Artikel Penelitian

ADMINISTRATIVE DATA RELATIONSHIP WITH THE ACCURACY OF DISEASE DIAGNOSIS CODES OF INPATIENTS IN PARIAMAN PUBLIC HOSPITAL

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Abstrak

Rekam medis adalah salah satu sarana untuk menunjang tercapainya tertib administrasi dalam rangka upaya peningkatan pelayanan kesehatan di rumah sakit. Hal penting yang harus diperhatikan oleh tenaga rekam medis adalah ketepatan dalam pemberian kode diagnosis dan kode yang akan berdampak pada pembayaran. Masalah penelitiaan adalah ketepatan kode diagnosis penyakit pada pasien rawat inap di Rumah Sakit Umum Daerah Pariaman. Penelitian bertujuan untuk mengetahui hubungan data administratif dengan ketepatan kode penyakit. Metode mix methods digunakan pada riset ini. Pendekatan kuantitatif terhadap berkas rekam medis pasien dan pendekatan kualitatif diperoleh melalui FGD dengan petugas pengelola rekam medis. Hasil penelitian menunjukkan ketepatan kode diagnosis utama menunjukkan hasil yang melebihi 80% dari seluruh rekam medis pasien yang terpilih sebagai sampel. Namun ketepatan kode diagnosis sekunder hanya mencapai 50%. Ketepatan kode masih sangat rendah hanya mencapai 15,4%, dan sekunder baru mencapai 1,8%. Ketepatan kode diagnosis sangat berhubungan dengan mutu pelayanan. Ketidaktepatan kode diagnosis akan mempengaruhi kepuasan pasien terutama dalam pembayaran yang tidak sesuai dengan layanan yang mereka terima.

Kata kunci: Kode, Diagnosis, Prosedur, Rekam medis

THE RELATIONSHIP OF ADMINISTRATIVE DATA WITH THE ACCURACY OF DISEASE DIAGNOSIS CODE

Abstract

Medical records are an administrative order to improve health services in hospitals. Medical record staff had to concern on the accuracy in diagnosis and procedure codes. The research problem is the accuracy of Diagnosis & Procedure coding on the medical records of inpatients at the Pariaman Regional General Hospital. The research was to describe the relation of administrative data the accuracy of disease coding. The research mixed methods analysis. A quantitative approach to the patient's medical record file and a qualitative approach were obtained through FGDs with medical record management officers. The results showed that the accuracy of the main Diagnosis coding has shown results that exceed 80% of all medical records of patients selected as the study sample. However, the accuracy of the secondary diagnosis code is only 50%. Procedure code acceleration is still very low at only 15.4%, and secondary procedure only at 1.8%. The conclusion of the study, the accuracy of the diagnosis code and procedures is closely related to the quality of service. Inaccuracy of diagnosis codes as well as procedures will affect patient satisfaction, especially in payments that are not in accordance with the services they receive.

Keywords: Encoding, Diagnosis, Procedure, Medical records

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Introduction

The hospital is one of the health care providers and providers so that it always tries to provide the best health services to improve the health status of all levels of society. To achieve this, it is necessary to improve the quality of health services with the support of various related factors, one of which is through the administration of medical records in every health service. Medical records are one of the means to support the achievement of orderly administration in the context of efforts to improve health services in hospitals. Orderly hospital administration will succeed as expected if it is supported by a proper medical record management system. The definition of medical records according to the Regulation of the Minister of Health of the Republic of Indonesia No. 269/Menkes/PER/III/2008, medical records are files containing notes and documents regarding patient identity, treatment, actions, and other services that have been provided to patients.(1)

The information in the medical record file is based on an examination, treatment, observation, and interviews. Information or information contained in the medical record file should not be disseminated to unauthorized parties, because the medical record file is a confidential document that directly concerns individual patients. This is solely done for the convenience of the patient and the safety of the hospital from parties that can harm the situation. The contents of the medical record document in the form of information about the final diagnosis of the patient are used in the code process. This code is carried out using the standard classification of diseases in accordance with the ICD-10 (International Statistical Classification of Diseases and Related Health Problem Tenth Revision).

