

IMPLEMENTATION THE FOURTH CHARACTER CODE OF *INSULIN DEPENDENT DIABETES MELLITUS* (IDDM) DIAGNOSIS BASED INTERNATIONAL STATISTICAL CLASSIFICATION OF DISEASES AND RELATED HEALTH PROBLEMS

Linda Widyaningrum^{1*}, Nor Azlinah Md Lazam², Tominanto¹, Dona Yanuar Agus Santoso³

¹Universitas Duta Bangsa Surakarta, Jl. K.H Samanhudi No.93, Sondakan, Kec. Laweyan, Kota Surakarta, Jawa Tengah 57147, Indonesia

²University Malaysia of Computer Science & Engineering, Block 12, Star Central, Lingkaran Cyber Point Timur, 63000 Cyberjaya, Selangor, Malaysia

³Sekolah Tinggi Ilmu Kesehatan Kendal, Jln Laut 31 Kendal, Jawa tengah 51311, Indonesia

*linda_widya@udb.ac.id

ABSTRACT

Coding is the assignment of codes by using letters in numbers that represent data components. Activities and actions as well as diagnoses contained in the medical record must be coded and then indexed to facilitate services in presenting information to support the functions of planning, management and research in the health sector. This study aims to determine the application of the 4th character code to the diagnosis of Insulin Dependent Diabetes Mellitus (IDDM) based on ICD 10 in inpatient medical records at RSAU dr Siswanto Lanud Adi Soemarmo in 2020. The research method uses descriptive. The approach used is retrospective with observation and interview data collection. The sample used was 117 inpatient medical record documents with a diagnosis of Insulin Dependent Diabetes Mellitus (IDDM) with a sampling technique using saturated samples. The procedure for implementing the coding is not yet in accordance with the SPO and the SPO for the application of the 4th character code does not yet exist. The accuracy of the application of the 4th character code in the diagnosis of Insulin Dependent Diabetes Mellitus (IDDM) was 57% (67 documents) and 43% (50 documents) incorrectly due to an error in selecting the 4th character code. The factors causing the 4th character code inaccuracy based on ICD 10, namely medical personnel factors and medical record personnel (coder). Researchers suggest that hospitals should socialize to medical personnel about writing a diagnosis, this will minimize errors in the 4th character code. Coder officers should be more careful in coding and check again on ICD 10 volume 1 to provide the right code.

Keywords: 4th character code; inaccuracy; insulin dependent diabetes mellitus (idm)

INTRODUCTION

Coding is the assignment of codes by using letters in numbers that represent data components. Activities and actions and diagnoses contained in medical records must be coded and then indexed to facilitate services in presenting information to support the functions of planning, management and research in the health sector (Ernawati, 2017). Disease coding in the medical record world has been classified according to the World Health Organization (WHO) standard, which consists of classification and codification using the International Statistical Classification of Diseases and Related Health Problems Tenth Revision (ICD 10). The International Statistical Classification of Diseases and Related Health Problems Tenth Revision (ICD 10) is an international diagnostic classification used to code diseases. In ICD 10 there is a disease classification code of all organs of the body. Based on the Minister of Health Regulation No. 55 of 2013 concerning the Implementation of Medical Record Work, one of the competencies that must be possessed by medical recorders is to evaluate the clinical classification system and codification of diseases related to health and medical actions in accordance with correct medical terminology

One of the hospitals that has implemented the 4th character code on inpatient medical record documents with a diagnosis of *Insulin Dependent Diabetes Mellitus* (IDDM) is RSAU dr Siswanto Lanud Adi Soemarmo. RSAU dr Siswanto Lanud Adi Soemarmo as a place of research because errors were still found in the application of the 4th character code, namely the code for the complication of *Insulin Dependent Diabetes Mellitus* (IDDM). This will certainly affect the accuracy of the patient's diagnosis code. The hope of the researcher is as input for the hospital for evaluation in the application of the 4th character code to produce the right code.

METHOD

This research uses descriptive. The approach used is retrospective with observation and interview data collection. The instruments used are observation guidelines, interview guidelines, and checklists. The sample used was 117 inpatient medical record documents for the diagnosis of *Insulin Dependent Diabetes Mellitus* (IDDM) with the saturated sample technique.

