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ASSESSMENT OF HEALTH INFORMATION MANAGEMENT PROFESSIONALS' KNOWLEDGE OF MEDICAL TERMINOLOGY AND CLINICAL CODING SYSTEM IN TERTIARY HOSPITALS, BAYELSA STATE

DOGIYE LUCKY EBITEINYE¹, SAMUEL LYDIA IFIE², JACK-GBARABE BIOBELEMOYE³

¹ Health Information Management Department, Bayelsa Medical University, Yenagoa
08034836551, lucky.dogiye@bmu.edu.ng

² Health Information Management Department, Niger Delta University Teaching Hospital, Okolobiri,
0 814 912 1143, samuelydia464@gmail.com

³ Health Information Management Department, Bayelsa Medical University, Yenagoa Bayelsa State, Nigeria,
803 468 3332, biobelemoye.jack@bmu.edu.ng

ABSTRACT :

This study assessed the knowledge of medical terminology and clinical coding practice among Health Information Management professionals in tertiary hospitals in Bayelsa State, Nigeria. The study was guided by four objectives which focused on determining the level of medical terminology knowledge among HIM professionals, examining the quality of clinical coding practices, identifying challenges affecting coding activities, and establishing the relationship between medical terminology knowledge and coding quality. A descriptive survey research design was adopted, and data were collected from 98 HIM professionals working in Federal Medical Centre Yenagoa and Niger Delta University Teaching Hospital using a structured questionnaire. Data were analyzed using descriptive statistics including frequency, percentage, mean, and standard deviation. Findings revealed that HIM professionals possess a good level of knowledge of medical terminology, including understanding of disease names, clinical abbreviations, and medical documentation. The study also showed that the quality of clinical coding practices is generally good, with most respondents adhering to ICD coding guidelines and ensuring accuracy in coded health data. However, challenges such as inadequate clinical documentation, high workload, limited access to coding resources, and insufficient training were identified as factors affecting coding efficiency. The study further established a strong positive relationship between knowledge of medical terminology and the quality of clinical coding practices. It was concluded that improved knowledge of medical terminology significantly enhances coding accuracy and overall health information quality. The study recommends continuous training, improved documentation practices, and provision of adequate coding resources to strengthen clinical coding systems in healthcare facilities.

Keywords: Health Information Management Professionals, Knowledge, Medical Terminology, Clinical Coding System

Introduction

Medical terminology is the language used in healthcare-by-healthcare professionals. It lets health professionals communicate clearly and ensures that clinical documents are understood the right way. If Health Information Management (HIM) professionals do not know medical terms very well enough, coding mistakes can happen. These mistakes can harm patient care, hospital payments, health stats, research results, and health policy (O'Malley et al., 2005). Thus, it is important to check how well HIM professionals know medical terms and how this knowledge affects the quality of clinical coding, mainly in big hospitals that handle complicated cases.

Clinical coding is key to health information management systems around the globe. Good clinical coding means health data is reliable for planning, making decisions, watching diseases, and using resources wisely (WHO, 2016). In Nigeria, big (tertiary) hospitals act as referral centers for tricky medical stuff, which means they need clinical coding that is spot-on.

Health Information Management (HIIM) experts should know their medical terms so they can read what doctors write and pick the right codes. Coding precision may suffer from insufficient education, not staying up-to-date with field knowledge, bad documentation, and changes to coding rules (Gyls, & Wedding 2017).

The World Health Organization (WHO) acknowledges the International Classification of Diseases (ICD) as a system for categorizing diseases, health conditions, and related issues. It is very important for clinical records, data analysis, and healthcare decisions. ICD gives a standard way to record and

report diseases and health conditions, which helps health officials create good interventions (Hamza et al., 2025).

Health Information Management (HIM) experts are very important in healthcare. They make sure health data is correctly documented, classified, stored, and found when needed. A key part of their job is clinical coding. This means they turn diagnoses, procedures, and health services into standard codes. They use systems like the International Classification of Diseases (ICD) that are used around the world. Coders need to know medical terms, how the body works, and about diseases to code things right (Bowman, 2013). Health Information Management (HIM) professionals are key in today's healthcare. They make sure patient data is coded right using ICD standards. These standards keep medical records consistent, which helps hospitals see how well patients are cared for. It also helps manage resources and makes insurance payments easier. HIM professionals do many things, like review documents, assign codes, and help with audits. All this depends on using ICD correctly (Hamza et al., 2025).

Despite the global relevance of the International Classification of Diseases (ICD), its consistent application in many Nigerian hospitals faces obstacles. These include insufficient training, difficulty in obtaining current coding resources, inadequate documentation, and limited institutional backing (Hamza et al., 2025).

The quality of data suffers when doctors and nurses do not give enough detail in their records. This can cause incorrect data, rejected claims, and poor health decisions. Proper ICD use is needed for disease surveillance, hospital quality management, and national health reporting. Without accurate ICD implementation, tracking health patterns, responding to outbreaks, and making informed health policies becomes very hard. It is crucial to reinforce ICD use and improve the coding abilities of health information staff through ongoing education, access to current coding guidelines, and standardized protocols (Hamza et al., 2025).

