International Journal of Community Medicine and Public Health
Yastori. Int J Community Med Public Health. 2020 Apr;7(4):1250-1255
http://www.ijcmph.com
pISSN 2394-6032 | eISSN 2394-6040

DOI: http://dx.doi.org/10.18203/2394-6040.ijcmph20201428

Original Research Article

Analysis of obstetric code accuracy at hospital X in Padang 2018 based on international classification of diseases the 10th revision

Yastori*

Department of Medical Record and Health Information Management, Apikes Iris, Padang, Indonesia

Received: 15 October 2019
Revised: 30 January 2020
Accepted: 01 February 2020

***Correspondence:**
Dr. Yastori,
E-mail: yastoriyi@gmail.com

ABSTRACT

Background: Coding is one of the competencies of the health information recorder which has a very important role in supporting the improvement of the quality of health services in accordance with the republic of Indonesia decree No. 377/Menkes/SK/III/2007 regarding the professional standards of medical record and health information, medical recorders must be able to establish codes for diagnosis of disease and medical treatment appropriately. The accuracy of coding is related to financing claims, especially for hospitals that work with health service providers such as health insurance. The purpose of this study is to analyze the accuracy of coding based on international classification of diseases the 10th revision (ICD-10).
Methods: Research using descriptive methods with a qualitative approach. The data collection technique used is the observation method that is direct observation of the medical record file. 56 medical records were randomly selected and recoded blindly (as gold standard). Processing statistical data using pivot tables and for coding analysis using ICD-10.
Results: Accurate diagnosis code based on the ICD-10 is 14 (25%) and an inaccurate 42 (75%) of 56 diagnoses in the medical record file. The most inaccurate code found is the fourth character with 22 codes.
Conclusions: The inaccuracy of coding at hospital X in Padang was caused among others by the doctor's writing that was not clearly read, errors in the selection in sub categories and in the selection of the character code. In addition, people who work in the medical records section are generally not from a medical record background.

Keywords: Coding, ICD-10, Medical records

INTRODUCTION

Coding is the provision of code determination using letters or numbers or a combination of letters in numbers that represent data components. Coding is one of the competencies of the health information recorder which has a very important role in supporting the improvement of the quality of health services in accordance with the republic of Indonesia decree No. 377/Menkes/SK/III/2007 regarding the professional standards of medical record and health information, a medical recorder must be able to determine the exact disease codes and actions in accordance with the classification in force in Indonesia (international classification of diseases the 10th revision (ICD-10)).[1]

The diagnosis coding must be in accordance with ICD-10 rules so the coder must have knowledge in establishing the diagnosis code. Obstetrics case coding consists of maternal condition code (O00-O75), delivery method (O80-O84) and Z37.- outcome of delivery. Code (O00-O75) and code (O80-O84) are used for reports of

morbidity while code Z37.- is used as an additional code to determine the outcome of labor.[2] The accuracy of coding is very necessary because it is used as material for reporting.

The accuracy of diagnosis data and accurate diagnosis coding is crucial in the field of clinical data management, re-billing of fees, along with other matters relating to care and health services. Accuracy in coding will produce quality data. Proper coding requires a complete and clear medical record. In addition, the results of coding are needed in statistical processing, namely the preparation of reports of morbidity, mortality and coding are also used to index diseases.[1]

Errors in coding or incorrectly entering diagnostic codes in the computer will produce inaccurate data, and have an impact on making inaccurate hospital reports, as well as financially hurting hospitals and patients, namely payment systems that are not in accordance with the actions given by the insurer or health insurance providers such as BPJS.

The purpose of this study is to analyze the accuracy of coding based on international classification of diseases the 10th revision (ICD-10).

METHODS

Research using descriptive methods with a qualitative approach. The data collection technique used is the observation method that is direct observation of the medical record file. The population used is the entire file of obstetrics patient medical records in January 2018 to March 2018. Sampling was done by random sampling which is 56 samples. Data processing using pivot tables in microsoft excel applications and for coding analysis used ICD-10 (international statistics classification of disease and related health problems).

RESULTS

Based on Table 1, it can be seen that from 56 codes, there are 42 inaccurate codes. Inaccurate coding is in the category selection. There were errors in the selection of the second, third and fourth categories which resulted in inaccurate coding.

Based on Table 2, it is known that more than half the percentage of inaccuracies in the coding of the disease diagnosis in hospital X.