The important thing that must be considered by medical record personnel is the accuracy in giving the diagnosis code. Precise and accurate codes require complete medical records. The medical record must contain documents to be coded as on the front sheet such as; in-out summary, operation sheet, and action report, pathology report, and discharge patient resume. One of the factors causing the inaccuracy of writing the diagnosis code is that the doctor did not write down the diagnosis completely, so there was an error by the medical record officer in carrying out the diagnosis code. The impact that occurs if the writing of the diagnosis code is not correct is that the patient sacrifices a very large cost, patients who should not take antibiotics but must be given antibiotics and a more fatal impact is at risk of threatening the patient's life.(2)

It is important to analyze the accuracy of filling in the diagnosis code in medical record documents because if the diagnosis code is not correct/incompatible with ICD-10, it can cause a decrease in the quality of service in hospitals and affect data, report information, and the accuracy of Indonesia Case Base Groups or INACBG's rates which are currently used as a payment method for patient care. Low rates of health services will certainly harm the hospital, on the other hand, high rates of health services seem to benefit the hospital from the difference in rates to the detriment of health insurance providers and patients. The impact on hospitals if the diagnosis code for a disease is not correct will affect health insurance financing claims and inappropriate drug administration. Meanwhile, the impact for the patient is getting medical treatment that is not appropriate and as a result will cause the patient's condition to get worse.(3)

INA-CBGs research at Dr. M. Djamil Padang hospital in 2011 showed that the results of qualitative research are that operational policies are not yet available, a Case-Mix team has been formed, but lacks motivation, lacks education, and monitoring/evaluation is not implemented. Quantitative analysis obtained 58.4% of the coding by the coder was not good, 78.7% by the doctor was not good and 79.2% the information arranged was not effective. There is no correlation between Code dedication and information effectiveness (p-value = 0.280) and there is a correlation between doctor dedication and information effectiveness (p-value = 0.019). It is expected that hospital management must apply operational standards, and get optimal for mixed teams, carry out socialization, motivation, and education in case-mix applications. Diagnosing writ-

ing is determining readable help codes.[4]

Method

This research used mixed methods. The quantitative approach was taken to the patient's medical record file as secondary data to find out the patient's administrative data and its relationship with the accuracy of the diagnosis code for inpatients' disease. The qualitative approach was aimed at obtaining primary data, which was conducted by FGD (Focus Group Discussion) on 6 medical record officers to find out the cause of the inaccuracy of the disease diagnosis code. The research design used a cross-sectional descriptive study. This research was conducted at one of the Regional General Hospitals in West Sumatra as one of the hospitals whose staff had received training on the implementation of the INA-CBG system from July to November 2019. The population and samples were taken from the total inpatients from January to June 2019 The number of samples in this study was calculated based on Lemeshow's formula as many as 227 medical record files grouped according to different disciplines, namely: medical, surgery, obstetrics & gynecology (O&G), and pediatrics. Samples were selected randomly proportionally based on the number of patient data each month.

This study takes into account two types of code accuracy, namely the primary diagnosis code and the secondary diagnosis code. The percentage of accuracy of the main diagnosed code is based on the number of cases with the correct code. The numerator is the number of cases with the correct code, and the denominator is the total number of cases reviewed by independent reviewers. In the second group, the accuracy of the secondary Diagnosis code was calculated based on the total number of correct codes. The total number of correct error codes is the numerator, and the total number of codes reviewed is the denominator.

The independent coders assigned to audit the medical records of the selected patients were coders who did not work at the hospital where the study was conducted. The selected coders are experienced people and have worked for more than 10 years. The coder checks each primary diagnosis code and secondary diagnosis that has been recorded in the medical record and compared with the disease diagnosis code on ICD 10. The diagnosis code that has been written on the medical record is considered accurate if it is the same as the diagnosis code on ICD 10.

