The Influence Of Medical Officer Knowledge And Facilities Of Medical Recording Documents On Inaccuracies Of Main Diagnosis Codes According To Icd-10 In Medical Record Documents At dr. Soepraoen Hospitals Malang

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Abstract The competence of a medical recorder is to code diagnosis. But in the fact, there are still many medical officers who experience some difficulties in coding diagnoses quickly, precisely, and accurately. This study is here to find out the effect of the knowledge of medical personnel and medical record document facilities on the inaccuracy of the main diagnosis code according to ICD-10 in the medical record document at dr. Soepraoen Malang. This research uses a qualitative method with a case study approach design. The location of this research is DR. Soepraoen Hospital, Malang. Processing data in this study is use non statistic. The result of this study is there is a negative and significant effect of health workers knowledge partially on the inaccuracies of main diagnosis codes, there is a negative and significant effect of hospital facilities partially on the inaccuracies of main diagnosis codes, there is a simultaneous negative and significant effect of health workers knowledge and hospital facilities on the inaccuracies of main diagnosis codes.
Keywords medical officers, knowledge, ICD-10, medical record

1. Introduction

The accuracy in providing the diagnosis code is an important thing that must be considered by medical recorders. This is because the ability to code a diagnosis is one of the competencies of a medical recorder. However, in reality, there are still many medical record officers who have difficulty coding the diagnosis precisely and accurately. As it is known, medical record officers play a strategic role in reporting health status in Indonesia (Thomson, 2015).

Based on the Indonesian Minister of Health Decree Number 377 / Menkes / SK / 111/2007 concerning Professional Standards for Medical Recorders and Health Information, a medical recorder must have the ability to determine disease codes and actions appropriately according to the classification imposed in Indonesia and recognized internationally, namely using the ICD -10 (International Statistical Classification of Disease and Related Health Problems Tenth Revision) based on the type of disease and medical action given during the health service process.

Nomenclature, also known as medical terminology, is a system used to organize a list of medical terms, symptoms, and procedures. The use of terminology is useful for uniformity, universality and terms written by doctors in a country are still understood by doctors everywhere in the world. With the development of the times, there have been adaptations, and changes in writing patient diagnoses due to the influence of local languages causing coding staff difficulty in determining the patient diagnosis code (Gillum, 2013). So that it is necessary to have a uniform diagnosis based on medical terminology that is in accordance with the ICD-10 to make it easier for coding officers to determine the patient's diagnosis code (Khabibah, 2013: 46).

According to WHO (2004), the condition of data and information on the health status of the population in developing countries is still weak, including Indonesia. There are 65% of hospitals in Indonesia, have not made a complete and clear diagnosis based on ICD-10 and have not correctly given a code (Oktamnianiza, 2011). One of the causes of all this is the lack of knowledge of medical personnel in coding according to the hospital's disease classification table (morbidity) (Hatta, 2010).

In coding an accurate, complete and consistent diagnosis will produce quality data. Accuracy in providing the diagnosis code is an important thing that must be considered by medical recorders, the quality of the coded data is important for the Health Information Management personnel. The accuracy of the diagnosis data is very crucial in the field of clinical data management, cost recovery, along with other matters related to health care and services (Hatta. GR, 2008).

The Decree of the Minister of Health Number 377 / MenKes / SK / III / 2007 concerning Professional Standards for Medical Recorders and Health Information states that one of the competencies that a medical recorder must have is the classification and coding of diseases, problems related to health and medical action. . Over the years, the use of different procedures and terms of disease has resulted in inaccurate data collection and processing of morbidity and mortality. In

an effort to organize and standardize medical language, health care professionals have succeeded in developing disease nomenclature, disease classification systems, and clinical medical vocabulary (Aisyah, 2019).

A coder must be able to carry out or do a job that is based on competence, skills and knowledge and is supported by work attitudes which are individual characteristics. Competence is the ability to carry out or perform a job or task that is based on skills and knowledge and is supported by work attitudes which are individual characteristics, demanded by the job (Wibowo, 2008).

