

Accuracy and Conformity of Coding Diagnosis Case of Road Care Patients on Medical Records Using Hospital Management Information System

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ABSTRACT

RSPAU Dr. Suhardi Hardjolukito Yogyakarta was conducting coding the diagnosis in eye patients outpatients at medical records and information management system hospital. However, the initial data collection was still found inaccuracies in the diagnostic code in existing medical record documents and hospital management information systems. This study's purpose was to shortly describe the accuracy and appropriateness of coding diagnoses cases of eye patients outpatients at the medical records with hospital amendment information system at RSPAU Dr. Suhardi Hardjolukito. This research is a qualitative descriptive study with a case study design. Location of research at RSPAU Dr. Suhardi Hardjolukito Yogyakarta. The data collection process was carried out in March-August 2019. In this study, informants were medical record coordinators, outpatient reporting officers, clinic administrators, and eye clinic nurses. The object of this research is a decree, SPO, and medical record files. In this study, the population takes as many as 91 medical records of outpatient eye cases, collecting data using interviews, the checklist of observations, and checklist documentation study. The data validity technique used triangulation of sources, namely medical record coordinators and coding experts. The results showed standard procedures operational on Coding and Indexing disease, but it does not yet include the coding activity on the hospital management information system.

The accuracy of diagnosis codes outpatient eye cases in the medical record document by 42%, being right on the hospital management information system only by 9%. The highest conformity of the outpatient eye case diagnosis code is in Category E; namely, one or both of the codes in the medical record file or hospital management information system is not documented or is not filled in by 37%. The main contributing factor for the inaccuracy and mismatch of the diagnostic code lies in the method aspect.

Keywords: accuracy; medical records; ICD-10

I. INTRODUCTION

Hospitals have an essential role in providing medical services to patients. Medical records document evidence of patient medical services. Medical records are useful for continuity of treatment, legal evidence, reimbursement of service costs, research, education, administrative interests, public health, and planning and decision making. Therefore, a complete and accurate medical record is written evidence that can be accounted for by doctors and other health workers (Widjaja, L., Apriani, L., & Sari, 2018)

Patient medical records also have an essential role in processing patient medical data for reporting purposes. One of the processing of patient medical data is coding, where the coding



activity is the competence of medical recorders and health information (Kemenkes, 2013a). Coding is the provision of code determination using letters or numbers or a combination of letters in numbers that represent data components (Budi., 2011). Coding activities are carried out after assembling and analyzing the completeness, activities, and actions as well as the diagnosis in the medical record file, which must be coded and then indexed into the hospital management information system to facilitate health services. Hospital Management Information System is a communication information technology system that processes and integrates the entire flow of hospital service processes in the form of a network of coordination, reporting, and administrative procedures to obtain accurate and accurate information, and is part of the health information system (Kemenkes, 2013b).

Coding activities must comply with the rules in the ICD-10. This aims to obtain a valid code because the coding results can be used for disease recording, national and international reporting of morbidity and mortality, analysis of health financing, and epidemiological and clinical research (Ali et al., 2019). The study (Hernawan et al., 2017) shows that all disease diagnoses, both primary and secondary diagnoses, must be coded. In addition to the accuracy of the diagnosis code, the completeness of medical record information is also a factor that affects the claim's success (Ariyanti and Gifari, 2019), (Ulfa et al., 2016). For example, the results of research (Pepo and Yulia, 2015) show that the completeness of writing a diagnosis on a medical resume affects the accuracy of the diagnosis code. The results of other studies (Windari and Kristijono, 2016) show that coding inaccuracies reached 25.33% and found incomplete medical record documents. This study is similar to (A. pujiastuti, Sudra, 2014), which also showed that 30% of diagnosis codes were inaccurate, and 30% of filling in medical record information was incomplete.