RESULTS

Procedure For Coding The Diagnosis Of *Insulin Dependent Diabetes Mellitus* (IDDM)

Based on the results of the observation of the codification process at RSAU dr Siswanto Lanud Adi Soemarmo, it is regulated in the Standard Operating Procedure (SPO) Coding No. 32/SOP/MKI/2016 where in the SPO it is written that every disease diagnosis and medical treatment, both outpatient and inpatient, must be given a disease code based on ICD 10. At RSAU dr Siswanto Lanud Adi Soemarmo Standard Operating Procedures (SPO) in determining character codes 4 is not there yet. The coding steps for the coder officer are as Read the patient's diagnosis, Coding use the internet / web browser and Write the disease diagnosis code in the patient's medical record on the medical resume sheet.

Percentage of Accuracy and Inaccuracy in the Application of the 4th Character Code in the Diagnosis of *Insulin Dependent Diabetes Mellitus* (IDDM)

The results of research conducted on medical record documents of inpatients with a diagnosis of *Insulin Dependent Diabetes Mellitus* (IDDM) at RSAU dr Siswanto Lanud Adi Soemarmo in 2020 there were 117 medical record documents. The researcher conducted a study with the aim of knowing the percentage of accuracy and inaccuracy in the application of the 4th character code in the diagnosis of *Insulin Dependent Diabetes Mellitus* (IDDM). The result is that there are 67 correct codes and 50 incorrect codes. The following is the percentage of accuracy and inaccuracy in the application of the character code to the 4th diagnosis of *Insulin Dependent Diabetes Mellitus* (IDDM) in inpatient medical record documents.

Table 1
Percentage of Accuracy and Inaccuracy in Application of the 4th Character Code
Diagnosis of *Insulin Dependent Diabetes Mellitus* (IDDM)

Research Result	Number of Documents	Percentage %
Correct	67	57%
Incorrect	50	43%
Total	117	100

From the table above the percentage of accuracy and inaccuracy in the application of the 4th character code to the diagnosis of *Insulin Dependent Diabetes Mellitus* (IDDM) as many as 67 correct inpatient medical record documents with a percentage of 57% and 50 incorrect inpatient

medical record documents with a percentage of 43% of 117 inpatient medical record documents. The inaccuracy of the 4th character code can be seen in the following table:

Table 2

Inaccuracy of 4th Character Code Diagnosis of *Insulin Dependent Diabetes Mellitus* (IDDM)

No	Diagnosis	RS Code	Research Code	Information	Total	Percentage (%)
1	DM 1 <i>Gangrene</i>	E10.0	E10.5	The code is not correct because the ulcer in the 4th character code on ICD 10 goes to point 5	13	26
2	DM 1 <i>Hyperglycemia Ulcer</i>	E10.8	E10.7	The code is not correct because there are 2 complications, in the 4th character code on ICD 10 if there are 2 complications enter point 7	7	14
3	DM 1 <i>Hyperglycemia Ketoacidosis</i>	E10.8	E10.7	The code is not correct because there are 2 complications, in the 4th character code on ICD 10 if there are 2 complications enter point 7	1	2
4	DM 1 <i>Hypoglycemia</i>	E10.1	E10.0	The code is not correct because Hypoglycemia in the 4th character code on ICD 10 goes to point 0	2	4
5	DM 1 <i>Hyperglycemia</i>	E10.9	E10.0	The code is not correct because hyperglycemia in the 4th character code on ICD 10 is entered at point 0	3	6
6	DM 1	E10.8	E10.9	The code is not correct because without complications, in the 4th character code on ICD 10 if without complications enter point 9	12	24
7	DM 1 <i>Ketoacidosis</i>	E10.0	E10.1	The code is not correct because the ketoacidosis in the 4th character code on ICD 10 goes to point 1	3	6
8	DM 1 <i>Ulcer</i>	E10.6	E10.5	The code is not correct because the ulcer in the 4th character code on ICD 10 goes to point 5	5	10
9	DM 1 <i>Nephropathy</i>	E10.4	E10.2	The code is not correct because nephropathy in the 4th character code on ICD 10 goes to point 2	4	8