Health information is key to good healthcare, planning, and policy. Clinical coding and indexing change patient data into standard formats that aid clinical care, research, and hospital work. The World Health Organization (2019) says the International Classification of Diseases (ICD) is a global standard for coding diseases and procedures, ensuring health data is reported the same way everywhere.

Despite their value, many Nigerian healthcare places find it hard to use clinical coding and indexing. reasons include not enough trained people, poor facilities, old software, and little support from the organizations themselves (Nwankwo et al., 2020). These issues stop accurate data capture, which hurts hospital payments and overall health system work.

Accurately coded data has many uses. Besides billing, codes help assess healthcare processes and results. They also support quality control, case-mix work, planning, market analysis, administration, and research. The tenth version of the International Classification of Diseases (ICD-10) is widely used for studies and health management. The clinical modification (CM) and procedure coding system (PCS) of ICD-10 were made to give more clinical detail with more codes for diagnoses and procedures, and they are used in disease-related groups for payments. The many codes make coding take longer and be less accurate (Hamza et al., 2025). A modern model using deep contextual word embedding helps classify ICD-10 texts automatically. In addition to discharge diagnoses, using text from items like medical history, other health issues, surgery details, and special tests can make it work better (Pei-fu, et al., 2022; Asadi, et al., 2022).

Coding means assigning numbers to describe diseases, conditions, or operations. It turns descriptions of diseases, injuries, and procedures into codes, like assigning numbers to medical terms using the International Classification of Disease 10th revision (ICD-10). Huffman (2019) says coding is a process that assigns a numeric code to diagnostic and procedural data, based on a medical classification system. Omidoyin cited in Hamza et al., (2025) defines clinical coding as changing medical terms written by doctors about a patient's complaints, problems, diagnoses, treatment, or reasons for getting medical help into a code format that is known nationally and internationally. Clinical coding also means changing diagnoses of diseases, health issues, and procedures from text into codes for easy storage, finding when needed, comparing, and analysis (Hamza et al., 2025). Clinical coding and indexing show medical procedures and diagnoses as code numbers. It is a key part of modern healthcare and lets people study diseases and treatment using statistics, look at diagnoses, handle payments, and more easily watch and track epidemics and events (Hamza et al., 2025).

The word prospect comes from the Latin word *prospectus*, which means a view or outlook. A prospect is a way of looking ahead and expecting good things. It is like potential, something that might happen but has not yet. While bad things could happen, prospects usually seem good. The noun became a verb in the 1800s when people started looking for gold. Prospecting means searching for gold. A prospect means a good future (Hamza et al., 2025).

Challenge as a verb comes from a Latin word meaning to accuse falsely. It is still used much as it was in the 13th century, meaning to question if something is true or right. Students might question a curfew, and lawyers might question evidence in court. Challenge is also a noun for a competition where people try to prove they are the best.

In Bayelsa State, there is limited knowledge about the understanding of medical terms by HIM people and its impact on coding quality in major hospitals, necessitating an evaluation to identify strengths, weaknesses, and areas for improvement in the field.

This study seeks to know the understanding of medical terms by Health Information Management (HIM) workers and the quality of clinical coding in major hospitals within Bayelsa State, Nigeria.

The quality of healthcare delivery depends largely on the availability of accurate, complete, and reliable health information. Health Information Management (HIM) professionals occupy a strategic position in ensuring that patient records are properly documented, classified, coded, stored, retrieved, and utilized for clinical care, research, disease surveillance, health planning, reimbursement, and policy formulation. Central to these responsibilities is a

sound knowledge of medical terminology and clinical coding systems, particularly the International Classification of Diseases (ICD), which provides a globally accepted framework for the standardized classification of diseases and health conditions (World Health Organization [WHO], 2022). Accurate clinical coding transforms clinical diagnoses and procedures into standardized codes, thereby facilitating effective communication among healthcare providers, improving health statistics, supporting epidemiological research, promoting healthcare financing, and enhancing evidence-based decision-making.

Medical terminology serves as the universal language of healthcare professionals. It enables Health Information Management professionals to correctly interpret physicians' documentation, laboratory reports, radiological findings, operative notes, and discharge summaries before assigning the appropriate diagnostic and procedural codes. Consequently, inadequate knowledge of medical terminology often results in inaccurate coding, misclassification of diseases, poor-quality health data, delays in claims processing, unreliable morbidity and mortality statistics, and ineffective healthcare planning. Similarly, insufficient competence in clinical coding systems undermines the credibility and usefulness of hospital information systems because health data become inconsistent, incomplete, and incomparable across institutions and geographical locations (WHO, 2022).

Globally, healthcare systems are increasingly relying on standardized coding systems such as ICD-10 and ICD-11 to improve interoperability, facilitate electronic health records, strengthen health information exchange, and support universal health coverage. The World Health Organization recognizes ICD-11 as an essential international standard for clinical documentation, disease surveillance, healthcare financing, research, and digital health transformation. Effective implementation of these coding systems, however, requires Health Information Management professionals who possess adequate knowledge of medical terminology, anatomy, physiology, disease processes, and coding conventions.