The coder at Soepraoen Hospital Malang has a background of D3 Medical Record education, but in the coding, there are still errors / inaccuracies. So that based on the above background, the researcher is interested in conducting research with the title "The Influence Of Medical Officer Knowledge And Facilities Of Medical Recording Documents On Inaccuracies Of Main Diagnosis Codes According To Icd-10 In Medical Record Documents At dr. Soepraoen Hospitals Malang"

2. Materials and Methods

Medical Officer

Health workers based on the Law of the Republic of Indonesia on Health No. 36 of 2014 are any person who devotes himself to the health sector and has knowledge and skills through education in the health sector for certain types that require authority in carrying out health efforts. Health workers also have an important role to play in improving the maximum quality of health services to the community so that people are able to increase awareness, willingness, and ability to live healthy so that they are able to realize the highest degree of health as an investment for the development of socially and economically productive human resources. Health workers have several officers whose work is interrelated, namely doctors, dentists, nurses, midwives, etc (Peraturan Pemerintah No 32 Tahun 1996).

Medical records

Medical records are files containing notes and documents about patient identity, examination, treatment, actions and other services that have been provided to patients (Ministry of Health, 2008). According to Hatta, et al. (in Lubis, 2010), a medical record is a file containing notes and documents regarding identity, history, medical diagnosis, examination, treatment, action, and other services provided to patients at health service facilities which include patient registration starting from the reception site. The patient is then responsible for collecting, analyzing, processing, and ensuring the completeness of the medical record files from the outpatient unit, inpatient unit, emergency room, and other supporting units.

The benefits of medical records include the values of the aspects known as ALFREDS (Administrative, Legal, Financial, Research, Education, Documentation, and Service). Medical record documents are very important in carrying out the quality of medical services provided by the hospital and its medical staff as well as accurate evidence in court (Gotllieb, et al, 2015).

Definition of coding

Coding is classifying data and designating a representation for that data. In the health sector, coding means the use of numbers to represent diseases, procedures and tools or materials used in the delivery of health services. The coding for disease is usually written in alphanumeric form and for actions is usually written in numeric form.

Sources of data for coding come from medical records, namely data on diagnosis and actions or procedures contained in the patient's medical resume.

Before the officer applies the writing of a disease diagnosis code, the medical record officer in charge of applying the doctor's diagnosis code is required to review the patient's medical record data to find deficiencies, mistakes or errors due to not using minimum recording standards, so that completeness of the contents of the medical record is a requirement for determining the diagnosis code by medical records officer. The completeness of medical records is very dependent on the doctor as the determinant of the diagnosis and the record officer as a reviewer of completeness.

Diagnosis

Diagnosis is a disease or condition suffered by a patient that causes a patient to need or seek and receive medical care or medical care. The main specific diagnosis will make it easier for the coding officer to determine the main code according to the diagnosis written in the main diagnosis column. The accuracy of the diagnostic code plays an important role in the reporting process and disease index.

ICD-10

ICD-10 is a coding for disease and signs, symptoms, abnormal findings, complaints, social and external conditions that cause injury or disease, as classified by the World Health Organization (WHO).

The objectives of the ICD-10 include obtaining systematic records, analyzing, interpreting and comparing morbidity data from different countries or between regions at different times, to translate diagnoses of diseases and health problems from words into alphanumeric codes that will facilitate storage, retrieve data and analyze data, facilitate data entry into available computer databases, provide data required by the payment or billing system being run, provide an indication of the reasons why patients receive care or care or services and provide information on diagnosis and action for research, education and assessment

The International Classification of Disease 10 (ICD-10) from WHO has been out a long time ago, with revisions. This classification has classified diseases based on the anatomy and function of the organs as a whole.

The grouping of diseases in the ICD-10 is listed in the Major Diagnostic Categories (MDC) which are general diagnostic categories of diseases.

