

Accuracy of Diagnosis Coding Based On ICD-10**Sayati Mandia****Department of Medical Record, Apikes Iris, Padang, West Sumatera, Indonesia*

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ABSTRACT

Background: Accuracy of diagnosis code in medical record is responsible for hospital medical billing. Accurate billing is crucial for the financial health of medical institutions. Billing and coding are based on what services are documented by the provider and selection of the appropriate code is most commonly done by the provider or a coding specialist. This study aims to determine inaccurate coding diagnosis at Semen Padang Hospital from January to March in 2017. **Material and method:** This research was conducted at Semen Padang Hospital, West Sumatera, Indonesia from January to March in 2017. The study used descriptive method with a qualitative approach. The data was collected from the medical records department. The population is overall object of research. The population is all abstraction data of medical record file from January to March in 2017, namely 2342 medical record files, used total sampling technique. Research variable is accuracy and inaccuracy diagnosis code based on ICD-10 from abstraction data inpatient patient. Accurate is compatible diagnosis code according to the code in ICD 10. **Results:** 95.8 % (2229) diagnosis accurate and 4.8 % (113) diagnosis inaccurate based on ICD-10. Inaccuracy diagnosis codes are acute appendicitis with generalized peritonitis (K35.2) 6.19 % (7 diagnosis), acute appendicitis, other and unspecified (K35.8) 5.3% (6 diagnosis) and chronic kidney disease stage 5 (N18.5) 88.51% (100 diagnosis). **Conclusion:** Accuracy code was 95,8% and inaccurate was 4,8 %. Chronic Kidney diseases is the most inaccurate code.

Key words: Medical record, ICD-10, code, diagnose

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INTRODUCTION

The medical record “must contain sufficient data to identify the patient, support the diagnosis or reason for attendance at the health care facility, justify the treatment and accurately document the results of that treatment”.^[1] The medical record has four major sections. There are administrative which includes demographic and socioeconomic data; legal data including a signed consent for treatment by appointed doctors and authorization for the release of information; financial data relating to the payment of fees for medical services and hospital accommodation; clinical data on the patient whether admitted to the hospital or treated as an outpatient or an emergency patient.^[2] Accurating of diagnosis code in the medical record is responsible for hospital medical billing. Succeed and is reluctant to react.^[3]

Accurate billing is crucial for the financial health of medical institutions. Billing and coding are based on what services are documented by the provider and selection of the appropriate code is most commonly done by the provider or a coding specialist.³ Clinical coding and classification processes transform natural language descriptions in clinical text into coded data that can be subsequently used for clinical care, research, and other purposes.^[4] The code is measured in detail in order to accurately describe diagnoses (i.e. what is wrong with the patient) and the procedures performed to test or correct these diagnoses. Codes also allow insurance providers to map equivalences across different healthcare providers who may use different terminologies or abbreviations in claim forms.^[5] Codes are also essential in clinical care for phenotyping and predictive modeling of patient state.^[6] The transition also has significant implications on reimbursement from health care insurers. Diagnostic codes may be used to determine the severity of illness of a provider’s patient population and affect payment rates with newly

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adopted payment models. Codes that previously could not differentiate between several types of diabetes, for example, are now refined to capture important distinctions but require clinicians to add to their documentation causal underlying conditions or whether the disease was induced by drugs.^[7] A more detailed description of laterality and location in the patient's body is also a newly added specification. The previous emphasis on organs and disease that prioritized physician-oriented content is expanded to also cover human responses to disease that are necessary for advanced nursing and long-term care.^[8] International Statistical Classification of Diseases and Related Health Problems (ICD) is a standard of medical coding for diagnosis is widely used around the world. ICD is published by the World Health Organization (WHO) and is a classification of diseases, signs and symptoms, abnormal findings and complaints, social circumstances, and external causes of injury or disease. ICD is used for tracking morbidity and mortality statistics and within reimbursement systems. ICD-10 is the 10th revision of this classification system and replaced the ICD-9 classification that was first adopted in 1975. WHO has authorized the development of an adaptation of ICD-10 for use in the United States (ICD-10-CM). All modifications to ICD-10 must conform to WHO conventions for the ICD9. Research conducted by Rusliyanti^[10] at Mitra Paramedika Hospital Yogyakarta inpatient fracture found inaccurate code 89.5%. Research related to inaccurate coding was also done by Karimah^[11] on diagnosis of acute gastroenteritis in the first quarter at Balung Jember Hospital, there are 61 incorrect diagnosis codes based on ICD-10. A study by Marshall and Adema^[12] found that the overall coding error in a health system in Florida was 84.5%, with a consequent significant loss of funding. In a study conducted by Cheng^[13] at a tertiary trauma center in Australia, it was found that of

the 100 medical records reviewed, 28% experienced errors in case mix that led to errors in financing. Preliminary survey results at Semen Padang Hospital revealed that the number of inpatient visits period January-March in 2017 was 2344 patients. Researchers are interested in inaccuracy coding diagnosis in Semen Padang Hospital. This study aims to determine inaccurate coding diagnosis at Semen Padang Hospital from January to March in 2017.