Despite the recognized importance of medical terminology and clinical coding, evidence from developing countries indicates that coding errors remain a persistent challenge. Studies have attributed these errors to inadequate training, poor understanding of medical terminologies, limited continuing professional education, insufficient availability of coding manuals, inadequate supervision, and rapid revisions in coding standards. In Nigeria, a quality improvement study conducted in Lagos State demonstrated that the accuracy of ICD-10 coding was significantly affected by the knowledge and experience of medical records officers, and that structured training together with electronic terminology support substantially improved coding accuracy. Within many tertiary hospitals in Nigeria, Health Information Management professionals are expected to handle increasingly complex clinical documentation generated from specialized medical services such as surgery, obstetrics and gynaecology, paediatrics, internal medicine, oncology, intensive care, and emergency medicine. The introduction of electronic medical records and digital health technologies has further increased the demand for professionals who possess advanced competency in interpreting clinical documentation and assigning standardized diagnostic and procedural codes. However, anecdotal observations suggest that variations in educational background, years of professional experience, access to continuing professional development, institutional support, and availability of updated coding resources may influence the level of knowledge possessed by HIM professionals. These variations have the potential to affect the quality, consistency, and reliability of hospital health information.

In Bayelsa State, tertiary hospitals play a vital role in providing specialist healthcare services to a rapidly growing population while simultaneously serving as centres for teaching, research, and public health reporting. These institutions generate enormous volumes of patient data that require accurate documentation and standardized coding. Nevertheless, there is limited empirical evidence regarding whether Health Information Management professionals working in these tertiary hospitals possess adequate knowledge of medical terminology and contemporary clinical coding systems required to support quality healthcare delivery. Most existing Nigerian studies have concentrated on electronic health records, data quality, waiting time, health information systems, or general health records management, with comparatively little attention given to assessing the competency of HIM professionals in medical terminology and clinical coding, particularly within tertiary healthcare institutions in Bayelsa State.

The absence of sufficient empirical information on the knowledge level of Health Information Management professionals creates uncertainty for hospital administrators, policymakers, educational institutions, and professional regulatory bodies regarding existing competency gaps and training needs. Without such evidence, deficiencies in coding knowledge may remain undetected, leading to coding inaccuracies, compromised health statistics, poor resource allocation, reduced effectiveness of disease surveillance programmes, diminished research quality, and weak evidence for healthcare planning and policy formulation. In addition, inaccurate coding may negatively influence hospital reimbursement mechanisms, quality assurance initiatives, institutional performance evaluation, and national health information reporting systems.

Furthermore, the recent transition towards ICD-11 and increasing adoption of digital health technologies require continuous professional development to ensure that HIM professionals remain competent in modern coding practices. If their knowledge of medical terminology and clinical coding is inadequate, healthcare organizations may experience persistent documentation errors, reduced interoperability of health information systems, inaccurate public health reporting, and compromised patient care outcomes.

It is against this background that this study seeks to assess the knowledge of Health Information Management professionals regarding medical terminology and clinical coding systems in tertiary hospitals in Bayelsa State. The findings are expected to provide evidence on the current level of competency among HIM professionals, identify existing knowledge gaps, determine factors influencing their knowledge, and provide recommendations that will strengthen professional training, continuing education, coding practices, health information quality, and healthcare service delivery within tertiary healthcare institutions.

The aim of this study is to *assess the knowledge of HIM professionals on medical terminology and clinical coding system in tertiary hospitals in Bayelsa State.*

Method and Materials

Study Setting

Niger Delta University Teaching Hospital (NDUTH), Okolobiri Bayelsa State

The study took place at Niger Delta University Teaching Hospital (NDUTH) in Okolobiri. This hospital, originally named General Hospital, Okolobiri, was established in 1973 by Alfred Papapreye Diete-Spiff, who was the military Governor of old Rivers State under Gen Yakubu Gowon's military government. It functioned as Okolobiri General Hospital for roughly 18 years before Bayelsa State was created by General Sani Abacha in 1996. In 2007, during Timipre Silva's governorship of Bayelsa State, the General Hospital, Okolobiri, was upgraded, first to a 158-bed then to a 200-bed tertiary healthcare center. This was done to satisfy the state's healthcare needs and to change its name to Niger Delta University Teaching Hospital (NDUTH) so that it could join Niger Delta University Amassoma as a tertiary healthcare provider (Dogiye et al., 2019).

Federal Medical Centre (FMC), Yenagoa Bayelsa State

The Federal Medical Centre, Yenagoa, a federally funded medical center in the Niger Delta, gives high-level tertiary care. It was founded in 1957 and changed its name to Federal Medical Centre, Yenagoa in 1999. In 2014, it also renamed the Otuoke Cottage Hospital. The hospital has grown a lot, with death rates going down and more patients coming in. The staff includes 2,216 people, and they want to turn it into a Federal Teaching Hospital. The hospital finished many building projects and has some still in progress. Dr. Dennis O. Allagoa is the main medical director, and Dr. James Omietimi heads clinical services. The main center and an outreach center at Otuoke are managed by Dr. Peter Alabrah and Dr. Egbuvbge. The hospital also does research and training.