From the table above, it can be seen that the inaccuracy of the application of the 4th character code in the diagnosis of *Insulin Dependent Diabetes Mellitus* (IDDM) with the highest number of

complications of gangrene as many as 13 (26%) inpatient medical record documents. The level of inaccuracy in the application of the 4 character codes to the diagnosis of *Insulin Dependent Diabetes Mellitus* (IDDM) is presented in graphical form as follows:

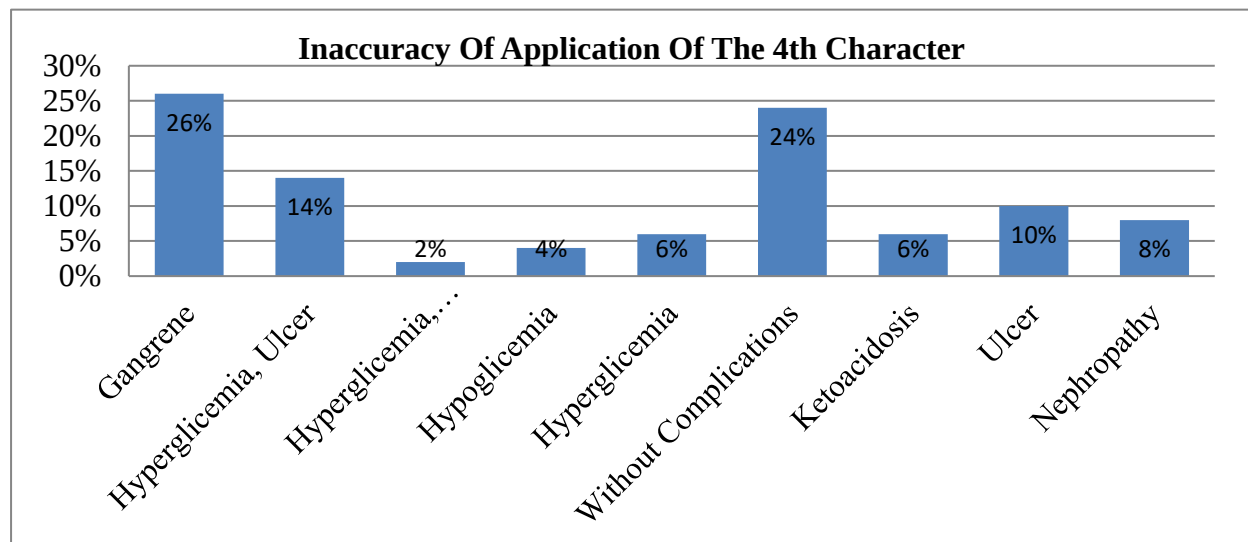


Figure 1. Improper Application of the 4th Character Code

From the picture above, it can be seen that the inaccuracy of the application of the 4th character code in the diagnosis of *Insulin Dependent Diabetes Mellitus* (IDDM) with the highest number of *gangrene* complications as many as 13 (26%) inpatient medical record documents. Complications of *gangrene* are serious and require emergency treatment. Medical record officers (coders) are often wrong in applying the 4th character code to complications of *gangrene*, because the coder officers consider that complications of *gangrene* fall into point 0 on ICD 10.

Factors Causing Inaccuracy in the Application of the 4th Character Code in the Diagnosis of *Insulin Dependent Diabetes Mellitus* (IDDM)

Based on the results of research at RSAU dr Siswanto Lanud Adi Soemarmo the inaccuracy in the application of the 4th character code in the diagnosis of *Insulin Dependent Diabetes Mellitus* (IDDM) in 2020 was caused by several factors including:

1. Factors of medical personnel (Doctors)

The doctor writing the patient's diagnosis must be complete, clear and readable by other officers, because the doctor's writing has something to do with the accuracy of the patient's diagnosis code. The doctor writes the complications on the patient's medical resume sheet. If the doctor's writing is unclear or difficult to read, it will affect the accuracy of the code given by the medical record officer (coder). Therefore, it is necessary to socialize the recording of diagnosis or medical information to medical personnel in order to facilitate the management of medical record documents, so that the resulting diagnosis code is more precise.

2. Factor of medical record personnel (coder)

There are 2 officers at the RSAU Dr Siswanto Lanud Adi Soemarmo codefication officer. The coder is responsible for the accuracy of the diagnostic code and the action given to the patient. Based on the results of research at RSAU dr Siswanto Lanud Adi Soemarmo the inaccuracy in the application of the 4th character code was due to the lack of medical record officers and

coding officers concurrently with other jobs. Another Factor is codet use web browser to code diagnosis. This factor will affect the inaccuracy in the application of the complication code or 4th character.

