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

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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)).

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. 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.

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.

| 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            |
| 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.
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.2 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.

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