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10-11-2021

Clinical Coding and Indexing as Indispensable Tool In Health Care, Teaching and Research: A Case Study of Obafemi Awolowo Teaching Hospital Complex (OAUTHC) Ile-Ife, Osun State

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Adebayo, Tajudeen Temitayo Dr; Afolabi, Sadiq Anifat Mrs; FAJUYIGBE, Soladayo Olabisi Mrs; ADEPOJU, Olayiwola Kayode Dr; and OMOLE, Michael Segun Dr, "Clinical Coding and Indexing as Indispensable Tool In Health Care, Teaching and Research: A Case Study of Obafemi Awolowo Teaching Hospital Complex (OAUTHC) Ile-Ife, Osun State" (2021). *Library Philosophy and Practice (e-journal)*. 6451.

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INTRODUCTION

Clinical coding is the process by which some clinical information about the patient are transformed into codes to enable grouping of medical activities in a limited number of categories that are easy to process, store and analyses. Indexing of disease and operation is defined as a process of listing on a card of specific disease or operation entities according to a recognized classification. Clinical coding, according to Adebayo and Omole (2019), is one of principal functions of health information specialist who scrutinizes clinical reports and assigns normal codes using a classification system. It is a composite source of group of records classified under one code number in a uniform terminology to facilitate quick and easy access to patient's morbidity and mortality data for quality treatment, adequate statistical report, teaching and research. Morbidity and mortality data constitute a very useful tool for health planners and administration to identify priorities for public health interventions budgeting, future research needs which make coding and indexing as indispensable tools in health care (Bronnert, 2013). Morbidity and mortality data constitute an important component of a health information system, the coding enable uniform data collection and analysis as well as meaningful comparisons between countries. It's strengthening the recording and reporting system which increased efficient health information management system, increased advocacy for and awareness of a uniform coding system together with adequate capacity building of physician codes and other allied health and information technology personnel would have the way valid and reliable health information management system. The essential element in making a correct clinical coding and indexing is the allocation of each diagnosis or procedure in the group category to which it belongs and under pinning the general concept for the quality in clinical coding.

Modernization of health care involves the continuous guidance towards quality standard of both medical acts itself and adjacent activities coding and indexing is one of the key component of the coordination process for all stakeholders and has a major impact on health care service monitoring but also on morbidity assessment and estimate regarding their continued orientation towards quality standard of the medical arts. It is one of the key component of the process for coordination of all health system actors that are involved in providing or financing health services, it has a major effect on health care, provide monitoring activity and also in the

assessment and estimate of the need for health services. To achieve a high level of data quality that represent a solid support for decision making teaching, research at the hospital, the coding process must be of standard. The orientation towards quality must be present in collection processing and interpretation.

Effective healthcare management requires versatile and pre-emptive strategic planning, for this to be possible, hospitals depend on an effective mechanism for data collection, collation and analysis: clinical coding. Clinical coding is the translation of clinical statements into alphanumeric codes, typically four characters in length. Its purpose is to standardize the recording of clinical information to enable datasets to be analogous. There are numerous ways to describe the same clinical entity, so without a standardized system these cases could be coded differently, creating a barrier to comparable analyses. Classifications have been used to describe over the ages. Since the seventeenth century, pioneers such as John Graunt, William Fair, Florence Nightingale and Jacques Bertillon attempted to classify disease systematically. Subsequently, WHO has been responsible for continued revision of the Bertillon classification, the current version is the tenth revision of the International Classification of Disease and Related Health Problems (ICD).

According to World Health Organisation (WHO, 2012), clinical coding is defined as the translation of diagnosis of disease, health related problems and procedural concept from text to alphabetical numeric codes for easy storage retrieval and uniformity of comparison and analyses. It also group aspect of patient information and characteristics into categories based on established critic's logic and convention. These categories used for range activities that underpin the delivery of health services. These activities include but not limited to: Health service planning, Patient quality and safety monitoring, Development and ongoing maintenance/execution of funding models and Research and epidemiology. Clinical coding and classifications are used in the following service categories: admitted care, sub-acute and non-acute care, non-admitted care, and mental health and emergency care

This project examines clinical coding and indexing as indispensable tool in health care teaching and research. A case study of Obafemi Awolowo Teaching Hospital Centre (OAUTHC) Ile-Ife, Osun State.