Study Design

A *descriptive cross-sectional research design* was adopted to assess knowledge levels and coding quality at a single point in time.

Population of the Study

The population comprises of all Health Information Management Professionals working in tertiary hospitals in Bayelsa State. The population from Niger Delta University Teaching Hospital, Okolobiri were 45 while that of the Federal Medical Centre, Yenagoa were 68, making the overall population 113 Health Information Management Professionals.

Sample Size Determination

All Health Information Management (HIM) professionals working in the two tertiary healthcare facility made up the study's sample size. The study used a census approach, which included all eligible members of the population. As a result, no statistical procedure was applied to determine sample size. The study's sample size consisted of all HIM professionals working in the two tertiary health institutions. Therefore, the sample size was 113 Health Information Management professionals.

Sampling Technique

The study adopted a census sample technique, whereby all Health Information Management (HIM) workers working in clinical coding in the selected tertiary institutions were included in the study. This technique was judged appropriate because the population size was relatively small and accessible, and the study wanted to gain a thorough and accurate assessment of HIM professionals' understanding of medical terminology and its influence on the accuracy of clinical coding.

To eliminate selection bias, the census sample technique made guaranteed that differences in HIM specialists' professional experience, knowledge levels, and coding techniques were fully recorded. This broad inclusion increased the validity and trustworthiness of the findings, as the results mirrored the actual characteristics of the whole study population rather than a subset.

Inclusion and Exclusion Criteria

Participants that will be included in the study are:

- Registered HIM professionals
- Currently employed in tertiary hospitals in Bayelsa State
- Willing to participate in the study

Participants to be excluded in the study will be

- HIM students and interns
- HIM professionals on leave during data collection
- Non-consenting participants

Data Sources

Primary Data Sources were used for this study. For an assessment study in Bayelsa State tertiary hospitals, relevant data include a structured questionnaires to Health Information Management (HIM) professionals to measure their understanding of medical terms, how well they know ICD-10/ICD-11 systems, how sure they are with their coding skills and their coding experience with records and workflows. Also, clinical Record Review such as do a clinical coding accuracy audit of past records to choose patient records at random, have expert coders re-code them to check coding accuracy, and find error rates by comparing original and re-coded results.

Data Collection Instruments

The main tool that was used for data collection is questionnaire. It was design to measure *Health Information Management (HIM) Professionals' Knowledge of Medical Terminology and the Quality of Clinical Coding*. The questionnaire used closed-ended questions to get quantitative data which were divided into 4 different sections (A, B, C, D) respectively. Section A cover socio-demographic data of the respondents, section B, C, D contain the main statement to cover the specific objectives of the study. Since the questionnaire was based on a four-point Likert scale with response categories of Strongly Agree (4), Agree (3), Disagree (2), and Strongly Disagree (1), the criterion mean was determined by summing the scale values and dividing by the number of response options: $(4 + 3 + 2 + 1) \div 4 = 2.50$. Therefore, any item with a mean score of 2.50 or above was regarded as accepted (agreed), while any item with a mean score below 2.50 was regarded as rejected (disagreed).

Method of Data Collection

Data were collected directly from the participants using self-administered questionnaires. These questionnaires were given to Health Information Management professionals within the tertiary facilities in Bayelsa State to complete the questionnaires. Google form questionnaire was used to collected data from participants.

Method of Data Analysis

The data from the questionnaires were analyzed using statistical Package for Social Science (SPSS) version 27 on descriptive statistics, which included frequencies, percentages, and mean scores. This aid understanding of *Health Information Management (HIM) Professionals' Knowledge of Medical Terminology and the Quality of Clinical Coding in tertiary hospitals in Bayelsa State*. While inferential statistics of Pearson correlation was used to test hypotheses at a 0.05 level of significance.

Ethical Considerations

Ethical approval was obtained from the appropriate Research Ethics Committee and the management of the selected tertiary hospitals in Bayelsa State before data collection. Participation was voluntary, and informed consent was obtained from all respondents after explaining the purpose and procedures of the study. Participants were assured of their right to withdraw at any stage without any consequences. Confidentiality and anonymity were strictly maintained by excluding personal identifiers from the questionnaire, and all data collected were used solely for academic purposes. The study posed no physical, psychological, or professional risk to participants, and responses were not used for staff appraisal or administrative decisions. The researcher ensured data security by storing completed questionnaires and electronic records securely, with access restricted to the researcher. The study was conducted in line with the ethical principles of respect for persons, beneficence, non-maleficence, and justice, while maintaining honesty, objectivity, and integrity throughout data collection, analysis, and reporting.