The problem of code accuracy in Indonesia needs to be analyzed by considering the completeness of the information contained in medical record documents. RSPAU Dr. Suhardi Hardjolukito carried out coding activities for outpatient eye cases in medical record documents and hospital management information systems. However, the initial data collection was still found inaccuracies in the diagnostic code in existing medical record documents and hospital management information systems. Therefore, the researcher is interested in researching the accuracy and suitability of outpatient eye case diagnosis coding on medical records with hospital management information systems. The purpose of this study was to describe the accuracy and appropriateness of the coding diagnosis of outpatient eye cases on medical records with the hospital amendment information system at RSPAU Dr. Suhardi Hardjolukito.

II. METHODS

This research is a qualitative descriptive study with a case study design. The data collection process was carried out in March-August 2019. This study's informants were medical record coordinators, outpatient reporting officers, clinic administrators, and eye clinic nurses. The object of this research is a decree, SPO, and medical record files. In this study, the population is taken as many as 91 medical records of outpatient eye cases. Data collection using the interview method, observation checklist, and documentation study checklist. The data validity technique used source triangulation, namely the medical record coordinator and coding expert. The results of observations and interviews were validated by source triangulation, medical record coordinator. In contrast, the results of the analysis of the suitability and accuracy of the diagnosis code were validated by coding experts, namely senior medical recorders at type B Yogyakarta hospitals with a minimum service period of 5 years.

III. RESULT AND DISCUSSION

1. Standard Operating Procedure Regarding Outpatient Diagnosis Coding

RSPAU Dr. Suhardi Hardjolukito Yogyakarta already has a standard operating procedure for outpatient diagnosis coding with document number SPO: 566/III/2018/RM regarding SPO regarding Disease Coding and Indexing. RSPAU Dr. Suhardi Hardjolukito Yogyakarta uses these standard operating procedures to reference the activity steps carried out by each officer. However, based on the results of observations, it was found that the activities carried out by officers were mismatched with written procedures. From the observation, it is known that to enforce the doctor's diagnostic code on the medical record file, the officer only looks or looks for the lead term on ICD-10 volume 3 without validating or re-ascertaining its accuracy on ICD-10 volume 1. This is not up to standard operational procedures and coding procedures on ICD-10 (WHO, 2013).

Standard operating procedures are guidelines that contain standard operating procedures that exist within an organization that is used to ensure that every decision, step, or action used by processing facilities carried out by people in the organization has been running effectively, consistently standard, and systematically (Tambunan, 2013). A standard operating procedure is a set of instructions or standardized steps to complete specific routine work processes. The purpose of preparing standard operating procedures is to ensure that various typical work processes are carried out efficiently, effectively, consistently or uniformly and safely, to improve service quality through compliance with applicable standards (KARS, 2012).

2. Level of Accuracy of Outpatient Eye Case Diagnosis Code in Medical Record Documents with Hospital Management Information System at RSPAU Dr. Suhardi Hardjolukito.

Analysis of the outpatient eye case diagnosis code's accuracy at RSPAU Dr. Suhardi Hardjolukito, based on ICD-10, was carried out on medical record documents and hospital management information systems. The level of accuracy of the diagnostic code is categorized into 3, namely: Exactly, if the code is following the ICD-10 rules; Inaccurate, if the code does not comply with ICD-10 code; and Not filled, if the ICD-10 code is not documented in the medical record document or hospital management information system. The results of the analysis of the accuracy of the diagnosis code on 91 medical record documents that have been validated by coding experts show that the codes declared correct are 42% (38 of 91 medical records), 43% incorrect (39 of 91 medical records) and not filled in as large as 15% (14 of 91 medical records) (Table 1).

Table 1. Analysis of Accuracy of Diagnosis on Medical Record Documents

No	Result	Total	Percentage %
1	Accurate	38	42%
2	Inaccurate	39	43%
3	Not filled with	14	15%
Total		91	100%

The accuracy of the medical record diagnosis is not directly proportional to the accuracy of the diagnosis code in the hospital management information system. The results of the analysis of the accuracy of 91 outpatient eye cases in the hospital management information system showed



that the correct code was 9% (8 of 91 cases), 65% (59 of 91 cases) incorrect, and 26% (24) of 91 cases) (Table 2).