MATERIAL AND METHOD

This research was conducted at Semen Padang Hospital, West Sumatera, Indonesia from January to March in 2017. The study used descriptive method with a qualitative approach. The data was collected from the medical records department. The population is overall object of research. The population is all abstraction data of medical record file from January to March in 2017, namely 2342 medical record files, used total sampling technique. Research variable is accuracy and inaccuracy diagnosis code based on ICD-10 from abstraction data inpatient patient. Accurate is compatible diagnosis code according to the code in ICD 10. Inaccurate is incompatible disease diagnosis code which is determined by the coder with ICD 10.

RESULTS

Of 2342 diagnosis in medical record has been corrected using ICD-10. The result shows [Table 1] 95.8 % (2229) diagnosis accurate and 4.8 % (113) diagnosis inaccurate based on ICD-10 [Table 2]. Shows Inaccuracy diagnosis code are acute appendicitis with generalized peritonitis (K35.2) 6.19 % (7 diagnosis), acute appendicitis, other and unspecified (K35.8) 5.3% (6 diagnosis) and chronic kidney disease stage 5 (N18.5) 88.51% (100 diagnosis).

Table 1: Accuracy of ICD-10 Coding by diagnosis type

S.No	Accuracy	Total	Percentage (%)
1	Accurate	2229	95.8
2	Inaccurate	113	4.8

Table 2: Classification of inaccuracy code

S. No		Inaccurate Code	Code ICD-10	Total	Percentage (%)
1	Acute appendicitis with generalized peritonitis	K35.0	K35.2	7	6.19 %
2	Acute appendicitis, other and unspecified	K35.9	K35.8	6	5.3 %
3	Chronic kidney disease, stage 5	N18.0	N18.5	100	88.51 %

Table 3: Frequency diagnosis based on ICD-10

Chapter	Block	Diagnose base on ICD-10	Total	%
I	A00-B99	Certain infectious and parasitic disease	321	13.71
II	C00-D48	Neoplasms	319	13.62
III	D50-D89	Disorder of the blood and blood forming organs and certain disorder involving the immune mechanism	14	0.60
IV	E00-E90	endocrine, nutritional and metabolic diseases	61	2.60
VI	G00-G99	Diseases of the nervous system	17	0.73
VII	H00-H59	Diseases of the eye and adnexa	15	0.64
VIII	H60-H95	Diseases of the ear and mastoid process	23	0.98
IX	I00-I99	Diseases of the circulatory system	197	8.41
X	J00-J99	Diseases of the respiratory system	134	5.72
XI	K00-K93	Diseases of the digestive system	293	12.51
XII	L00-L99	Diseases of the skin and subcutaneous tissue	26	1.11
XIII	M00-M99	Diseases of the muscular system and connective tissue	57	2.43
XIV	N00-N99	Diseases of the genitourinary system	251	10.72
XV	O00-O99	Pregnancy, childbirth and the puerperium	199	8.50
XVI	P00-P96	Certain condition originating in the perinatal period	19	0.81
XVII	Q00-Q99	Congenital malformation, deformations and chromosomal abnormalities	14	0.60
XVIII	R00-R99	Symptoms, signs and abnormal and clinical and laboratory findings, not elsewhere classified	87	3.71
XIX	S00-T98	Injury, poisoning and certain other consequences of external causes	142	6.06
XXI	Z00-Z99	Factors influencing health status and contact with health services	153	6.53
Grand Total			2342	

Table 4: Diagnose According Chapter I (A00-B99) Certain infectious and parasitic disease

Code	Diagnose	Total
A01.0	Typhoid fever	147
A09.9	Gastroenteritis and colitis of unspecified origin	54
A16.2	Tuberculosis of lung, without mention of bacteriological or histological confirmation	3
A16.3	Tuberculosis of intrathoracic lymph nodes, without mention of bacteriological or histological confirmation	1
A16.5	Tuberculous pleurisy, without mention of bacteriological or histological confirmation	1
A18.3	Tuberculosis of intestines, peritoneum and mesenteric glands	3
A37.9	Whooping cough, unspecified	1
A41.9	Sepsis, unspecified	8
A90	Dengue fever [classical dengue]	11
A91	Dengue haemorrhagic fever	65
B01.9	Varicella without complication	1
B05.9	Measles without complication	8
B07	Viral warts	3
B24	Unspecified human immunodeficiency virus [HIV] disease	3
B50.9	Plasmodium falciparum malaria, unspecified	1
B51.9	Plasmodium vivax malaria without complication	1
B54	Unspecified malaria	9
B99	Other and unspecified infectious diseases	1
Grand Total		321

[Table 3]. Determine frequency diagnosis based on classification diagnosis in ICD-10. The highest diagnose in chapter I code A00-B99 (Certain infectious and parasitic disease) 321 diagnoses (13.71%), followed Chapter II code C00-D48 (neoplasms) 319 diagnoses (13.62%) and chapter XI code K00-K93 (diseases of the digestive system) 293 diagnoses (12,51%). Type of diagnose in chapter I A00-B99 (Certain infectious and parasitic disease) shown in [Table 4]: the percentage was higher among codes of typhoid fever (ICD A01.0 147 diagnose), followed dengue haemorrhagic fever (ICD A91 65 diagnose).