Results

From the findings, it was shown that 51 respondents (52.0%) were female and majority of respondents were within the age range of 40–49 years (39.8%). Also, it was revealed that most respondents possessed HND/B.Sc qualifications (60.2%), indicating that majority had professional educational training relevant to Health Information Management practice. It was indicated in the study that a large proportion of respondents had less than 5 years' experience (31.6%)

Table 41: Mean and Standard Deviation on Knowledge of Medical Terminology

S/N	Items	Mean	SD	Decision
1	I have adequate knowledge of medical terminology used in clinical records	3.45	0.62	Agree
2	I understand prefixes, suffixes and root words used in medical terms	3.40	0.66	Agree
3	I can correctly interpret physicians' notes	3.38	0.70	Agree

S/N	Items	Mean	SD	Decision
4	I understand disease names and diagnostic terms	3.50	0.58	Agree
5	I understand surgical and procedural terminologies	3.32	0.73	Agree
6	I can interpret abbreviations and acronyms used in medical records	3.41	0.65	Agree
7	Knowledge of medical terminology improves my coding accuracy	3.60	0.55	Strongly Agree
8	I require additional training in medical terminology	3.10	0.84	Agree
Grand Mean		3.40	0.67	Agree

Source: Field Survey, (2026).

It is calculated as:

$$\text{Cut-off Mean} = \frac{4 + 3 + 2 + 1}{4} = \frac{10}{4} = 2.50$$

Therefore:

- **Mean ≥ 2.50** = Accepted / Agreed / High Extent
- **Mean < 2.50** = Rejected / Disagreed / Low Extent

This decision rule is widely used in educational and social science research.

Decision Rule: 3.50 – 4.00 = Strongly Agree (Very High Extent), 2.50 – 3.49 = Agree (High Extent), 1.50 – 2.49 = Disagree (Low Extent), 1.00 – 1.49 = Strongly Disagree (Very Low Extent).

The findings presented in Table 1 show that Health Information Management (HIM) professionals in the selected tertiary hospitals possess a good level of knowledge of medical terminology. This is evident from the grand mean score of 3.40, which falls within the “Agree” decision range. The relatively low standard deviation of 0.67 also indicates that the respondents had similar opinions on the items, showing consistency in their responses.

The respondents agreed that they have adequate knowledge of medical terminology used in clinical records, with a mean score of 3.45. This suggests that most HIM professionals are familiar with the medical language commonly used in patient documentation and healthcare records. Such knowledge is essential because medical terminology serves as the foundation for accurate documentation, coding, indexing, and retrieval of patient information.

The respondents also agreed that they understand prefixes, suffixes, and root words used in medical terms, with a mean score of 3.40. This implies that the professionals possess the basic linguistic understanding necessary for interpreting complex medical terms. Knowledge of these components helps HIM professionals to correctly identify diseases, procedures, and anatomical structures during coding activities.

Similarly, the respondents agreed that they can correctly interpret physicians’ notes, with a mean score of 3.38. This finding indicates that the respondents are capable of understanding handwritten or electronic clinical notes documented by physicians. The ability to interpret physicians’ documentation is very important because inaccurate interpretation may lead to coding errors, wrong disease classification, and poor healthcare data quality.

The respondents further agreed that they understand disease names and diagnostic terms, as shown by the mean score of 3.50. This high mean score demonstrates that the respondents are knowledgeable about clinical diagnoses and disease conditions, which enhances their ability to assign accurate diagnosis codes.

The finding also showed that the respondents understand surgical and procedural terminologies, with a mean score of 3.32. Although the score is slightly lower than some other items, it still indicates a positive level of understanding. Surgical and procedural terminologies are often technical and complex, so this result suggests that respondents possess reasonable competence in this aspect.

In addition, the respondents agreed that they can interpret abbreviations and acronyms used in medical records, with a mean score of 3.41. This indicates that the HIM professionals are familiar with commonly used clinical abbreviations, which is necessary for accurate interpretation and coding of patient records.

The highest mean score of 3.60 was recorded for the statement that knowledge of medical terminology improves coding accuracy. This means that the respondents strongly believe that medical terminology knowledge plays a major role in enhancing the quality and accuracy of clinical coding. The low standard deviation of 0.55 further shows strong agreement among respondents on this issue.

Lastly, the respondents agreed that they require additional training in medical terminology, with a mean score of 3.10. Although the respondents generally demonstrated good knowledge, this finding suggests that they still recognize the importance of continuous professional development and further training to improve their competence and adapt to evolving healthcare terminologies and coding standards.

Overall, the findings indicate that HIM professionals in the selected hospitals possess substantial knowledge of medical terminology, which positively supports their coding responsibilities and healthcare information management functions.

Table 2: Mean and Standard Deviation on Quality of Clinical Coding Practices

S/N	Items	Mean	SD	Decision
1	Clinical diagnoses are coded according to ICD guidelines	3.44	0.64	Agree
2	Codes accurately reflect clinicians' diagnoses	3.36	0.69	Agree
3	All relevant diagnoses and procedures are fully coded	3.30	0.71	Agree
4	Coding is done consistently across patient records	3.28	0.74	Agree
5	Coding errors are minimal	3.12	0.81	Agree
6	Clinical documentation is sufficient for accurate coding	3.05	0.88	Agree
7	Ambiguous documentation is clarified before coding	3.26	0.76	Agree
8	Coding is completed within required timeframe	3.18	0.79	Agree
9	Regular coding audits are conducted	3.11	0.85	Agree
10	Continuous training improves coding quality	3.58	0.57	Strongly Agree
Grand Mean		3.27	0.74	Agree

Source: Field Survey, (2026).