Results

Of the 227 patients studied, only 157 patients recorded a secondary diagnosis. The results of this study indicate that 50% are young (<45 years), 39% are old (>59 years) and the remaining 11% are adults (45-59 years). Meanwhile, male sex reached 115 people (50.7%) and female as many as 112 people (49.3%). Furthermore, the length of days of hospitalization (LOS) found in the medical record was only 204/227 (89.9%) in other words, there were still 10.1% LOS of patients who were not recorded in the medical record. In detail, the LOS of patients with the short category reached 122/204 (59.8%), and the LOS in the normal category was 64/204 (31.4%) and the long LOS was 18/204 (8.8%).

The results of this study indicate that 25/40 patients (62.5%) have the accuracy of the secondary diagnosis code. In patients in the adult age group, on the contrary, 34/78 patients (43.6%) in the younger age group have a secondary diagnosis code which is incorrect. There is an imprecise relationship between the patient's age and the accuracy of the Secondary Diagnosis Code (Table.2). It is known that there are as many as. The results of statistical tests obtained p-value = 0.816, it can be concluded that there is no difference in the proportion of the accuracy of the main Diagnosis code between patients with young, adult, or old age

The results of this study showed that as many as 67/115 patients (58.3%) had a secondary diagnosis code accuracy in the male group of patients. On the other hand, 55/112 patients (49.1%) in the female gender group, found that the primary diagnosis code was incorrect (Table 3). The results of statistical tests obtained p-value = 0.265, it can be concluded that there is no difference in the proportion of the accuracy of the secondary diagnosis code between male and

female patients.

Table 1. The Relationship of LOS with the Accuracy of Main Diagnosis Code

LOS	Main Diagnosis Code				Total	
	Appropriate		Not Appropriate			
	∑	%	∑	%	∑	%
Short	103	84.4	19	15.6	122	100
Normal	48	75.0	16	25.0	64	100
Long	13	72.2	5	27.8	18	100
Total	164	80.4	40	19.6	204	100

X2= 3.202 df= 2 p/value=0.202

Table 2. The Relationship of Patient Age with Accuracy of Secondary Diagnosis Code

Age	Secondary Diagnosis Code				Total	
	Appropriate		Not Appropriate			
	∑	%	∑	%	∑	%
Short	103	84.4	19	15.6	122	100
Normal	48	75.0	16	25.0	64	100
Long	13	72.2	5	27.8	18	100
Total	164	80.4	40	19.6	204	100

X2= 0.407 df= 2 p/value=0.816

Table 3. The Relationship of Gender with the Accuracy of Secondary Diagnosis Code

Gender	Main Diagnosis Code				Total	
	Appropriate		Not Appropriate			
	∑	%	∑	%	∑	%
Male	67	58.3	48	41.7	115	100
Female	57	50.9	55	49.1	112	100
Total	124	54.6	103	45.4	227	100

X2= 1.243 df= 1 p/value=0.265

The results of this study showed that as many as 40/64 patients (62.5%) had a secondary diagnosis code accuracy in the group of patients with normal LOS category. On the other hand, 11/18 patients (61.1%) had inappropriate secondary Diagnosis codes in the group of patients with long-standing LOS (Table 4). The results of statistical tests obtained p-value = 0.185, so it can be concluded that there is no difference in the proportion of the accuracy of the secondary diagnosis code between patients with short, medium, and long hospital days.

Table 4. The Relationship of LOS with the Accuracy of Secondary Diagnosis Code

LOS	Main Diagnosis Code				Total	
	Appropriate		Not Appropriate			
	∑	%	∑	%	∑	%
Short	66	54.1	56	45.9	122	100
Normal	40	62.5	24	37.5	64	100
Long	7	38.9	11	61.1	18	
Total	113	55.4	91	44.6	204	100

X2= 3.375 df= 2 p/value=0.185

Table 5. Coding Error Case of Main Diagnosis

Main Diagnosis (MD)	Inappropriate Code of MD in Medical Record (MR)	Appropriate code of MD	INA-CBG Code in MR (Inapropriate)	Inappropriate Tarrif INA-CBG (in IR)	INA-CBG Code (appropriate)	Appropriate Tarrif of INA-CBG (in IR)
Diabetes Melitus Type II + Ulcus Diabetes	E 11.9	E11.5	E-4-10-I	3.723.600	I-4-15-I	4.765.000