Table 2. Analysis of Accuracy of Diagnosis in Hospital Management Information System

No	Result	Total	Percentage %
1	Accurate	8	9%
2	Inaccurate	59	65%
3	Not filled with	24	26%
Total		91	100%

The results of other studies show that the percentage level of writing a diagnosis between the medical record file and the EHR of Emergency Room patients at UGM Academic Hospital Yogyakarta is 89% (Lestari.D and Nuryati, 2014). Inaccurate diagnostic codes will result in information with low data validation. This will undoubtedly result in inaccuracy in preparing reports, such as outpatient morbidity reports, top ten disease reports, or BPJS claims (Saputro NT and Nuryati., 2015). There is an error in the diagnosis code by medical record officers due to incomplete diagnoses written by doctors (Ulfa et al., 2016).

The results of coding the diagnosis at RSPAU Dr. Suhardi Hardjolukito Yogyakarta is used in the production of data on morbidity reports as well as a reference for payment of national health insurance patient fees. Accuracy of coding is essential for evaluating the reporting work unit and the health service planning process, facilitating the storage and retrieval of data related to patient diagnostic characteristics, and as the basis for a payment billing system (Hatta, 2017). The study (Watkins, 2013) show that the specificity of clinical data

and the accuracy of the correct code will allow hospitals to get claim reimbursement according to the level.

3. Level of Conformity Code of Outpatient Eye Case Diagnosis on Medical Record with Hospital Management Information System in RSPAU Dr. Suhardi Hardjolukito.

Analysis of the suitability of the outpatient eye case diagnosis code at RSPAU Dr. Suhardi Hardjolukito based on ICD-10 was carried out on medical record documents and hospital management information systems. The level of conformity of the diagnosis code is categorized into 5, namely: category A, if the writing of the diagnosis code on the medical record documentation is following the coding rules and following those in the hospital management information system; category B if the report of the diagnosis code on the medical record documentation is in accordance with the coding rules and does not match the code in the hospital management information system; category C, if the writing of the diagnosis code on the medical record documentation is not in accordance with the coding rules, but the hospital management information system is in accordance with the coding rules; category D if the writing of the diagnosis code on medical record documents and hospital management information systems is not in accordance with the coding rules; Category E if one or both codes in medical record documents or hospital management information systems are not documented or are not filled in.

The results of the analysis of the suitability of the diagnosis code on 91 medical record documents with hospital management information systems that have

been validated by coding experts show that the accuracy of category A code is 9% (8 of 91 medical records), category B is 22% (20 of 91 records), category D was 32% (29 of 91 medical records), category E was 37% (34 of 91 medical records), and there were no analysis results that referred to category C (Table 3).

Table 3. Analysis of the suitability of diagnosis in medical record documents with hospital management information systems

No	Result	Total	Percentage %
1	Category A	8	9%
2	Category B	20	22%
3	Category C	0	0%
4	Category D	29	32%
5	Category E	34	37%
Total		91	100%

In table 3, it can be stated that the highest conformity is in category E; namely, one or both of the codes in the medical record file or hospital management information system is not documented or is not filled in. Currently, RSPAU Dr. Suhardi Hardjolukito Yogyakarta has never conducted an audit or analysis to assess the diagnosis code's suitability in the medical record file and the hospital management information system. According to (Hueter 2012), conducting a complete audit of each coded code and extracted notes will ensure data quality. Audits should be a re-abstraction of records to ensure data consistency and accuracy (Ningtyas et al., 2019).

The suitability of coding is essential in order to improve the quality and quality of health services in the reporting unit so that the resulting data can be appropriate or valid. According to (Lestari.D and Nuryati,

2014), writing a diagnosis between medical record files and electronic medical records must be reasonable because it will affect the quality and quality of health services provided by the hospital to patients policy-making process.

4. Factors that cause the inaccuracy and incompatibility of outpatient eye case diagnosis codes on medical records with the Hospital Management Information System at RSPAU Dr. Suhardi Hardjolukito Yogyakarta.