DISCUSSION

Accuracy of coding diagnosis in Semen Padang Hospital was very good based on percentage 95.8 % accurate and 4.8% inaccurate. Karimah, et.al observed 80 Gastroenteritis Acute diseases of inpatient medical record documents at Balung Jember Regional Hospital. Of the 80 medical record documents, there are 61 codes inaccurate.^[11] Suherman reported the percentage of accuracy of the diagnosis code from 98 medical records files that have been observed obtained 6% of the code in the outpatient register is not coded (category D) while 49% of the diagnostic code is written incomplete (lacking the fourth character) (Category B).^[14] According to Minister of Health Regulation No.55 / MenKes / PER / III / 2013 (13) in the implementation of their work medical recorders have the authority in accordance with the educational qualifications of an intermediate medical recorder including implementing clinical classification systems and codification of diseases related to health and medical measures according to medical terminology correct, implement a reporting system in the form of information on health service activities and carry out an evaluation of the completeness of the contents of the diagnosis and actions as an accurate coding. Medical record competence, that is, medical recorders must be able to perform tasks in providing high quality medical records and health information services by taking into account several competencies, one of which is the classification and coding of disease.^[15] Danik and Nuryati state that writing a diagnosis between medical record files and EHR must be appropriate because it will affect the quality and quality of health services provided by the hospital to patients and affect the policy making process by the hospital.^[16] The application of coding is used to index disease records, input into medical diagnosis reporting systems, facilitate the process of storing and retrieving data related to diagnosis of patient and service provider characteristics, basic ingredients in grouping DRG's (diagnostic related groups) for billing systems for

payment of service fees, national and international reporting morbidity and mortality, tabulation of service data health for the evaluation process of medical service planning, determining the form of service that must be planned and developed according to the needs of the times, analysis of health service financing, as well as for epidemiological and clinical research. The most of inaccurate code is Chronic Kidney Disease (CKD) (88.5%). CKD also known as chronic renal disease, usually has little or no symptoms for those who suffer from renal impairment, with the progression of loss in renal function over a period of months or years. Data from the United States Renal Data System (USRDS) show the incidence of kidney failure is rising among adults and is commonly associated with poor outcomes and high treatment costs. In the United States, there has been a rising incidence and prevalence of kidney failure over the last two decades, and an even higher prevalence of earlier stages of chronic kidney disease, attributable to the aging population and the rising prevalence of co-morbidities, such as, hypertension, diabetes, and obesity. Our kidneys function to maintain an internal balance by removing waste and excess fluids. If waste products accumulate in our bodies, such as urea or uric acid, serious medical conditions can occur. In the ICD-10-CM book, covers the codes for disease of genitourinary (GU) system (N00-N99) for both female and male patients. These codes are arranged according to different sites in the genitourinary (GU) system and then by the specific site. In many instances, the codes in Chapter include instructional notes indicating how a code should be assigned or sequenced. In terms of CKD the instructional notes include: Use additional code to identify transplant status, if applicable (Z94.0); Use additional code to identify dialysis status (Z99.2); Code first any associated Diabetic chronic kidney disease (E08.22, E09.22, E10.22, E11.22 E13.22) or Hypertensive chronic kidney disease (I12-I13); When coding CKD the coder should review the health record to identify the stage of the CKD, dialysis status, kidney transplant status, whether there are any underlying associated conditions such as diabetes or hypertension present. ICD-10-CM classifies CKD based on severity, which is designated by Stages 1-5. The severity of CKD is designated by stages 1-5. Stage 2, code N18.2, equates to mild CKD; stage 3, code N18.3, equates to moderate CKD; and stage 4, code N18.4, equates to severe CKD. Code N18.6, End-stage renal disease (ESRD), is assigned when the provider has documented end-stage-renal disease (ESRD). If both a stage of CKD and ESRD are documented, assign code N18.6 only. The code set N18.1-N18.5 includes notation that a patient who has CKD stage 5 and

requires chronic dialysis would be coded to End-Stage Renal disease E18.6. Typhoid fever is highest disease (147 diagnose) based on results. Typhoid fever is a disease acute fever caused by infection *Salmonella enterica* bacteria in particular its derivative, *Salmonella typhi*. But it can also be caused by *Salmonella paratyphi A*, *Salmonella typhi B*, and *Salmonella paratyphi C*. Typhoid fever often occurs in several countries in the world and generally occur in countries with level slow cleanliness. This disease become a public health problem significant.^[17] Based on data WHO (World Health Organization) estimate the incidence rate throughout the world around 17 million people per year, numbers death from typhoid fever reaches 600,000 and 70% occur in Asia. Based on WHO the number of typhoid fever sufferers in Indonesia reached 81% per 100,000

CONCLUSION

Accuracy code was 95.8% and inaccurate was 4.8 %. Chronic Kidney diseases is the most inaccurate code.

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