Therefore, to overcome the inaccuracy in the *Insulin Dependent Diabetes Mellitus* (IDDM) complication code, it is necessary to add medical record officers, especially in the coding section so that the resulting code is more specific (correct).

DISCUSSION

Procedure for coding the diagnosis of insulin dependent diabetes mellitus (IDDM)

Based on the results of research conducted at RSAU dr Siswanto Lanud Adi Soemarmo on the implementation of coding for the diagnosis of *Insulin Dependent Diabetes Mellitus* (IDDM) it is known that the Standard Operating Procedure (SPO) which regulates the Coding No. 32/SOP/MKI/2016 has not been implemented properly by the coder. At RSAU dr Siswanto Lanud Adi Soemarmo, the coding process is done computerized, namely by reading the patient's diagnosis, if there is a doctor's writing that cannot be read then immediately ask the nurse or doctor, if the writing of the diagnosis can be read then type lead term, look for the disease diagnosis code on the internet / web, and write the disease diagnosis code in the patient's medical record, namely the medical resume sheet.

The results of this study are not in accordance with Hatta's theory (2013: 139), in determining the code, where the steps are to determine the type of statement to be encoded, and open volume 3 Alphabetical Index (dictionary), look for Leadterm (for guide words) for diseases and illnesses. Injury is usually a noun describing the pathological condition, read carefully and follow the instructions in the notes that appear under the safe term selected in volume 3, read the term in brackets after the lead term (words in brackets = modifier, will not affect the code) , Follow carefully each cross reference and see and see also commands contained in the index, see the tabular list (volume 1) to find the most appropriate code number, follow the inclusion and exclusion guidelines in the selected code or section. under a chapter (chapter), block, category, and subcategory, then specify the selected code.

Percentage of Accuracy and Inaccuracy in the Application of the 4th Character Code in the Diagnosis of *Insulin Dependent Diabetes Mellitus* (IDDM)

Based on the results of research at RSAU dr Siswanto Lanud Adi Soemarmo on inpatient medical record documents the inaccuracy of the application of the 4th character code for the diagnosis of *Insulin Dependent Diabetes Mellitus* (IDDM) in 2020 as many as 57% or 67 correct documents, while for the incorrect diagnosis code as many as 43 % or as many as 50 documents. It can be seen that the diagnosis of *Insulin Dependent Diabetes Mellitus* (IDDM) or also often called Type 1 DM is incorrect in the application of the 4th character, there are 43% or 50 documents. Wrong application of the 4th character includes DM 1 complications of *gangrene* there are 13 documents, DM 1 *without* complications there are 12 documents, DM 1 complication of *hyperglycemia and ulcers* have 7 documents, DM 1 complication of *ulcer* has 5 documents, DM 1 complication of *nephropathy* has 4 documents, DM 1 complication of *ketoacidosis* has 3 documents, DM 1 complication of *hyperglycemia* has 3 documents, DM 1 complication of *hypoglycemia* has 2 documents, and DM 1 complication of *hyperglycemia and ketoacidosis* has 1 document.

Example error case with the application of the 4th character code:

Diagnosis : DM 1

Gangrene

RS Code : E10.0 (*With coma*)

Researcher Code : E10.5 (*With peripheral circulatory complications*)

Based on the results of the interview on complications of *gangrene*, there was a wrong code because the officer considered that on ICD 10 *gangrene* entered point 0 and the officer used a web browser to find the code. The researcher gave the code E10.5 because according to WHO (2016) *gangrene* complications in ICD 10 volume 1 on the 4th character entered at point 5 (*with peripheral circulatory complications*).