E11.9 = DM TIPE2 E11.5 = DM type2 with ulcus/gangrene (combination)

Tabel 6. Coding Error Case of Secondary Diagnosis

Secondary Diagnosis (SD)	SD Code on MR (inappropriate)	The appropriate Code of SD	INA-CBG Code (inappropriate)	The appropriate INA-CBG Code
Heart disease with hypertension	I 11.0	I11.9	G-4-14-III	G-4-14-II

I11.0 = hypertensive heart disease (HHD) with congestive heart failure (CHF)

I11.9 = HHD without CHF

Of the 227 medical records of patients studied, there were only 204 medical records of patients whose primary diagnosis was recorded. Of the 204 medical records, 164 (80.4%) medical records were found with the correct main diagnosis code, and 40 (19.6%) medical records with incorrect main Diagnosis code. As for the secondary diagnosis code, of the 227 patients studied, the number of different medical records recorded was based on the patient's age, gender, and LOS of the patient. Based on the patient's age, out of 227 medical records, only 157 patients' medical records were recorded. Based on the gender of the patient, all medical records were recorded as many as 227 medical records. Based on LOS, out of 227 patient medical records, only 204 medical records were recorded.

From Table 5, it can be seen that the main Diagnosis code inaccuracy was found. The identified code is E 11.9 which is the code for type 2 diabetes mellitus. While the correct main Diagnosis code for Type II Diabetes Mellitus accompanied by diabetic ulcers is E11.5. The imprecision of this code has an impact on the INA-CBGs code. The code for INA-CBGs identified is E-4-10-I, while the code for INA-CBGs should be I-4-15-I. So the patient should pay the INA-CBGs tariff of Rp. 4,765,000, - due to an error code of diagnosis, the patient only pays a tariff of IDR 3,723,600.

From the table in Table 6. it is known that there is an inaccuracy in the secondary diagnosis code. The code identified is I 11.0 which is a Diagnosis code for hypertensive heart disease (HHD) with congestive heart failure (CHF). While the correct secondary diagnosis code for a heart with hypertension without congestive heart failure (CHF) is I11.9, whereas. The imprecision of this code has an impact on the INA-CBGs code. The identified INA-CBGs code is G-4-14-III. While the correct code for INA-CBGs is G-4-14-II. So that this will also allow for the difference in the appropriate rates found in medical records with INA-CBGs rates as happened in table 5.

Discussion

According to Anggraini (Siswati, 2015) coding is a process of classifying data and determining a number/alphabet/numeric code to represent it. ICD or understood as a disease diagnosis consists of the name of the disease, the disease process, the cause of the disease, and health-related problems. In practice, Diagnosis coding is carried out in accordance with ICD-10, according to the final result process, and according to service episodes. The main diagnosis is a diagnosis that is used as a justification for treatment and procedures given to patients by doctors.[5]

Accuracy in providing diagnosis codes to patients can facilitate the presentation of information so that which is very helpful in determining patient treatment costs. The accuracy of the diagnosis code is a condition where there is a match between the Diagnosis code set by the coding officer and the diagnosis in accordance with the ICD-10 coding rules. Improper diagnosis has an impact on a miscalculation of the costs to be paid by the patient which allows the patient to pay less or more costs than the normal day of care, causing losses for the patient or health insurance. On the other hand, an incorrect diagnosis code will also affect the financing of the health services provided so that the hospital can suffer losses because the claim payment based on the coding officer determined by the INA-CBGs-based coding officer is not correct.