Decision Rule: 3.50 – 4.00 = Strongly Agree (Very High Extent), 2.50 – 3.49 = Agree (High Extent), 1.50 – 2.49 = Disagree (Low Extent), 1.00 – 1.49 = Strongly Disagree (Very Low Extent).

The findings in Table 2 reveal that the quality of clinical coding practices among HIM professionals in the selected tertiary hospitals is generally good. This is supported by the grand mean score of 3.27, which falls within the “Agree” category. The standard deviation of 0.74 indicates moderate consistency in respondents’ opinions.

The respondents agreed that clinical diagnoses are coded according to ICD guidelines, with a mean score of 3.44. This implies that HIM professionals generally comply with internationally approved coding standards during coding activities. Adherence to ICD guidelines is important for ensuring uniformity, accuracy, and comparability of health data across healthcare institutions.

The respondents also agreed that the codes assigned accurately reflect clinicians’ diagnoses, with a mean score of 3.36. This suggests that the coding professionals are able to correctly translate physicians’ diagnoses into standardized codes, thereby improving the reliability of hospital records and statistical reports.

Similarly, respondents agreed that all relevant diagnoses and procedures are fully coded, with a mean score of 3.30. This finding indicates that HIM professionals strive to ensure completeness in coding practices, which is necessary for accurate patient records, disease surveillance, reimbursement, and healthcare planning.

The respondents further agreed that coding is done consistently across patient records, with a mean score of 3.28. This suggests that there is a level of uniformity in coding procedures within the hospitals, which helps reduce discrepancies and inconsistencies in patient information management.

The respondents agreed that coding errors are minimal in their daily coding activities, with a mean score of 3.12. Although this score is positive, it is relatively lower compared to other items, suggesting that some coding errors may still occur occasionally due to factors such as unclear documentation, workload, or insufficient training.

The respondents also agreed that clinical documentation provided is sufficient for accurate coding, with a mean score of 3.05. This is the lowest mean score in the table, indicating that inadequate or incomplete clinical documentation may still pose challenges to effective coding practices in the hospitals.

Furthermore, the respondents agreed that ambiguous clinical documentation is clarified before coding, with a mean score of 3.26. This indicates that HIM professionals attempt to seek clarification whenever patient records contain unclear information, thereby reducing the likelihood of coding inaccuracies.

The respondents equally agreed that coding is completed within the required timeframe, with a mean score of 3.18. This finding suggests that coding activities are generally performed promptly, although workload and staffing challenges may sometimes affect timeliness.

The respondents also agreed that regular coding audits are conducted in their departments, with a mean score of 3.11. Coding audits are important for identifying errors, ensuring compliance with standards, and improving coding quality.

The highest mean score of 3.58 was recorded for the statement that continuous training improves coding quality. This indicates that respondents strongly believe that regular professional training enhances coding competence, accuracy, and overall performance.

Overall, the findings show that clinical coding practices among HIM professionals are relatively good, although improvements are still needed in areas such as documentation quality, reduction of coding errors, and regular training.

Table 3: Coding Practice Challenges

Challenges	Frequency	Percentage (%)
Inadequate clinical documentation	76	77.6
Limited access to ICD manuals/software	61	62.2
High workload	69	70.4
Lack of regular training	65	66.3

Source: Field Survey, (2026).

The findings in Table 3 identify several challenges affecting clinical coding practices among HIM professionals in the selected tertiary hospitals.

The most common challenge identified was inadequate clinical documentation, reported by 76 respondents representing 77.6% of the respondents. This suggests that poor or incomplete documentation by clinicians is a major obstacle to accurate coding. When patient records lack sufficient details, coders may find it difficult to assign correct diagnosis and procedure codes, thereby affecting the quality of healthcare data.

Another major challenge identified was high workload, reported by 69 respondents representing 70.4%. This indicates that HIM professionals may be handling excessive volumes of patient records within limited timeframes. High workload can increase stress, reduce efficiency, and contribute to coding errors.

The respondents also identified lack of regular training as a challenge, with 65 respondents representing 66.3%. This finding suggests that some HIM professionals may not have adequate opportunities for continuing education and professional development. Since medical terminology and coding systems are constantly evolving, lack of regular training may negatively affect coding accuracy and competence.

Additionally, limited access to ICD manuals and coding software was identified by 61 respondents representing 62.2%. This implies that some respondents may not have sufficient access to updated coding resources and technologies necessary for efficient coding practices.

Overall, the findings show that inadequate documentation, workload pressure, insufficient training, and limited coding resources are key factors affecting the quality and efficiency of clinical coding practices in the selected hospitals.

Table 4: Mean and Standard Deviation on effect of medical terminology knowledge on clinical coding

S/N	Items	Mean	SD	Decision
1	Good knowledge of medical terminology improves coding accuracy	3.61	0.54	Strongly Agree
2	Poor understanding of medical terminology leads to coding errors	3.42	0.66	Agree
3	I encounter difficulties when clinical terms are unclear	3.28	0.73	Agree
4	Additional training would improve coding quality	3.54	0.59	Strongly Agree
5	There is a strong link between terminology knowledge and coding quality	3.57	0.56	Strongly Agree
	Grand Mean	3.48	0.62	Agree

Source: Field Survey, (2026).

