Percentage (%)
Have you heard of electronic coding (e-coding) in health information management?	Yes	132	88.0
	No	18	12.0
Have you received any formal training on e-coding systems?	Yes	81	54.0
	No	69	46.0
Are you familiar with ICD-based classification in electronic format?	Yes	96	64.0
	No	54	36.0

Can you accurately identify codes using an electronic system?	Yes	87	58.0
	No	63	42.0
Do you currently use e-coding tools in your routine documentation?	Yes	75	50.0
	No	75	50.0

The analysis of respondents' knowledge of electronic coding (e-coding) reveals a generally high level of awareness among health information professionals at Lagos University Teaching Hospital (LUTH). As shown in Table 2, a substantial majority (88%) indicated that they had heard of e-coding in the context of health information management, suggesting that the concept is well known within the institution. However, when asked about formal training, just over half (54%) reported having received specific instruction or education on the use of electronic coding systems, indicating a notable training gap that may affect proficiency and confidence in its application.

Furthermore, 64% of respondents affirmed familiarity with the International Classification of Diseases (ICD) in electronic format, which reflects a reasonable degree of technical literacy in core classification systems. Despite this, only 58% stated that they could accurately identify codes using an electronic platform, highlighting a potential discrepancy between theoretical knowledge and practical competence. Interestingly, the responses regarding actual usage of e-coding tools in routine documentation were evenly split, with 50% reporting current use and the remaining 50% indicating non-use. This may reflect either inconsistencies in institutional implementation of electronic systems or a lack of uniform access among personnel. The relatively high awareness yet moderate application suggests a need for structured capacity-building efforts, targeted training programs, and broader system integration to enhance practical e-coding proficiency across all health information management staff.

Table 3: Attitudes Toward E-Coding Among Respondents (N = 150)

Statement	Response	Frequency	Percentage (%)
E-coding enhances accuracy in documentation.	Agree	117	78.0
	Disagree	33	22.0
I feel confident working with electronic coding systems.	Agree	90	60.0
	Disagree	60	40.0
E-coding reduces the time needed for documentation.	Agree	102	68.0
	Disagree	48	32.0
E-coding should replace manual coding completely in hospitals.	Agree	84	56.0
	Disagree	66	44.0

The findings presented in Table 3 reflect the general attitudes of health information professionals toward electronic coding (e-coding) systems. A substantial majority of respondents (78%) agreed that e-coding enhances the accuracy of documentation, highlighting a broad recognition of its potential to improve the reliability and precision of recorded clinical information. This positive perception aligns with contemporary literature suggesting that digital coding systems reduce errors and improve the consistency of diagnostic and procedural entries.

Despite this favorable view, attitudes toward personal confidence in using e-coding systems appeared more moderate, with 60% of the respondents indicating confidence in their ability to work with such tools. Conversely, 40% expressed a lack of confidence, which may be attributed to gaps in training, limited exposure, or inadequate institutional support. This divide suggests that while the perceived utility of e-coding is acknowledged, not all users feel adequately prepared to operate such systems independently or efficiently.

Additionally, 68% of the participants believed that e-coding reduces the time required for documentation processes. This response suggests that the system is generally viewed as a facilitator of efficiency within routine clinical workflow. However, it is noteworthy that nearly one-third (32%) of the respondents disagreed, implying that for some individuals, the learning curve or system limitations may still impede workflow optimization.

Finally, when asked whether e-coding should completely replace manual coding in hospitals, 56% agreed, while 44% disagreed. This relatively balanced view underscores the existence of both optimism and caution among staff. While a slight majority supports full digitization, a significant proportion may still value manual systems due to familiarity, perceived reliability, or concerns about system failures and data loss.

Table 4: Challenges Encountered in the Use of E-Coding (N = 150)

Challenge	Frequency	Percentage (%)
Inadequate training on electronic systems	93	62.0
Poor infrastructure (e.g., computers, electricity)	87	58.0
Inconsistent or incomplete clinical documentation	75	50.0
Lack of access to up-to-date software	60	40.0
Fear of job redundancy due to automation	36	24.0

Table 4 highlight the key challenges experienced by health information personnel in their use of electronic coding (e-coding) systems. Foremost among these is inadequate training, with 62% of respondents identifying this as a major impediment. This suggests a critical gap in the professional development and capacity-building efforts required to effectively transition from manual to digital coding systems. Without sufficient training, staff may struggle with the technical demands of e-coding, which in turn can hinder accuracy, consistency, and confidence in its application.

Closely related to this is the issue of poor infrastructure, reported by 58% of respondents. The effective use of e-coding depends heavily on reliable technological infrastructure, including access to functional computers, uninterrupted power supply, and internet connectivity. The presence of infrastructural deficits implies that even well-trained staff may be unable to fully leverage the benefits of digital coding systems due to environmental limitations beyond their control.