Of the 227 medical records of patients studied, there were only 204 medical records of patients whose primary diagnosis was recorded. Of the 204 medical records, 164 (80.4%) medical records were found with the correct main diagnosis code, and 40 (19.6%) medical records with incorrect main Diagnosis code. In line with the research conducted (Windari, 2016) regarding the analysis of the accuracy of the coding produced by the coder at the Unggaran Hospital, it was found that there were still inaccuracies in the coding of diagnoses and medical actions carried out by inpatient coders, especially in BPJS insurance patients. From the research, it was found that the percentage of coding inaccuracy from 312 medical record documents reached 74.67%, while the inaccuracy rate reached 25.33%.[6]

The coding officer or often referred to as a coder is one of the main keys in the implemen-

tation of the coding process. Medical record personnel, especially coding staff, are responsible for coding accuracy. In addition to coding, medical record officers also must evaluate the quality of medical records so that the consistency and completeness of their contents are maintained. On the other hand, clarity in writing the diagnosis must also be considered. The Medical Record and Health Information (PMIK) has responsibility for the accuracy of the code and can read, conclude, diagnoses written by doctors. The use of abbreviations, the lack of legibility of doctors' writings is the causes of unclear diagnosis writing which will make it difficult for PMIK to determine the correct diagnosis code and action. In getting accuracy in ICD-10 coding, it is strongly influenced by the understanding and discipline of medical personnel in recording all data and information on medical services (Windari, 2016). Previous studies have also proven that the factors that allow the inaccuracy of the diagnosis code are the lack of experience of medical record officers, especially coding officers, resulting in a misunderstanding of officers when coding, coding SOPs that are not carried out properly, and incomplete work facilities available such as the availability of ICD-10 vol. 1,2, and 3 [(1,2).(6, 7)]

According to (Oktamianiza, 2019) the quality of a medical record worker, especially a coding officer at the UMR Hospital, can be seen from the educational background and work experience, and training that he has attended. Contrary to this opinion, Farzandipour in (DHS, 2018) found that work experience is one of the factors causing the inaccuracy of the diagnosis code. The inaccuracy of this diagnosis code occurs because coders with more than five years of work experience tend to only use rote (memory) in coding, thus allowing for errors to occur and have an impact on coding errors. Widjaya in (DHS, 2018) also stated that the training followed by the coder could not increase the accuracy of the diagnosis coding, but only added insight from the coder.[(4, 7)]

In the implementation of a case-mix or DRG-based prospective payment system, coding is one of the important components and has a huge impact on hospital revenues. The amount of claims paid by health insurance is largely determined by the accuracy and completeness of coding. Hospital definition will occur if the coding is not accurate and complete.

According to Hatta (Siswati, 2015), the resulting code must have accuracy and precision in accordance with the diagnosis. Inaccuracy of the generated code will affect the claim process.[(2, 5)]

According to the Health Insurance Association of America (HIAA) claims are a flow in collecting evidence in the form of facts relating to an incident of illness or injury, determining policy comparisons, and determining the benefits to be paid by the responsible collector. To get an appropriate reimbursement for the health services provided, accurate coding is needed.[(6)]

The inaccuracy of the diagnosis code can cause the presentation of information to be unclear so that the determination of the patient's treatment costs is also unclear, this condition can cause an inaccurate diagnosis so that the costs to be paid by the patient can be less or can be more which results in losses from the patient or the patient the insurance company.

Claim approval is a verification activity by an independent verifier of the correctness of the administration of the service account that has been carried out by the hospital. The accuracy of the diagnosis and the provision of the correct code is the conditions for the claim, if the claim conditions are complete then the verification can be approved and vice versa if the claim conditions are incomplete then the verification is not approved.

The diagnoses on the Resume (Discharge Summary) sheet must be distinguished between primary and secondary diagnoses, and not combined in one area in the Final Diagnosis Column. Merging these diagnoses without a clear grouping will affect the accuracy of the code so that code verification will be problematic. Based on the research conducted (Ningtyas. et al. 2019) on the analysis of the accuracy of the main diagnosis codes for labor cases before and after verification in BPJS patients at Dr. RSUP. Soeradji Tirtonegoro Klaten, it was found that the accuracy of the main diagnosis code for labor cases before verifi-

cation was carried out in BPJS patients, 50% of patients, namely 25 patients, the main diagnosis code was correct and 50%, as many as 25 patients, had incorrect main diagnosis codes. The inaccuracy in writing the main Diagnosis code is due to the writing of a non-specific code in the final Diagnosis code column between the main Diagnosis code and the secondary diagnosis code. While the accuracy of the main diagnosis code for delivery after verification on BPJS patients was obtained 58% of patients, namely 29 people had the correct diagnosis code and 42% of patients, namely 21 people had an incorrect diagnosis code, this is because in practice the verifier does not use ICD-10 in verifying the diagnosis code. It can be concluded that BPJS claims can be made if the code on the verification does not experience errors and can be accepted.[8, 9]