Table 1: Accuracy in coding disease diagnosis.

S. no.	Diagnosis	Code of hospital	Accuracy	ICD-10 code
1	Labour and delivery complicated by fetal stress, unspecified	O68.0	Not accurate	O68.9
2	Obstructed labour, unspecified	O63.0	Not accurate	O66.9
3	Prolonged second stage (of labour)	O63.1	Accurate	O63.1
4	Premature rupture of membranes, unspecified	O42.0	Not accurate	O42.9
5	Prolonged second stage (of labour)	O63.1	Accurate	O63.1
6	Premature rupture of membranes, unspecified	O42.0	Not accurate	O42.9
7	Premature rupture of membranes, unspecified	O42.0	Not accurate	O42.9
8	Severe pre-eclampsia	O14.0	Not accurate	O14.1
9	Unspecified abortion-Incomplete, without complication	O02.1	Not accurate	O06.4
10	Premature rupture of membranes, unspecified	O42.0	Not accurate	O42.9
11	Labour and delivery complicated by fetal stress, unspecified	O42.0	Not accurate	O68.9
12	Preterm spontaneous labour with preterm delivery	O47.0	Not accurate	O60.1
13	Unspecified abortion - Incomplete, without complication	O03.4	Not accurate	O06.4
14	Unspecified abortion - Incomplete, without complication	O03.1	Not accurate	O06.4
15	Severe pre-eclampsia	O32.1	Not accurate	O14.1
16	Prolonged second stage (of labour)	O63.1	Accurate	O63.1
17	Labour and delivery complicated by fetal stress, unspecified	O68.0	Not accurate	O68.9
18	Obstructed labour, unspecified	O63.0	Not accurate	O66.9
19	Prolonged first stage (of labour)	O63.0	Accurate	O63.0
20	Premature rupture of membranes, unspecified	O42.0	Not accurate	O42.9

Continued.

S. no.	Diagnosis	Code of hospital	Accuracy	ICD-10 code
21	Obstructed labour, unspecified	O63.0	Not accurate	O66.9
22	Premature rupture of membranes, unspecified	O42.0	Not accurate	O42.9
23	Obstructed labour, unspecified	O63.0	Not accurate	O66.9
24	Premature rupture of membranes, unspecified	O42.0	Not accurate	O42.9
25	Obstructed labour, unspecified	O42.0	Not accurate	O66.9
26	Premature rupture of membranes, unspecified	O42.0	Not accurate	O42.9
27	Maternal care for disproportion, unspecified	O33.9	Accurate	O33.9
28	Oligohydramnios	O41.0	Accurate	O41.0
29	Obstructed labour, unspecified	O63.0	Not accurate	O66.9
30	Premature rupture of membranes, unspecified	O42.0	Not accurate	O42.9
31	Obstructed labour, unspecified	O63.0	Not accurate	O66.9
32	Prolonged first stage (of labour)	O63.9	Not accurate	O63.0
33	Labour and delivery complicated by fetal stress, unspecified	O68.0	Not accurate	O68.9
34	Premature rupture of membranes, unspecified	O61.9	Not accurate	O42.9
35	Prolonged second stage (of labour)	O63.1	Accurate	O63.1
36	Prolonged first stage (of labour)	O63.0	Accurate	O63.0
37	Labour and delivery complicated by fetal stress, unspecified	O68.0	Not accurate	O68.9
38	Severe pre-eclampsia	O60.3	Not accurate	O14.1
39	Pre-eclampsia, unspecified	O14.0	Not accurate	O14.9
40	Obstructed labour, unspecified	O63.0	Not accurate	O66.9
41	Other immediate postpartum haemorrhage	O72.1	Accurate	O72.1
42	Premature rupture of membranes, unspecified	O42.0	Not accurate	O42.9
43	Labour and delivery complicated by fetal stress, unspecified	O68.0	Not accurate	O68.9
44	Labour and delivery complicated by fetal stress, unspecified	O68.0	Not accurate	O68.9
45	Prolonged first stage (of labour)	O63.0	Accurate	O63.0
46	Premature rupture of membranes, unspecified	O42.0	Not accurate	O42.9
47	Prolonged second stage (of labour)	O63.0	Not accurate	O63.1
48	Premature rupture of membranes, unspecified	O42.0	Not accurate	O42.9
49	Maternal care akibat uterine scar from previous surgery	O34.2	Accurate	O34.2
50	Obstructed labour, unspecified	O63.0	Not accurate	O66.9
51	Obstructed labour, unspecified	O63.0	Not accurate	O66.9
52	Premature rupture of membranes, unspecified	O63.0	Not accurate	O42.9
53	Failed induction of labour, unspecified	O61.9	Accurate	O61.9
54	Threatened abortion	O20.0	Accurate	O20.0
55	Third-stage haemorrhage	O72.0	Accurate	O72.0
56	Premature rupture of membranes, onset of labour within 24 hours	O66.5	Not accurate	O42.0

Table 2: Percentage of code accuracy.