Another significant challenge, cited by 50% of the participants, is the issue of inconsistent or incomplete clinical documentation. Since e-coding relies on accurate, comprehensive, and timely clinical entries, any deficiency in the documentation process compromises the validity of coded data. This finding underscores the need for improved clinical documentation practices and enhanced communication between clinicians and health information personnel.

Furthermore, 40% of respondents noted the lack of access to up-to-date software as a constraint. Outdated or incompatible coding systems can reduce the efficiency and effectiveness of electronic health records and may result in coding errors or non-compliance with current international standards, such as the latest versions of ICD.

Lastly, 24% of respondents expressed concerns about job redundancy due to automation. This reflects underlying anxieties about the potential for technology to replace human input in health information management.

Table 5: Perceived Benefits of E-Coding (N = 150)

Benefit	Frequency	Percentage (%)
Improves billing and reimbursement accuracy	111	74.0
Enhances accessibility to patient records	123	82.0
Reduces human error in coding	108	72.0
Facilitates timely health data reporting	99	66.0
Aids in health research and planning	105	70.0

The findings in Table 5 outline the perceived benefits of electronic coding (e-coding) as reported by health information personnel. A substantial majority of respondents (82%) indicated that e-coding enhances accessibility to patient records. This suggests that the digitization of coding processes contributes significantly to efficient retrieval and utilization of health information, which is crucial for continuity of care, clinical decision-making, and administrative processes. This improved accessibility supports the broader objectives of electronic health records (EHRs) in facilitating coordinated and responsive healthcare delivery. Additionally, 74% of participants acknowledged that e-coding improves billing and reimbursement accuracy. This perception underscores one of the most critical operational advantages of digital coding systems, as accurate coding is foundational for proper claims processing, revenue cycle management, and compliance with insurance or government reimbursement policies. Electronic systems can flag inconsistencies, enforce coding standards, and reduce errors that often result in claim denials or financial losses. A considerable proportion of the respondents (72%) also affirmed that e-coding reduces human error in coding. By automating and standardizing classification processes, electronic coding systems minimize subjective interpretations and manual entry mistakes. This improvement directly supports data integrity, which is essential for patient safety, institutional reporting, and public health surveillance.

Moreover, 66% of respondents stated that e-coding facilitates timely health data reporting. This reflects the efficiency and speed that electronic systems bring to health information workflows, enabling quicker aggregation, analysis, and dissemination of data for internal audits, policy formulation, and external reporting obligations. Finally, 70% of respondents believed that e-coding aids in health research and planning. Given that coding serves as a foundation for health statistics, the ability to generate high-quality, structured data electronically enhances the capacity for epidemiological studies, service delivery evaluations, and strategic planning. This finding aligns with the growing emphasis on data-driven healthcare management and the integration of informatics into public health frameworks.

Table 6: Association Between Knowledge and Practice of E-Coding and Chi-Square Test Result (N = 150)

Knowledge of E-Coding	Practice: Yes	Practice: No	Total	χ^2	p-value
Yes (Aware)	72	60	132	9.09	0.0001
No (Unaware)	3	15	18		
Column Total	75	75	150		

The results presented in Table 6 illustrate the association between knowledge of e-coding and its actual practice among health information personnel at Lagos University Teaching Hospital. Among the 132 respondents who reported being aware of e-coding, 72 (54.5%) actively practiced it, while 60 (45.5%) did not. In contrast, of the 18 respondents who indicated no prior knowledge of e-coding, only 3 (16.7%) reported engaging in its use, whereas 15 (83.3%) did not.

A Chi-square test of independence was conducted to determine whether the observed relationship between knowledge and practice was statistically significant. The test yielded a Chi-square value of 9.09 with a p-value of 0.0001, which is well below the conventional threshold of 0.05 for statistical significance. This result suggests a strong and statistically significant association between knowledge of e-coding and its practical implementation. In other words, individuals who possessed knowledge of e-coding were significantly more likely to engage in its practice compared to those who lacked such knowledge.

Discussion of Findings

The findings of this study provide insightful evidence on the knowledge, attitudes, perceived benefits, and challenges associated with the implementation and practice of electronic coding (e-coding) among health information management personnel at Lagos University Teaching Hospital (LUTH). The results

reveal that while awareness of e-coding is relatively high among respondents, practical application and confidence in its usage remain areas requiring strategic intervention.