STATEMENT OF THE PROBLEM

Seen by many practitioners as an unnecessary task, ignored by the health system managers clinical coding is often a subject of controversy, ambiguous or a true “source of legends” when is linked to health services reimbursement. Task undertaken by the statistician or professional coder, correct coding is prerequisite nowadays for obtaining international statistics relevant at the national or local level, transnational comparative research development; application of management monitoring tools or for funding of health services. Ignorance of basic coding principles sometimes causes major errors which result in dissatisfaction, frustration or attempts to “Cheat” coding rules. Due to insufficient understanding of coding and indexing rules on one hand to the limitation that health information is difficult to be summarized in codes, the process may be subject to large variations in practice.

RESEARCH QUESTIONS

- i. What are the effects of clinical coding and indexing on health care service?
- ii. What are the importance of clinical coding and indexing on health care service?
- iii. What are the hindrance to good and accurate clinical coding and indexing?

OBJECTIVES OF THE STUDY

- To know the effect of clinical and indexing on health care services.
- To evaluate the importance of coding and indexing have on health care services.
- To know the hindrances to good clinical coding and indexing to health care service.

Health Information Management (HIM) professional have been responsible for the process of coding and indexing or clinical code assignment in the health care organization.

Historically and factually the coding functions has served two primary processes:

To generate statistical and created secondary records (for example, diagnostic and procedural surgical indexes).

To create documentation for reimbursement purpose form coding functions. It is very important to note that once diagnosis or medical procedure have been properly allocated to the established

categories each of them is carrying a diagnosis or procedure codes, is much easier to work with such structured information to store to have easy access and to perform various tests and analyses.

Morbidity and mortality data are important measure of the health of population. The systemic recording, reporting and dissemination of such data constitute an efficient Health Information Management System (HIM) that is able to provide valid, reliable and comparable measures of public health considered critical for health policy and planning.

RESEARCH DESIGN

A cross-sectional research study was conducted using self-structure questionnaire for collection of quantitative data among the target population.

RESEARCH SETTING

The research was conducted November, 2019 to February, 2020 in OAUTHC, Ile-Ife Osun State. OAUTHC is a tertiary health care institution with facilities for training, teaching, and research and quality service delivery. The institution was established by the Western Region Government of Nigeria in 1975, covering a wide catchment area including the whole of Osun State, part of Oyo, Ekiti, Ondo Kwara, Kogi, Edo and Lagos State in South-west Nigeria. OAUTHC currently offers a wide spectrum of services both preventive and curative as well as serving as a primary, secondary and tertiary hospital. Some services offered by the hospital are surgical, medical, pharmaceutical, social work, laboratory, dental, disease surveillance, occupational therapy and intensive care unit services to mention but few.

The target population was the entire Health information management staffs working at the headquarter of a tertiary healthcare with five multi-unit healthcare facilities in distance locations. The personnel data was collected from the HIM audit unit of the director of HIM. As at the time of the study, a total 152 Health information officers were employed and working in different sections of the three-part tertiary healthcare facility. Specifically, 78 HIM, work in the first part, 40 HIM in the second part and 34 health information managers in the third part of the whole institution for adequate representation, the researcher aimed at getting 100 (%) of the study

population from the three parts but only 80 health information manager (%) consented.

SAMPLING TECHNIQUES

A systematic random sampling technique was employed in selecting 80 Health information officers that consented to participate from the total population of 152 staff

INSTRUMENT FOR DATA COLLECTION

Data was collected using self-structured design questionnaire to collect relevant information from the sample population. The instrument was structured into four sections to actualize the research objectives highlighted as thus, Section A: Demographic data, Section B: Effects of clinical coding and indexing and quality healthcare, Section C: Importance of clinical coding and indexing and Section D: Hindrance of good clinical coding and indexing.

PROCEDURE FOR DATA COLLECTION

The research questionnaire was administered directly to each enlisted HRO for the study after gaining their verbal consent. High level of anonymity was guaranteed by informing respondents not to write their names on the questionnaire. Confidentiality of data and liberty of respondents to decline their participation in the study at any time were emphasized. Consequently 80 out 152 HROs gave their consent and fully completed the questionnaire for the research study.

METHOD OF DATA ANALYSIS

Data collected were analyzed using the Statistical Package for Social Sciences (SPSS) software version 20. Descriptive statistics using frequently table, percentages and graphical representations.

DATA PRESENTATION, ANALYSIS AND DISCUSSION

Response rate of the respondent

Out of the 80 copies of the questionnaire distributed to the respondents a total of 70 (87.5%) copies were returned duly completed and found usable for this study. The high response rate was due to the fact that the respondents were not many and the researcher was able to visit virtually

all of them and giving those up to three weeks within which to complete and return their copies of questionnaire

DEMOGRAPHIC CHARACTERISTICS OF THE RESPONDENTS

Table 2: Age distribution of the respondents

Age Group	Frequency	Percentage
21 – 30	7	10
31 – 40	14	20
41 – 50	29	41.4
51 – 60	12	17.2
60 above	8	11.4
Total	70	100

The table 2 above show that 10% of all the respondents (70) aged 21-30years, 31-40years 24(n=14), majority of respondents 41.4(n=29) between age 41-50 with 17.2% (n=12) were 51-60 while 11.4% (n=8) were 60 above.