Accuracy	Amount	Percentage (%)
Accurate	14	25
Not accurate	42	75
Total	56	100

Table 3: Analysis of code inaccuracies.

S. no.	Code of hospital	Code based on ICD-10	Analysis
1	O68.0	O68.9 Labour and delivery complicated by fetal stress, unspecified	The inaccurate code from the hospital is in the fourth character. The hospital chooses O68.0, after being analyzed based on ICD-10 it is known that the right code is O68.9 because the diagnosis from the hospital is that labor is complicated by fetal distress that is not explained the cause.
2	O63.0	O66.9 Obstructed labour, unspecified	Inaccurate code from the hospital is on the third and fourth characters. The hospital chose O63.0, after analyzing based on icd-10 it was found that the right code was O66.9 because the diagnosis from the hospital was dystocia.
3	O42.0	O42.9 Premature rupture of membranes, unspecified	Inaccurate code from the hospital is the fourth character. The hospital chose O42.0, after being analyzed based on ICD-10 it is known that the accurate code is O42.9 because the disease diagnosis from early amniotic hospital inequality is not explained, whereas O42.0 ruptured early on the membrane, labor begins in 24 hours.
4	O14.0	O14.1 Severe pre-eclampsia	The inaccurate code from the hospital is in the fourth character. The hospital chose O14.0, mild pre-eclampsia, while the diagnosis was severe pre-eclampsia. For pre-eclampsia the proper code weight is O14.1.
5	O02.1	O06.4 Unspecified abortion - Incomplete, without complication	Inaccurate codes from hospitals are in the fourth and fourth subcategories. The hospital chooses O02.1 while the diagnosis is incomplete abortion with code O06.4 according to ICD-10.
6	O42.0	O68.9 Labour and delivery complicated by fetal stress, unspecified	Inaccurate code from the hospital is on the second, third, and fourth characters. The hospital chose O42.0 while the diagnosis was fetal distress that was not explained the cause, the right code was O68.9.
7	O47.0	O60.1 Preterm spontaneous labour with preterm delivery	Inaccurate code from the hospital is on the second, third and fourth characters. The hospital chose O47.0 while the diagnosis was preterm labor with preterm birth. O47.0 is a false delivery before 37 weeks of pregnancy.
8	O03.4	O06.4 Unspecified abortion - Incomplete, without complication	Inaccurate code from the hospital is on the third and fourth characters. The hospital chose O03.4 while the diagnosis was incomplete abortion. O03.4 is an incomplete spontaneous abortion.
9	O03.1	O06.4 Unspecified abortion - Incomplete, without complication	Inaccurate code from the hospital is on the third and fourth characters. The hospital chose O03.1 while the diagnosis was incomplete abortion. O03.1 is an incomplete spontaneous abortion with complications of late and excessive bleeding.
10	O32.1	O14.1 Severe pre-eclampsia	Inaccurate code from the hospital is on the second, and third characters. The hospital chose O32.1 while the diagnosis was severe pre-eclampsia. O32.1 is the code for mother's presentation for breech presentation.
11	O42.0	O66.9 Obstructed labour, unspecified	Inaccurate code from the hospital is on the third and fourth characters. The hospital chose O42.0, after being analyzed based on ICD-10 it is known that the right code is O66.9 because the diagnosis from the hospital is dystocia.
12	O61.9	O42.9 Premature rupture of membranes, unspecified	Inaccurate code from the hospital is on the second and third characters. The hospital chose O61.9, after being analyzed based on ICD-10 it is known that the proper code is O42.9 because the hospital's disease diagnosis is premature rupture of membranes that is not explained, whereas O61.9 is failure of labor induction is not explained.

Continued.