Demographically, the study population consisted predominantly of females (64%) and individuals between the ages of 19 and 32 years (84%), suggesting a youthful workforce that is potentially adaptable to digital innovations in health information management. However, years of experience varied, with 26% having 0–3 years and 42% having 4–6 years of experience, implying a mix of early- to mid-career professionals. This demographic profile is favorable for digital transitions, as younger professionals tend to demonstrate higher technological adaptability (Ojo et al., 2021).

In terms of knowledge, 88% of respondents reported being aware of e-coding, yet only 54% had received formal training. Additionally, 64% were familiar with ICD classifications in digital format, but just 58% could confidently apply codes using an electronic system. The discrepancy between awareness and competence reflects a need for structured, competency-based training. These findings align with Adewole and Oladipo (2022), who emphasized that in Nigeria's evolving digital health landscape, knowledge without formal training often results in inconsistent practice and underutilization of available tools.

Attitudinal data further indicate that respondents generally view e-coding positively. A strong majority (78%) agreed that it enhances documentation accuracy, while 68% believed it reduces documentation time. However, confidence levels were moderate, with 40% expressing uncertainty about their ability to work with e-coding systems. Moreover, opinions were split on whether e-coding should fully replace manual systems, suggesting the presence of transitional resistance likely stemming from limited system exposure or inadequate infrastructure (Bello et al., 2023). This mirrors the hesitancy found in other developing contexts where technological transitions are often hindered by user apprehension and institutional inertia. The study also uncovered several persistent challenges. Chief among them were inadequate training (62%) and poor infrastructure (58%), followed by incomplete clinical documentation (50%) and outdated software (40%). These issues resonate with findings by Musa and Ajayi (2020), who noted that successful adoption of electronic health systems in Nigerian hospitals is constrained by weak ICT infrastructure, irregular power supply, and inconsistent policy implementation. Additionally, 24% of respondents expressed concern over job redundancy, highlighting the importance of sensitizing health information professionals to evolving role expectations and the opportunities for skill development in a digitized health environment.

Notably, the perceived benefits of e-coding were strongly affirmed. Respondents identified improved accessibility to patient records (82%), billing and reimbursement accuracy (74%), reduced human error (72%), and enhanced support for health research and planning (70%) as key advantages. These perceptions align with international evidence that e-coding improves data accuracy, optimizes workflow, and facilitates timely health reporting (Kim et al., 2022; WHO, 2021). Most significantly, a statistically significant association was found between knowledge and practice of e-coding ($\chi^2 = 9.09$, $p = 0.0001$), indicating that respondents with prior knowledge were significantly more likely to utilize e-coding tools. This aligns with Bandura's Social Cognitive Theory, which posits that knowledge acquisition is a precursor to behavioral adoption when environmental and institutional factors are supportive (Bandura, 2001). The implication here is that increasing knowledge through targeted training could directly enhance the adoption and routine use of e-coding in clinical documentation and reporting.

Conclusion

This study explored the implementation of electronic coding (e-coding) among Health Information Management personnel at Lagos University Teaching Hospital (LUTH), focusing on their knowledge, attitudes, perceived benefits, and the challenges they encounter. The findings demonstrated that while there is a high level of awareness of e-coding among respondents, actual usage is constrained by key systemic and infrastructural challenges. Most participants acknowledged that e-coding enhances accuracy in documentation, improves billing processes, and facilitates easier access to patient records. However, fewer expressed confidence in their ability to fully utilize the system, reflecting a gap

between theoretical knowledge and practical application. A significant association was observed between knowledge and the practice of e-coding, indicating that the more informed the personnel are, the more likely they are to apply e-coding in their routine work. Despite this, inadequate training opportunities, poor infrastructure, limited access to up-to-date software, and incomplete clinical documentation continue to hinder effective implementation. These findings align with broader national and international literature, which emphasize that successful integration of electronic health technologies in hospital systems requires more than equipment provision it demands strong institutional support, technical capacity, and user engagement. To improve the situation, health institutions need to intensify efforts in building the capacity of their staff through continuous professional training that emphasizes both foundational digital literacy and specialized coding competencies. Institutional investment in modern infrastructure, including stable electricity, functional computing equipment, and updated software, must also be prioritized. Furthermore, strengthening collaboration between clinicians and health information personnel will help address documentation gaps, ensuring that the data required for accurate coding are available and complete. Addressing staff concerns about job redundancy and involving them in the design and implementation of digital systems can help mitigate resistance and increase engagement. While e-coding holds immense potential for improving health data quality, billing efficiency, and research capacity, its success at LUTH and similar institutions depends on addressing the intertwined challenges of technical infrastructure, workforce readiness, and clinical documentation practices. By adopting a strategic, inclusive, and sustained approach to digital transformation, health facilities in Nigeria can leverage e-coding as a powerful tool for strengthening their health information systems and delivering more efficient, accountable, and data-driven care.

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