3. Research Methods

The approach in this study is a quantitative approach since this study is presented with numbers that aim to test the hypothesis. Further, this type of research is explanatory research. According to Singarimbun and Sofian Effendi (2009), explanatory research is research in which the researcher explains the causal relationship between variables through hypothesis testing. The type of data used is quantitative, which is obtained from questionnaire answers distributed to a number of respondents related to the research variables. Measurement of research data using a Likert scale with a range of 1-5. Analysis of the data used in this study is Multiple Linear Regression Analysis, which is an analysis to analyze the effect of independent variables on the dependent variable where the independent variables amount to more than one variable. Then, the data is taken from the data sample using total sampling of 30 health workers in the medical records department at the dr. Soepraoen Hospital Malang. After that, data were analyzed descriptively using content analysis techniques.

4. Result and Discussion

Result

Validity Test

Item validity is the accuracy to measure what should be

measured through these items so that the validity of an instrument is strongly influenced or depends on the validity possessed by each question in a questionnaire or research instrument. A tool to test the validity is Pearson's Product Moment Correlation. An indicator is said to be valid, if n = 30 and α = 0.05, then the r table = 0.296.

Table 1 Validity Test

Variable	r-count	r-table	Description
Medical Officer Knowledge	0.526-0.874	0.296	Valid
Facilities	0.484-0.839	0.296	Valid
Inaccuracies	0.597-0.826	0.296	Valid
Of Main Diagnosis Codes			

Based on the results of the validity test above, it can be seen that the validity of the medical officer knowledge, facilities, and inaccuracies of main diagnosis codes instruments is declared as valid because of all values of Corrected item-total Correlation (r-count) are greater than the r-table (0.296).

Reliability Test

Reliability test is the process of testing the question items in the questionnaire, whether the contents of the items are reliable or not so they can measure the factors. Furthermore, the reliability coefficient obtained is compared with an alpha of at least 0.60. If the reliability coefficient is ≥ alpha (0.60) then the question being asked is reliable but if the reliability coefficient is ≤ alpha (0.60) then the question being asked is not reliable.

Table 2 Reliability Test

Variable	Cronbach's Alpha	Standard alpha	Description
Medical Officer Knowledge	0.876	0.60	Reliable
Facilities	0.852	0.60	Reliable
Inaccuracies Of Main DiagnosisCodes	0.815	0.60	Reliable

According to the data above, it can be concluded that the medical officer knowledge, the facilities in the hospital, and the inccuracies of main diagnosis codes are declared reliable because they have a Cronbach's alpha value above 0.60.

Descriptive Analysis

The following is a description of the respondents 'answers based on their answers to the questionnaire related to the research variables. Descriptive analysis can also describe the value and category of each variable. The general description of these variables can be seen as follows:

Table 3 Variable Description

Variable	Mean	Category

Medical Officer Knowledge	4.12	High
Facilities	4.27	Very High
Inaccuracies Of Main Diagnosis Codes	4.31	Very High

Normality Test

The normality test aims to test whether the variables are normally distributed in the research model. The data normality test in this research used the One-Sample Kolmogorov Smirnov test. The data is said to be normally distributed if the residuals are normally distributed, which has a Sig Z value> 0.05.

Table 4 Normality Test

Variable	*Sig Z*	Description
Medical Officer Knowledge	0.154	Normal
Facilities	0.716	Normal
Inaccuracies Of Main Diagnosis Codes	0.231	Normal

Based on the Kolmogorov-Smirnov Z test, it is known that the sig Z value in the medical officer knowledge variable is 0.154, the sig Z value for the hospital facilities variable is 0.716, and the sig Z value for the inaccuracies of main diagnosis codes variable is 0.231. Thus, it can be concluded that H0 is accepted and H1 is rejected, so it can be concluded that the residuals on all variables are normally distributed because they have a sig value> 0.05.

Multicollinearity Test

The result of the multicollinearity assumption test aims to show that the independent variables are not interrelated. This can be seen from the correlation matrix between the independent variables in the following table:

Table 5. Multicollinearity Test

Variable	Tolerance	VIF	Description
Medical Officer Knowledge	0.309	5.671	Normal
Facilities	0.515	3.874	Normal

Multicollinearity test results can be seen by looking at the VIF and the tolerance value obtained. If the tolerance value is greater than 0.10 and the VIF value is smaller than 10, it can be concluded that there is no multicollinearity. From the table above, it is known that all VIF values in the medical officer knowledge variable is 5.671, while the facilities value is 3.874, which both are smaller than 10. Further, the tolerance value is greater than 0.10, so it can be concluded that there is no multicollinearity between the independent variables.