Based on the analysis of causal factors using the fishbone method, it can be said that in the aspects of man, method, machine, material are the causative factors for the inaccuracy and mismatch of the eye case diagnosis code for outpatients, while the money factor is not a causative factor. The root cause of the inaccuracy and incompatibility of outpatient eye case diagnosis codes lies in the method aspect because a clinic admin who is not from a D3 medical record background is legalized to carry out coding activities, and there is no standard operating procedure for coding diagnosis in the hospital management information system.

a. Man factor (human)

Factors that affect the human aspect are sourced from human resources. This is indicated by clinic admin operators' activities who input/enter eye case diagnosis codes in the hospital management information system. The clinic admin operator does not have a medical record background and does not know classifying and coding. This can potentially inaccuracy the eye case diagnosis code in the medical record documents and hospital management information system. According to



(Ministry of Health, 2013a), one of the medical recorders' competencies is to carry out the classification and coding of diseases and actions related to health problems. This study's results are similar to research (Hernawan et al., 2017), which shows that human factors affect the accuracy of the diagnosis code, where medical record officers do not carry out the coding of the diagnosis. The limited number of officers will affect the accuracy of coding.

b. Method Factor

The causative factor in the aspect of the method (method) shows that the trigger for the non-availability of standard operational coding procedures for diagnosis in the hospital management information system has an impact on the input of the diagnosis code in the hospital management information system, which is implemented following the work culture in RSPAU Dr. Suhardi Hardjolukito. Work culture will affect the process or method in the work environment; in this case, the SPO implementation will affect the work culture.

According to (Pavilonita 2013), the t-test on work culture variables at the Kertosono Health Center show that t count is 2.673 with a significant t of 0.008 because the significant t is less than 5% ($0.008 < 0.05$), partially the work culture variable has a significant effect on the patient satisfaction variable. This means that the better the work culture of the officers at the Kertosono Health Center will have an impact on increasing patient satisfaction and vice versa; if the work

culture of the officers at the Kertosono Health Center is not good, it will have an effect on decreasing visits and patient satisfaction.

c. Material Factor

The factor that affects the material aspect is the lack of knowledge possessed by the clinic admin in understanding the language of the ICD-10 code with the hospital management information system. Meanwhile, according to (Hernawan et al., 2017), the means used in coding are using the ICD-10 book, hospital management information system, and auxiliary books.

d. Machine Factor

The causative factor in the Machine (tool) aspect is the hospital management information system that has an error, both because of the software, hardware, and network aspects. Research results (Nuryati, 2014). shows the equipment used in the diagnosis coding process, which includes computer equipment equipped with the INA-CBGs grouper application, the coding program consisting of electronic ICD-10 and ICD-9-CM, and hospital management information systems. Applications in the INA-CBGs grouper that have not been integrated with the hospital management information system impact the inefficient workflow of officers because they have to repeat data input.

e. Money Factor

There are no influencing factors in the money aspect because officers have received services in their respective sections of duty with the standards given by hospital management.

IV. CONCLUSIONS AND RECOMENDATIONS

A. CONCLUSIONS

1. There is a standard operating procedure on disease coding and indexing, but it does not include coding activities in the hospital management information system.
2. The accuracy of the outpatient eye case diagnosis code on medical record documents was 42%, while in the hospital management information system, it was only 9%.
3. The highest suitability of the outpatient eye case diagnosis code is in Category E, namely one or both of the codes in the medical record file or hospital management information system is not documented or is not filled in by 37%.
4. The main factor causing the inaccuracy and mismatch of the diagnostic code is the method aspect.

B. RECOMMENDATIONS

1. It is recommended that the hospital carry out continuous evaluations regarding the inaccuracy and conformity to maintain the quality of information from outpatient morbidity reporting.
2. It is recommended that the hospital evaluate the job description and educational qualifications for executing the coding of diagnosis activities in the hospital management information system so that the resulting coding data is more precise and accurate.

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