As stated in ICD 10 Volume 1, here is a picture of the 4th character code on ICD 10:

Diabetes mellitus (E10–E14)	
<i>Use additional external cause code (Chapter XX), if desired, to identify drug, if drug-induced.</i>	
The following fourth-character subdivisions are for use with categories E10–E14:	
.0 With coma	Diabetic: • coma with or without ketoacidosis • hyperosmolar coma • hypoglycaemic coma - Hyperglycaemic coma NOS
.1 With ketoacidosis	Diabetic: • acidosis • ketoacidosis } without mention of coma
.2† With renal complications	Diabetic nephropathy (N08.3*) Intracapillary glomerulonephrosis (N08.3*) Kimmelstiel-Wilson syndrome (N08.3*)
.3† With ophthalmic complications	Diabetic: • cataract (H28.0*) • retinopathy (H36.0*)
.4† With neurological complications	Diabetic: • amyotrophy (G73.0*) • autonomic neuropathy (G99.0*) • mononeuropathy (G59.0*) • polyneuropathy (G63.2*) • autonomic (G99.0*)
.5 With peripheral circulatory complications	Diabetic: • gangrene • peripheral angiopathy† (I79.2*) • ulcer
.6 With other specified complications	Diabetic arthropathy† (M14.2*) • neuropathic† (M14.6*)
.7 With multiple complications	
.8 With unspecified complications	
.9 Without complications	

Based on the case example above, giving the 4th character code is not in accordance with the rules for coding on ICD 10. The 4th character code should be seen from the patient's condition, because not all complications are coded the same without showing the type of complication.

Factors Causing Inaccuracy in Application of the 4th Character Code in the Diagnosis of Insulin Dependent Diabetes Mellitus (IDDM)

Based on the results of research at RSAU dr Siswanto Lanud Adi Soemarmo the factors causing the inaccuracy of the application of the 4th character code can be grouped into several factors, namely:

a. Factors of medical personnel (Doctors)

Medical personnel (doctors) are the determinants of diagnosis who have related obligations, rights and responsibilities that cannot be changed, therefore the diagnosis in the medical record is filled out completely and clearly in accordance with the directions in the ICD 10 book. At RSAU dr Siswanto Lanud Adi Soemarmo If the coder officer has difficulty reading the doctor's writing, then ask the treating doctor to confirm the diagnosis. In the diagnosis of *Insulin*

Dependent Diabetes Mellitus (IDDM) writing the diagnosis cannot be read will affect the diagnosis code. This is in accordance with the theory of the Ministry of Health (2006) that the factor causing the inaccuracy in giving the diagnosis code is medical personnel (doctors).

b. Factor of medical record personnel (coder)

Based on the results of research and interviews with coding officers at RSAU dr Siswanto Lanud Adi Soemarmo, there was an inaccuracy in the application of the 4th character code due to the lack of officers, so the officer concurrently worked. This will be a factor in the inaccuracy of the diagnosis code on the inpatient medical resume sheet. The error that the coding officer caused was probably also caused by repetitive work. Another factor found by the researcher based on the results of observations is the standard operating procedure coder looking for codefication based on a web browser. Therefore, to overcome the inaccuracy in the code for complications of *Insulin Dependent Diabetes Mellitus* (IDDM), it is necessary to add medical record officers, especially in the coding section so that the resulting code is more specific (correct). This is in accordance with the theory of the Ministry of Health (2006) that the speed and accuracy of giving the code from the diagnosis is very dependent on the implementer who handles the task.

CONCLUSION

Based on the results of research conducted at RSAU dr Siswanto Lanud Adi Soemarmo in 2020 regarding a review of the application of the 4th character code in the diagnosis of *Insulin Dependent Diabetes Mellitus* (IDDM), it can be concluded that: There is already a coding Standard Operating Procedure but it is not in accordance with the coding steps. The percentage of accuracy and inaccuracy in the application of the 4th character code to the diagnosis of *Insulin Dependent Diabetes Mellitus* (IDDM) in inpatient medical record documents at RSAU dr Siswanto Lanud Adi Soemarmo in 2020 there were 117 medical record documents with an accuracy percentage of 57% or 67 documents, while for incorrect diagnosis codes as much as 43% or as many as 50 documents. Factors causing the inaccuracy of the application of the 4th character code in the diagnosis of *Insulin Dependent Diabetes Mellitus* (IDDM) at RSAU dr Siswanto Lanud Adi Soemarmo there are several factors, namely: Medical personnel (doctors) in writing the patient's diagnosis are unclear or difficult to read, medical record personnel (coder) who gave the diagnosis code was not correct in the application of the 4th character code due to the lack of officers and coder looking for codefication based on a web browser.

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