Decision Rule: 3.50 – 4.00 = Strongly Agree (Very High Extent), 2.50 – 3.49 = Agree (High Extent), 1.50 – 2.49 = Disagree (Low Extent), 1.00 – 1.49 = Strongly Disagree (Very Low Extent).

The findings in Table 4 indicate that there is a strong positive relationship between knowledge of medical terminology and the quality of clinical coding among HIM professionals. This is supported by the grand mean score of 3.48, which falls within the “Agree” category. The standard deviation of 0.62 indicates consistency in the respondents’ opinions.

The respondents strongly agreed that good knowledge of medical terminology improves coding accuracy, with the highest mean score of 3.61. This finding demonstrates that understanding medical terms enables HIM professionals to assign more accurate diagnosis and procedure codes.

The respondents also agreed that poor understanding of medical terminology leads to coding errors, with a mean score of 3.42. This suggests that inadequate knowledge of medical language can result in wrong interpretation of clinical information and inaccurate coding outcomes.

Furthermore, respondents agreed that they encounter difficulties when clinical terms are unclear, with a mean score of 3.28. This finding highlights the importance of clear and precise clinical documentation in supporting accurate coding practices.

The respondents strongly agreed that additional training in medical terminology would improve coding quality, with a mean score of 3.54. This indicates that continuous education and training are considered important strategies for improving professional competence and coding performance.

Finally, the respondents strongly agreed that there is a strong link between medical terminology knowledge and clinical coding quality, with a mean score of 3.57. This finding confirms that medical terminology knowledge is a critical factor influencing coding accuracy, consistency, and overall healthcare data quality.

Overall, the findings clearly demonstrate that better knowledge of medical terminology significantly enhances the quality of clinical coding practices among HIM professionals in tertiary hospitals.

Research hypothesis

Table 5: Pearson Correlation between Medical Terminology Knowledge and Quality of Clinical Coding (N = 98)

Variables	Mean	Std. Deviation	r-value	p-value	Decision
Knowledge of Medical Terminology	3.40	0.67	0.68**	0.000	Significant
Quality of Clinical Coding	3.27	0.74			

Correlation is significant at 0.05 level (2-tailed)

The result shows a strong positive and significant relationship between HIM professionals' knowledge of medical terminology and the quality of clinical coding practices in tertiary hospitals in Bayelsa State.

This means that as HIM professionals' understanding of medical terminology increases, the quality and accuracy of their clinical coding also improve. In practical terms, professionals who are more familiar with disease names, medical abbreviations, surgical terms, and clinical documentation are more likely to assign correct ICD codes and produce high-quality coded health data.

The strength of the relationship ($r = 0.68$) indicates that medical terminology knowledge is a major contributing factor to coding quality, though not the only factor, as other issues such as workload, documentation quality, and training may also influence coding outcomes

Discussion of Findings

The findings of this study revealed that Health Information Management (HIM) professionals in the selected tertiary hospitals in Bayelsa State possess a good level of knowledge of medical terminology. The respondents generally agreed that they understand medical terms, disease names, diagnostic terminologies, abbreviations, prefixes, suffixes, and physicians' notes. This finding suggests that the respondents have the foundational knowledge necessary for effective health information management and accurate clinical coding.

The result is not surprising because medical terminology is one of the core areas of training for HIM professionals. Without proper understanding of medical language, it becomes difficult to interpret clinical documentation and assign accurate diagnosis and procedure codes. The finding of this study agrees with the work of Oachs and Watters, (2020) who explained that knowledge of medical terminology is essential for maintaining accurate health records, coding diseases, and supporting healthcare data management. Similarly, Amatayakul (2017) noted that understanding medical terminology enhances communication within healthcare settings and improves the quality of health information processing.

The finding also showed that respondents were able to interpret physicians' handwritten or electronic notes correctly. This indicates that the HIM professionals possess the practical skills needed to understand clinical documentation during coding activities. This finding supports the views of Huffman, (1994) who emphasized that the ability to interpret clinical documentation is an important competency for accurate coding and proper management of patient records.

Another important finding of the study was that respondents strongly agreed that knowledge of medical terminology improves coding accuracy. This means that respondents clearly understand the direct role medical terminology plays in achieving accurate clinical coding. This finding agrees with the study conducted by Stanfill, et al., (2010) who reported that strong understanding of medical language contributes significantly to coding precision, reduction of coding errors, and improved healthcare data quality. In the same vein, Bowman (2013) stated that accurate coding depends largely on the coder's ability to understand clinical terminologies and physicians' documentation.

Despite the generally high level of knowledge demonstrated by the respondents, the study further revealed that many respondents still believed that additional training in medical terminology is necessary. This finding suggests that HIM professionals recognize that medical knowledge and coding systems continue to evolve, thereby requiring continuous professional education. This finding is consistent with the work of World Health Organization, (2019) which emphasized that continuous training and professional development are necessary for maintaining coding accuracy and improving healthcare information systems.

