Evaluation of the Coding System for the Causes of Traffic Accidents at the Medical Records Unit of Hospital X in Merangin, Indonesia

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ABSTRACT

The coding system is one of the important things in several activity units in medical records. Writing a complete, clear, and specific diagnosis by the doctor and coding officer is a support in determining the correct code. This study aimed to describe writing equipment and accuracy of the results coding external causes (external cause) traffic accident cases in Hospital X in Merangin Regency. This research is a descriptive observational study. The research location is the medical records installation section coding of Hospital X in Merangin Regency. This research was conducted in November 2021–June 2022. The inclusion criteria for research subjects were medical records of patients in traffic accident cases recorded from September to 2021. A total of 64 medical record documents were sampled in this study. In the external cause of injury code, the completeness of the victim’s role item was 39.06%, the victim’s type of transportation was 96.88%, the opposing party involved in the collision was 92.19%, and the victim’s activities during the accident were 3.12%. In this study, only 2 medical records explained the victim’s activities during the traffic accident because the hospital reporting did not use the 5th character, which describes the victim’s activities. In conclusion, most of the external cause items recorded in traffic accident cases are written completely. Factors related to inaccuracy external cause code in the form of man, method, material, and machine.

1. Introduction

Quality medical records are medical records that are complete, clear, accurate, understandable, trustworthy, and consistent. In the medical records unit, there are several systems and subsystems, including outpatient and inpatient reception, emergency patient reception, patient naming system, and medical record numbering system. Professional medical record personnel are needed to produce quality medical records.

The coding system is one of the important things in several activity units in medical records. The coding system is a medical record data management activity to provide codes with numbers, letters, or a combination of letters and numbers, which will represent the components of each data retrieved. Coding diagnosis includes diagnosis of disease, non-disease, external cause, and symptoms based on ICD-10. Writing a complete, clear, and specific diagnosis by the doctor and coding officer a support in determining the correct code. Coding cannot be carried out by medical records officers if doctors and nurses do not write down the diagnosis completely and clearly.

Based on ICD-10, injury case codes are divided into two, namely traffic accident injuries and non-traffic accident injuries. In terms of determining and assigning codes to cases of traffic accidents and non-traffic accident injuries, the external cause must be
accompanying it. The location when the injury occurred is coded with the 4th character, and the activity at the time of the injury is coded with the 5th character.

External causes need to be completed and coded so that all related parties or institutions that need the data receive correct and accurate information. Institutions related to these external causes include the police, environmental service, manpower service, insurance, and other parties who are related to the case. Interested parties certainly really need complete patient data, as in the case of traffic accident patients, which are cases of road collisions. The police certainly need complete patient data starting from the cause of the patient’s accident, whether the patient was driving drunk or was careless in driving, and whether the patient was in a collision with another driver or was it just a single accident.5,6

Reporting of morbidity and mortality in a hospital needs to be equipped with external cause coding as well as the accuracy of financing calculations or the accuracy of claim payments and statistical data on traffic accidents to the police. Therefore, coding External causes can include or identify some important information related to the circumstances, environment, or involvement of the mode or means of injury and poisoning. Apart from injuries and poisoning, external cause codes are also used to diagnose certain diseases and health problems caused by certain drugs or chemicals (drug-induced). In these conditions, this code from Chapter XX ICD-10 can be used as an additional optional code, if necessary, to identify the drugs and chemicals that cause the disease/health problem.4,7

Based on the results of initial observations regarding the completeness of writing and accuracy of external cause codes for traffic accident cases at Hospital X in Merangin Regency, Of the 30 samples of medical records, 4 (13.33%) medical records were complete in writing the external cause, while 26 (86.67%) other medical records were incomplete, and the accuracy of the external cause code of the 30 medical records was only obtained 3 (10%) correct medical records the encoding while 27 (90%) other medical records were incorrect in coding external causes. This study aimed to describe writing equipment and the accuracy of the results coding external causes of traffic accidents in Hospital X in Merangin Regency.

2. Methods
This research is a descriptive observational study. The research location is the medical records installation section coding at Siloam Hospital Kebon Jeruk, Jakarta. This research was conducted in November 2022-June 2023. The inclusion criteria for research subjects were medical records of patients in traffic accident cases recorded from September to 2022. A total of 64 medical record documents were sampled in this study. Data collection methods through interviews and observation. Semi-structured interviews were conducted with the head of hospital medical records and coder officers. Observations were made on completeness of writing and accuracy of external cause coding for traffic accident cases using ICD-10.