In line with research conducted by Tenri (2016) regarding the relationship between the accuracy of obstetric diagnosis codes and the smoothness of BPJS claims at Sawetigading Hospital, Palopo City, South Sulawesi, it was found that of the 44 medical records studied, only 17 medical records with a percentage of 38.6% had an accurate diagnosis obstetrics and 27 other medical records with a percentage of 61.4% had an incorrect obstetric diagnosis. Meanwhile, from 44 BPJS claim files, it was found that 23 claim files with a percentage of 52.3% were categorized as current and the remaining 21 claim files with a percentage of 47.7% were categorized as non-current. It can be concluded that there is a relationship between the accuracy of the obstetric diagnosis code on the smoothness of BPJS in Sawetigading Hospital, Palopo City, South Sulawesi.[10]

From the findings of the researchers and the results of previous studies, the inaccurate diagnosis code will affect the verification of BPJS claims so that it will also have an impact on the smoothness of these claims.

Secondary diagnosis is an additional diagnosis or a diagnosis other than the main diagnosis that already existed before the patient was admitted to the hospital and emerged as a result of the patient's treatment management actions while in the hospital.

In other words, a secondary diagnosis consisting of co-morbidity and complications can benefit the hospital so that the Severity level is more optimal. On the other hand, with the completeness of the secondary diagnosis, the patient will get maximum service so that it can reduce the occurrence of contraindications and the patient will get the right choice of treatment. Complications of disease greatly affect the accuracy of a secondary diagnosis, patients who have complications will cause coding for new diseases and additional codes, if coding is not done properly, it will cause inaccuracy of secondary diagnosis so that the requirements for verification of claims are not met. If the requirements for the claim are not complete, the verification is not approved and cannot be claimed. So that the patient could not reimburse the insurance company.

The accuracy of the diagnosis code will benefit the hospital because medical staff will be able to carry out or provide services including treatment according to known diagnoses of disease, including comorbidities and complications. Furthermore, the costs to be incurred will be more efficient because they are in accordance with the diagnosis and/or complications.

The inaccuracy of the primary diagnosis code or the secondary diagnosis code will also have an impact on the cost rates that will be incurred by the patient and received by the hospital based on the existing rates in the INA-CBGs system. Two possibilities will occur, the first possibility is that the patient pays a bill that is smaller than the rate that should be based on the services received, thereby harming the hospital. On the other hand, both patients can pay a bill that is greater than the rate that should be based on the services they receive, thereby harming the patient himself.

From the results of the research conducted, it was found that there were errors and inaccuracies in the primary diagnosis code and the secondary diagnosis code so that the pricing in INA-CBGs was also incorrect. In the primary diagnosis, it was found that the rate paid by the patient was lower than the rate that should have been. Conditions like this will cause losses to the hospital

because getting payments are not in accordance with the services that have been provided and do not match the rates that should be obtained. If this condition occurs continuously, it will cause a financial deficit in the hospital.

In the secondary diagnosis, it was found that the rate paid by the patient was greater than the rate that should have been. Conditions like this will harm the patient because they have to pay a higher rate than the rate that should be with the services and treatment that has been obtained.

Conclusion

Pariaman Regional General Hospital has provided health services for all levels of society in all age groups. INA-CBG as a tool for calculating service fees that must be paid by patients has been used according to the rules of the government of the Republic of Indonesia. The accuracy of the main diagnosis code has shown results that exceed 80% of all medical records of selected patients as research samples. However, the accuracy of the secondary diagnosis code has only reached 50%. Code accuracy is still very low, only reaching 15.4%, and secondary only reaching 1.8%. The accuracy of the diagnosis code is closely related to the quality of service. The inaccuracy of the diagnosis code will affect patient satisfaction, especially in terms of payments that are not in accordance with the services they receive.

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