S. no.	Code of hospital	Code based on ICD-10	Analysis
13	O60.3	O14.1 Severe pre-eclampsia	Inaccurate code from the hospital is on the second, third and fourth characters. The hospital chose O60.3 while the diagnosis was severe pre-eclampsia with code O14.1. O60.3 is preterm birth without spontaneous labor.
14	O14.0	O14.9 Pre-eclampsia, unspecified	Inaccurate code from the hospital is in the fourth subcategory. The hospital chose O14.0 while the diagnosis of preeclampsia was not explained.
15	O63.0	O63.1 Prolonged second stage (of labour)	The inaccurate code from the hospital is in the fourth character. The hospital chose O63.0 while the diagnosis in stage II was prolonged. O63.0 is the first time elongated.
16	O63.0	O42.9 Premature rupture of membranes, unspecified	Inaccurate code from the hospital is on the second, third and fourth characters. The hospital chose O63.0 while the diagnosis of premature rupture of membranes was not explained. O63.0 is the first time elongated.
17	O66.5	O42.0 Premature rupture of membranes, onset of labour within 24 hours	Inaccurate code from the hospital is on the second, third, and fourth characters. The hospital chose O66.5 while the diagnosis of premature rupture of membranes began in 24 hours.

Table 4: Analysis of code inaccuracies by character.

Character	Amount
Second and third character	2
Third character	1
Third and fourth character	11
Fourth character	22
Second, third and fourth	6
Total	42

Based on Table 3, it can be seen that there are 17 types of incorrect codes. Incorrect codes are O68.0, O63.0, O42.0, O14.0, O02.1, O42.0, O61.9, O60.3, O14.0, O63.0, O66.5.

Based on Table 4, it can be seen that the most inaccurate character selection is in the fourth character.

DISCUSSION

Inaccurate coding is caused by several factors. In hospital X factors that influence inaccuracy include the doctor's writing that is not clear in writing the diagnosis. Based on the research results of Farzandipour and Sheikhtaheri, 2009, it was found that there were 84 (22.7%) errors in the main diagnosis code, 28 errors (33.3%) of which were the main ones. Less experienced coders show fewer errors ($p<0.0001$); However, this error was especially large ($p<0.0001$). The coding of diagnoses in public hospitals is significantly more accurate, but the majority of errors in public hospitals are large ($p<0.0001$). The lack of memory-based coding ($p<0.0001$) and not using abbreviations ($p=0.001$) reduces errors. Furthermore, reviewing the records thoroughly increases the coding accuracy and reduces large errors insignificantly. More comprehensive documentation about topography ($p=0.204$), subtypes ($p=0.708$) and etiology ($p<0.0001$) of disease decrease coding accuracy. Most errors in readable notes are small. More careful documentation by the clinician positively influences the accuracy of the coding, although this relationship is not significant. Readability of the notes reduces the overall error ($p=0.003$), including the main one ($p=0.012$). Additionally, notes without abbreviations have fewer main errors ($p=0.021$). In conclusion, not using abbreviations, ensuring documentation is easier to read, and paying more attention to available information increases the accuracy of coding and database quality procedures.[3]

Using coding book and not using abbreviation reduced errors significantly. Complete records review reduced errors. Documenting more information especially diseases etiology increased errors. In addition, the relationship between readability of records and code accuracy was not significant.[4]

Inaccuracy of coding at hospital X in Padang, published by medical record personnel who work not from the background of the medical record. This is in line with the opinion of Farzandipour et al, coders with a bachelor's degree had fewer errors. Since five of seven coders who had a bachelor's degree were less experienced, the relation between coders' education and coding accuracy may have been intervened with coders' experience. Since there was only one coder with an associate's degree, this part of the results can-not be generalized to other populations and should be supported by future studies. All coders were taught about diseases, medical terminology, and clinical coding regarding the ICD-10, except one coder who was educated in the ICD-9 system.[3]

less experienced coders should pay more attention to the nature of disease and topography to improve their coding quality. In addition, lack of memory-based coding can improve coding accuracy but does not guarantee accurate coding in complicated and new cases. Thus, in addition to

advising all coders (especially experienced ones) to avoid memory-based coding, it is recommended that in cases which there are little knowledge, coders should consult physicians. Moreover, coders should pay more attentions to the available information in their cords. Designing in-service training courses can improve quality of coding. Finally, better documentation of disease subtype and etiology, more readable documentation as well as avoidance of abbreviations are recommended.[3]

Based on research conducted by Maimun, it was found that medical staff (doctors) had never received training in coding, writing, difficulty reading, mistakes in making codes or procedures, doctors using abbreviated words that were not standard, there were still officers who did not understand the nomenclature and mastered anatomy and pathology, facilities and infrastructure in support of accuracy in procedures, doctors used non-standard abbreviations, there were still officers who did not understand the nomenclature and mastered anatomy and pathology, facilities and infrastructure in supporting accuracy.[5] And coding accuracy already exists, errors in coding occur due to insufficient officials. Accuracy and accuracy in coding is very influential on INA CBG's rates, and medical committees play a major role in cases of severity level III, while the medical record plays a role in monitoring or evaluating coding management.