Regression Analysis

Multiple linear regression analysis is intended to determine the effect or relationship of the independent variables, medical officer knowledge and facilities, on the

Table 6. Regression Analysis

Variable	**Beta**	**t-count**	**P-Value**	**Description**
Medical Officer Knowledge	-0.328	2.782	0.031	Significantly Negative
Facilities	-0.614	7.124	0.000	Significantly Negative

a. The regression coefficient for the variable medical officer knowledge (X1) is -0.328; It means that if the other independent variable has a fixed value and the medical officer knowledge variable has a decrease of 1 unit, then inaccuracies of diagnosis code (Y) will be increased by 0.328 because the coefficient value is negative. Furthermore, the significance value of the effect is 0.031 <0.05. So, it can be concluded that there is a negative and significant effect of medical officer knowledge on the inaccuracies of main diagnosis codes.
b. The facilities variable regression coefficient (X1) is -0.614; It means that if the other independent variable is fixed in a value and the facilities variable decreases by 1 unit, patient satisfaction (Y) will be increased by 0.614

because the coefficient value is negative. Furthermore, with the significance value of 0.000 <0.05, the conclusion is that there is a negative and significant effect of facilities on the inaccuracies of main diagnosis codes.

F-Test and Determination Test
The F statistical test basically shows if all the independent variables included in the model have the accuracy of the model on the dependent variable.

Table 7. F-Test and Determination Test

Model	F-count		Sig.	Description
Regression	78.169		0.000	Significant
Coefficient of Determination	0.77	77%		

5. Discussion

The Negative and Significant Effect of Health Workers Knowledge on the Inaccuracies of Main Diagnosis Codes This research focused on the effect of health workers knowledge and facilities at the dr. Soepraon Malang on the inaccuracies of main diagnosis codes. After doing the analysis, the researcher finds that the result is in line with the results of previous studies. The researcher finds that health workers knowledge partially has a negative and significant effect on the inaccuracies of main diagnosis codes (Davis, et al, 2016). From the findings, it can be said that when the health workers understand and know their task well the possibility in giving the wrong diagnosis will be decreased.
The Negative and Significant Effect of Hospital Facilities on the Inaccuracies of Main Diagnosis Codes
This research focused on the effect of health workers knowledge and facilities at the dr. Soepraon Malang on the inaccuracies of main diagnosis codes. After doing the analysis, the researcher finds that the result is in line with the results of previous studies. The researcher finds that hospital facilities partially has a negative and significant effect on patient satisfaction. From the findings, it can be said that how if the hospital has a good, useful, and updated facilities, the diagnosis to the patient will most likely to be always right/ Besides, it can also be seen that the knowledge of the health workers is the variable that has the most negative effect (karaca & durna, 2019).

6. Conclusion

1. There is a negative and significant effect of health workers knowledge partially on the inaccuracies of main diagnosis codes
2. There is a negative and significant effect of hospital facilities partially on the inaccuracies of main diagnosis codes
3. There is a simultaneous negative and significant effect of health workers knowledge and hospital facilities on the inaccuracies of main diagnosis codes

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References

[1] Departemen Kesehatan RI. (1996). Peraturan Pemerintah No. 32 Tahun 1996 tentang Tenaga Kesehatan. Jakarta.

[2] Departemen Kesehatan RI. (2008). Profil kesehatan Indonesia 2007. Jakarta : Depkes RI Jakarta

[3] Hatta, G, R, (2008). Pedoman Manajemen Informasi Kesehatan di Sarana Pelayanan Kesehatan. UI-PRESS.