Table 3: Gender Distribution of respondents

Gender	Frequency	Percentage
Male	28	40
Female	42	60
Total	70	100

In table 3 above, it shows that 60% (n=42) of the respondents were female while 40 % (n=28) of the respondents were male.

Table 4: Academic Qualification of the Respondents

Educational Level	Frequency	Percentage
OND	18	25.7
HND	38	54.3
B. Sc.	9	12.9
M .Sc.	5	7.1
Total	70	100

Table 4 indicates that 25.7% (n=18) of the respondent are OND holders, 54.3% (n=38) are HND holder, 12.9% (n=9) are B. Sc. and only 7.1% (n=5) are M.Sc.

Table 5: Years of experience of respondents

Years in Service	Frequency	Percentage
1 – 5	6	8.6
6 – 10	14	2.0
11 – 15	15	21.4
16 – 20	27	38.6
20 above	8	11.4
Total	70	100

The table 5 above shows that the majority 38.6% (n=27) of respondents have 16 – 20 years of work experience while 1-5years shown the least 8.6 % (n=6).

Q1: What are the effect of clinical coding and indexing on quality healthcare?

Table 11: percentage distribution of respondents showing effects of clinical coding and indexing on quality healthcare.

Response	Yes		No		Total	
	F	%	F	%	F	%
Improved quality of patient-centered care	50	71.4	20	28.6	70	100
Organized information and easy accessibility	55	78.6	15	21.4	70	100
Enhance effective planning	65	92.9	5	7.1	70	100
Facilitate good decision making	65	92.9	5	7.1	70	100
Medical audit	63	90	7	10	70	100
Ensure payment flow	47	67.1	23	32.9	70	100

Table 11 shows that majority of the respondents (71.4%) perceived that effect of clinical coding and indexing on quality health care will improve the quality of care rendered to patients (78.6%) agreed that it would help patient have easily access and retrieve their health information. Majority (92.9%) also confirmed that effect of coding and indexing on quality health care enhance effective planning by the management (92.9%) agreed that it facilitate good decision making of patient’s care, (90%) of the respondent also agree that medical audit would enhance assessment, monitoring and yardstick to measure the standard and quality of healthcare delivery to patient. Also 67.1% agreed on prompt payment flow.

Question 2: What are the importance of clinical coding and indexing healthcare delivery system?

Table 12: Percentage distribution of respondents showing importance distributions of respondents showing importance of clinical coding and indexing

Response	Yes	No	Total
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	F	%	F	%	F	%
Even distribution of resources	49	70	21	30	70	100
Health status indicators	63	90	7	10	70	100
Utilization of health pattern and trends	42	60	28	40	70	100
Clinical research	68	97.1	2	2.9	70	100
Adequate treatment	70	100	0	0	70	100
Training and teaching	67	95.7	3	4.3	70	100
Monitoring integration of health care services	50	71.4	20	28.6	70	100
Statistics on morbidity and mortality	65	92.9	5	7.1	70	100
Notification of communicable diseases	60	85.7	10	14.4	70	100
Formulation of health policies	52	74.3	18	25.7	70	100

It was observed from the table 12 above that, more than 90% of respondents were of the opinion that completion of statistics on morbidity and mortality, training and teaching, adequate treatment of patients, clinical research and health status indicator are major importance of coding and indexing in healthcare delivery system. More than 60% of the respondents also agreed that even distribution of resources, utilization of health pattern and trends, monitoring integration of healthcare services, notification of communicable disease and formulation health policies makes coding and indexing an indispensable tool in healthcare service.

The importance of coding and indexing in healthcare delivery system is represented in the chart below.

Question 3: What are the hindrance to good clinical coding and indexing?

Table 13: Percentage of distribution of respondents showing hindrance to good clinical coding and indexing

Response	Yes		No		Total	
	F	%	F	%	F	%
Wrong diagnosis by the clinician	44	62.9	26	37.1	70	100
Insufficient skilled personnel	38	54.3	32	45.7	70	100
Lack of fund	53	75.7	17	24.3	70	100
Insufficient coding and indexing tools	68	97.1	2	2.9	70	100
Improper filling of discharge summary	63	90	7	10	70	100

The table above shows that majority of the respondent felt that lack of funds, insufficient coding and indexing tools, failure to filled discharged summary properly by the clinician were held responsible for hindrance skilled personnel and wrong diagnosis made by the clinicians led to inaccurate and unreliable data generation which can affect patient's treatment, teaching and research.