The study further revealed that the quality of clinical coding practices among HIM professionals was generally good. Respondents agreed that diagnoses are coded according to ICD guidelines, coding is done consistently, and codes assigned reflect clinicians' diagnoses accurately. This indicates that the HIM professionals in the selected hospitals are making efforts to comply with internationally approved coding standards. Proper adherence to ICD guidelines is important because it ensures standardization, comparability, and reliability of healthcare data.

This finding supports the position of World Health Organization (2020), which stated that ICD coding standards improve the quality of morbidity and mortality data used for healthcare planning and policy formulation. The finding is also in agreement with LaTour and Eichenwald (2019), who explained that accurate coding improves reimbursement processes, disease surveillance, clinical research, and healthcare decision-making.

The respondents also agreed that continuous training improves coding quality, and this item recorded one of the highest mean scores in the study. This suggests that respondents see training as a critical factor for improving coding performance and reducing coding errors. The finding agrees with the study of AHIMA (2021), which noted that regular training helps coding professionals remain updated with changing coding systems, emerging terminologies, and new healthcare technologies.

However, the study identified several challenges affecting clinical coding practices. The major challenge identified was inadequate clinical documentation. Many respondents indicated that poor or incomplete documentation by clinicians makes coding difficult and may contribute to coding inaccuracies. This finding agrees with the report of American Health Information Management Association (2021), which stated that incomplete clinical documentation is one of the major causes of coding errors and inaccurate healthcare data.

The finding also agrees with Campbell and Giadresco (2020), who explained that unclear or insufficient documentation limits coders' ability to assign accurate diagnosis and procedure codes. Poor documentation may therefore affect patient care, hospital reimbursement, health statistics, and policy development.

Another major challenge identified in the study was high workload. Respondents indicated that excessive workload negatively affects coding efficiency and accuracy. This finding is supported by Searle (2017), who observed that increased workload and staffing shortages can lead to stress, fatigue, and coding errors among health information professionals.

The study further identified lack of regular training and limited access to ICD manuals or coding software as important challenges affecting coding practices. This finding supports the work of Udofia et al., (2021), who reported that inadequate training opportunities and insufficient coding resources reduce the effectiveness of HIM professionals in many healthcare institutions in developing countries.

One of the most important findings of the study was the strong relationship between knowledge of medical terminology and the quality of clinical coding. Respondents strongly agreed that good knowledge of medical terminology improves coding accuracy, while poor understanding leads to coding errors. This finding clearly demonstrates that medical terminology knowledge is a key determinant of coding quality.

This finding is consistent with the work of Johns (2019), who explained that accurate coding depends heavily on the coder's understanding of anatomy, physiology, disease conditions, and medical language. Similarly, Sayles (2016) maintained that coders who possess strong medical terminology skills are more likely to produce accurate and reliable coded data.

The respondents also agreed that additional training in medical terminology would improve coding quality. This finding suggests that continuous education and refresher training can help HIM professionals strengthen their knowledge and improve coding performance. This finding aligns with the recommendations of World Health Organization (2021), which encourages continuous professional development for health information personnel to improve healthcare data quality and health information systems.

Overall, the findings of this study demonstrate that HIM professionals in the selected tertiary hospitals possess good knowledge of medical terminology and relatively good clinical coding practices. However, challenges such as inadequate documentation, workload pressure, lack of regular training, and insufficient coding resources still affect coding efficiency and accuracy. The study therefore highlights the need for continuous professional education, improved documentation practices, and institutional support to strengthen clinical coding quality in tertiary healthcare institutions.

Conclusion

Based on the findings of this study, it can be concluded that HIM professionals in tertiary hospitals in Bayelsa State possess a satisfactory level of knowledge of medical terminology, which significantly supports their clinical coding responsibilities.

The study further concludes that the quality of clinical coding practices in the selected hospitals is generally good, although not without challenges. While HIM professionals demonstrate competence in coding activities, issues such as inadequate documentation from clinicians and workload pressures still affect optimal performance.

Importantly, the study confirms that knowledge of medical terminology is a key determinant of coding accuracy and quality. Professionals with stronger understanding of medical language are more likely to produce accurate, complete, and reliable coded health data. Therefore, improving medical terminology knowledge is essential for strengthening health information systems and enhancing healthcare service delivery.

Recommendations

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

1. **Continuous Training and Capacity Development:** Hospital management should organize regular training, workshops, and refresher courses on medical terminology and clinical coding to improve the competence of HIM professionals.
2. **Improvement of Clinical Documentation:** Clinicians should be encouraged and trained to provide complete, clear, and accurate documentation to support proper coding and reduce ambiguity.
3. **Provision of Coding Resources:** Hospitals should ensure adequate access to updated ICD manuals, electronic coding tools, and health information software to enhance coding efficiency and accuracy.
4. **Workload Management:** Management should address staff shortages and workload imbalance by employing more HIM professionals to reduce pressure and minimize coding errors.
5. **Strengthening Coding Audits:** Regular coding audits should be institutionalized to detect errors early and ensure continuous improvement.

in coding quality.

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Conflict of interest

No conflict of interest was declared.

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