[4] Hatta, G. 2010. Pedoman Manajemen Informasi Kesehatan di Sarana Pelayanan Kesehatan. Jakarta: UI-Press

[5] Indonesia, R. (2014). Peraturan Menteri Kesehatan no 27 tahun 2014 tentang Petunjuk Teknis Sistem Indonesian Case Base Groups (INA–CBGs).

[6] Khabibah, S., & Sugiarsi, S. (2013). Tinjauan Ketepatan Terminologi Medis dalam Penulisan Diagnosis pada Lembaran Masuk dan Keluar di RSU Jati Husada Karanganyar. Jurnal Manajemen Informasi Kesehatan Indonesia, 1(2), 46-52.

[7] Kresnowati, L. (2005). Hand out ICD-10. Universitas Dian Nuswantoro, Semarang.

[8] Oktamianiza. 2011. Analisis Keefektifan Pengelolaan Informasi Kesehatan Berdasarkan Sistem Casemix INA-CBG's Pasien Jamkesmas pada Bangsal Bedah di RSUP Dr. M. Djamil Padang Tahun 2011. Karya Tulis Ilmiah (Tidak Dipublikasikan). Padang: Program S2 Kesehatan Masyarakat Universitas Andalas Padang.

[9] Pamungkas, T. W., & Marwati, T. (2012). Analisis Ketidaklengkapan Pengisian Berkas Rekam Medis di Rumah Sakit PKU Muhammadiyah Yogyakarta. Jurnal Kesehatan Masyarakat (Journal of Public Health), 4(1), 17-28.

[10] Rivany, R. (2008). Clinical Pathway Sectio Caesaria & Diare Rumah Sakit Tarakan & RS Budi Asih [Disertasi]. Jakarta: Department of Health Policy and Analysis, SPHUI.

[11] Sugianto, Z. (2005). Perilaku Dokter Dalam Mengisis Kelengkapan Data Rekam Medis, RSU Ungaran (Doctoral dissertation, Tesis).

[12] Undang-Undang Republik Indonesia Nomor 36 Tahun 2014 Tentang Tenaga Kesehatan.

[13] Yuliani, N. (2010). Analisis Keakuratan Kode Diagnosis Penyakit Commotio Cerebri Pasien Rawat Inap Berdasarkan ICD-10 Rekam Medik di Rumah Sakit Islam Klaten. Infokes (Jurnal Ilmiah Rekam Medis dan Informatika Kesehatan), 1(1), 17-31.

[14] WHO. 2004. International Statistical Classification of Disease And Related Health Problems, Tenth Revision. Geneva: WHO.

[15] Wibowo. (2008). Manajemen Kinerja. Jakarta. Penerbit: Rajagrafindo Persada.

[16] Davis, K. A., Sudlow, C. L., & Hotopf, M. (2016). Can mental health diagnoses in administrative data be used for research? A systematic review of the accuracy of routinely collected diagnoses. BMC psychiatry, 16(1), 1-11.

[17] Karaca, A., & Durna, Z. (2019). Patient satisfaction with the quality of nursing care. Nursing open, 6(2), 535-545.

[18] Thompson, G., O'Horo, J. C., Pickering, B. W., & Herasevich, V. (2015). Impact of the electronic medical record on mortality, length of stay, and cost in the hospital and ICU: a systematic review and metaanalysis. Critical care medicine, 43(6), 1276-1282.

[19] Gillum, R. F. (2013). From papyrus to the electronic tablet: a brief history of the clinical medical record with lessons for the digital age. The American journal of medicine, 126(10), 853-857.

[20] Gottlieb, L. M., Tirozzi, K. J., Manchanda, R., Burns, A. R., & Sandel, M. T. (2015). Moving electronic medical records upstream: incorporating social determinants of health. American Journal of Preventive Medicine, 48(2), 215-218.

[21] Aisyah, E. N., Iriyanto, T., Astuti, W., & Yafie, E. (2019). Pengembangan Alat Permainan Ritatoon Tentang Binatang Peliharaan sebagai Media Stimulasi Kemampuan Kognitif Anak Usia Dini. Jurnal Kajian Teknologi Pendidikan, 2(3), 174-180.