4.2. DISCUSSION OF FINDINGS

The socio-demographic findings revealed that majority of the respondents were females who were between 31-52years. However the mean age 45.6years, majority of the respondents have been working for about 16-20years. The explanation that can be given for the findings is that the dominant populations in the HIM profession are females, although male HIM are still emerging in the profession.

Similarly, majority of the respondents perceived that a good and accurate clinical coding and indexing would help patient have easy access to quality treatment, it would allow statistical analyses of diseases and treatment, reimbursement and provide health status indicators. This findings agrees with national tariff payment system (NTPS, England) that coding and indexing would help provide easy income flows which are directly related to clinical activities, as clinical coding and indexing is nationally adopted method to document such activities, it is essential that coding datasets are complete, accurate and hold the highest possible level of specificity to circumnavigate potential financial pitfalls.

Most of the respondent also agreed that there was stipulated benchmark on quality clinical coding and indexing. This was assented by WHO, that the national benchmark and comparison highlights the area where improvement is needed and provides a resource for patients to make greater informed choices about where and how they access care.

Majority of the respondents agreed that good clinical coding and indexing evaluate and monitor patterns, trends, and utilization of health activities, this was affirmed by the WHO that monitoring pattern of activities and trends overtime allows for tailored, region, specific resources planning and allocation, coding and indexing data is widely used by government and healthcare bodies to monitor, develop and evaluate healthcare policies. Over ninety percent of the respondents agreed that the data collated from coding and indexing were used for research and training. Similarly, AHIMA stated that coding permit conducting research on the aetiology, incidence and prevalence of diseases and help identify the risk population on the basis of diagnostic, demographic or environmental factors. The result derived from the experiment permit global collaboration on health policy creation, treatment, planning and resources forecasting.

In spite of the high percentage of respondents who had good knowledge about coding and indexing, its effect on quality healthcare and its importance, there were still some factors hindering achieving good and accurate coding and indexing such as lack of funds, insufficient coding tools. Wrong diagnosis made by the clinicians, insufficient skilled personnel and improper filling of discharge summary.

SUMMARY OF FINDINGS

Based on the data collected and analyses made in this study, the following are the major findings.

1. It was revealed that the respondents have a very good knowledge of what coding and indexing means, being part of their daily work schedule. It was found out in the study that the skilled personnel were not sufficient to carry out daily job activities.
2. There was stipulated benchmark for quality coding and indexing in the institution.
3. Also it was revealed that good clinical coding and indexing enhance quality treatment, reimbursement for easy flow of funds and provide health status indicator.
4. The findings revealed that good clinical coding and indexing evaluate and monitor pattern and trend of activities, also utilized health activities which allows for tailored, region, specific resources planning and allocation.
5. It was observed from the study that data collated from coding and indexing were used for conducting research on the aetiology, incidence and prevalence of disease which help to identify risk population on the basis of diagnostic, demographic or environmental factors. And the result permits collaboration on health policy creation, treatment and penning.
6. It was found out that in spite of posture effect of coding and indexing on quality health care and its importance, there more factors hindering achieving good clinical coding and indexing such as lack of funds, insufficient coding and indexing tools, filling of discharge summary by the clinician and wrongly diagnosed cases by the clinicians.

5.3. CONCLUSION

The study conducts with the findings that health records officers in Obafemi Awolowo University Teaching Hospital Complex, Ile-Ife have good knowledge of what coding and indexing means and they are skilled officer yet have insufficient skilled personnel.

The effect of good coding and indexing on quality healthcare cannot be underestimate. Coding is an important function within the healthcare system. Coding and indexing datasets have various statistical and clinical uses: a high level of accuracy, computerized and specificity is paramount. Accurate and reliable healthcare data support the optimization of patient treatment, teaching and research.

5.4. RECOMMENDATION

Based on the findings of this study the following recommendations were made.

1. Clinical staff should be aware of the importance of clinical coding, its uses and the role they play in ensuring accuracy; a hospital is measure by its output data.
2. Clinicians and HROs must work collaboratively improve the quality of healthcare data flow. Regular engagement between all influential parties along the coding and indexing pathway is very vital, with frequent reviewers of clinical documentation and coding reports a firm foundation for continual improvement.
3. The hospital management should provide sufficient funds, coding and indexing tools such as ICD, ICP, medical dictionary and religion dictionary.
4. All the clinicians should fill the discharge summary properly before return the case note to health records department from coding.

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