According to Utami, it is known that there is a relationship between coder knowledge and the accuracy of the diagnosis code for inpatients in Jamkesmas based on ICD-10 at Simo Boyolali district hospital.[6] Based on research conducted by Nuryati that the factors are causing inaccuracies of the basic cause code of death is the absence of standard operating procedures regarding coding of causes on the basis of death, MMDS tables are not yet used as property of the hospitals which are used as facilities for coding staff, not all doctors fill out the diagnosis because of basic death, and the absence of audit coding or evaluation of the accuracy of the basic cause code of death.[7]

Based on research conducted by Ningtyas by conducting interviews with inpatient coding officer and verifier internally, the information needed to support the accuracy of the main diagnosis code labor cases are resume sheet (discharge summary) to find out diagnosis made by a doctor, sheet labor inspection results to find out specific conditions in patients, result sheet radiographic examination (USG) to determine the condition of the fetus and its surroundings, informed consent, and report operation.[8]

CONCLUSION

The inaccuracy of coding in hospital X was caused among others by the doctor's writing that was not clearly read, errors in the selection in sub categories and in the selection of the character code. In addition, people who work in the medical records section are generally not from a medical record background.

ACKNOWLEDGEMENTS

The authors thank Apikes Iris for funding this research in the 20 1ikes Apikes Iris grant program. The author thanks Maisyarah, Fairuz Tridania Anum, and Ridwan Alfa Rizi and as the data collection team at the hospital.

Funding: This research was funded by Apikes Iris in the 2019 Apikes Iris grant program
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. Hatta GR. Guidelines for Health Information Management in Health Service Facilities (Revised 2). Jakarta. Universitas Indonesia; 2013.
2. Erkadius. International Classification of Statistics Regarding Diseases and Related Health Problems. ICD-10 How to use. Padang. Yayasan IRIS; 2003.
3. Farzandipour M, Sheikhtaheri A, Sadoughi F. Effective factors on accuracy of Principal Diagnosis Coding Based on International Classification of Diseases, the 10th Revision (ICD-10). Inte J of Information Management. 2010;30(1):78-84.
4. Farzandipour M, Sheikhtaheri A. Accuracy of Diagnostic Coding Based on ICD-10. J of Kashan University of Med Sci. 2009;10(4):464-73.
5. Maimun N, Natassa J, Trisna VW, Supriatin Y. Pengaruh Kompetensi Coder terhadap Keakuratan dan Ketepatan Pengkodean Menggunakan ICD-10 di Rumah Sakit 'X' Pekanbaru Tahun. Jurnal Kesmas. 2016;1:2599-3399.
6. Utami TY, Pengetahuan H. Coder dengan Keakuratan Kode Diagnosis Pasien Rawat Inap Jaminan Kesehatan Masyarakat Berdasarkan ICD-10 di RSUD Simo Boyolali. J Ilmiah Rekam Medis dan Informatika Kesehatan INFOKES. 2015;5(1):2086-628.
7. Nuryati, Hidayat T. Evaluasi Ketepatan Kode Diagnosis Penyebab Dasar Kematian Berdasarkan ICD-10 di RS Panti Rapih Yogyakarta. J Manajemen Informasi Kesehatan. 2014;2(1):41.
8. Ningtyas KN, Sugiarsi S, Wariyanti SA. Analisis Ketepatan Kode Diagnosis Utama Kasus Persalinan Sebelum dan Sesudah Verifikasi pada Pasien BPJS di RSUP Dr. Soeradji Tirtonegoro Klaten. J Kesehatan Vokasional. 2019;4(1):2599-327.

Cite this article as: Yastori. Analysis of obstetric code accuracy at hospital X in Padang 2018 based on international classification of diseases the 10th revision. Int J Community Med Public Health 2020;7:1250-5.