3. Results and Discussion
Identify standard operating procedures (SOP)
Standard operational procedures are instructions or steps taken to complete a work process. SOP for coding it is very important for external causes of traffic accident cases to be able to regulate special procedures for coding external causes of traffic accident cases so that they run correctly and consistently. In this study, standard operating procedures (SOP) regarding the implementation of disease coding in Hospital X in the Merangin Regency do not quite meet the standards according to ICD-10, especially regarding external cause codes for traffic accident injuries. This causes inaccurate external cause coding results.

SOP is useful for reducing the level of errors and negligence that may be made by an officer or implementer in carrying out their duties, increasing the efficiency and effectiveness of carrying out the
duties and responsibilities of individual officers and the organization as a whole. SOP also provides performance standards that will give officers how to improve performance, help evaluate efforts, and provide information regarding the workload carried by an officer in carrying out his duties.\textsuperscript{8-10}

**Calculation of the completeness of writing external causes in traffic accident cases**

Based on the results of research on 64 medical records of patients in traffic accident cases in Hospital X in Merangin Regency, the complete results of writing external causes amounted to 57.81%. In the external cause of injury code, the completeness of the victim’s role item was 39.06%, the victim’s type of transportation was 96.88%, the opposing party involved in the collision was 92.19%, and the victim’s activities during the accident were 3.12%. In this study, only 2 medical records explained the victim’s activities during the traffic accident because the hospital reporting did not use the 5th character, which describes the victim’s activities.

In chapter XX of ICD-10, the activity in which the injury occurred is specifically identified. This activity code is placed in the 5th character position in the external cause code. This activity code indicates the victim’s condition or activities at the time of the injury. This is all-important for research purposes, accident insurance claims, the police, environmental service, manpower service, insurance, and other parties related to the case, as well as disease indexes for internal hospital reports.

<table>
<thead>
<tr>
<th>No.</th>
<th>Completeness criteria</th>
<th>Writing equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>1.</td>
<td>The role of the victim during an accident</td>
<td>25 (39.06 %)</td>
</tr>
<tr>
<td>2.</td>
<td>The transportation used by the victim during the accident</td>
<td>62 (96.88 %)</td>
</tr>
<tr>
<td>3.</td>
<td>The opponent and the mode of the vehicle he was riding that collided with the victim</td>
<td>59 (92.19 %)</td>
</tr>
<tr>
<td>4.</td>
<td>The victim’s activities during the accident</td>
<td>2 (3.12 %)</td>
</tr>
</tbody>
</table>

Description: Role of the victim during the accident (driver or passenger); transportation used by the victim (bicycles, motorbikes, 3-wheeled vehicles, cars, trucks, and buses); the opposing party and the mode of vehicle they were in that collided with the victim, namely the victim’s opponent at the time of the accident; the victim’s activities at the time of the accident (when crossing the highway or when going to work).

**Measuring the accuracy of external cause codes in traffic accident cases**

Based on Table 2, it is known that categories 1 to 4 are mostly in accordance with the diagnosis and provisions of ICD-10. Meanwhile, not a single medical record was coded up to the 5th character (activity code). Thus, results coding the external cause of the traffic accident case at Hospital X in Merangin Regency are still not complete and precise. For external cause codes at the Hospital Apart from that, the recording also does not use the 5th character code for the external cause of injury, which indicates the victim’s activity in the accident.
Table 2. Accuracy criteria coding external causes of traffic accident cases.

<table>
<thead>
<tr>
<th>No.</th>
<th>Accuracy criteria coding external cause</th>
<th>Coding accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Accurate</td>
</tr>
<tr>
<td>1.</td>
<td>Category 1 characters correspond to diagnosis and ICD 10</td>
<td>63 (98.44 %)</td>
</tr>
<tr>
<td>2.</td>
<td>Category 2 characters are appropriate diagnoses, and ICD 10</td>
<td>60 (93.75 %)</td>
</tr>
<tr>
<td>3.</td>
<td>Category 3 characters correspond to diagnosis and ICD 10</td>
<td>31 (48.44 %)</td>
</tr>
<tr>
<td>4.</td>
<td>The 4-character categories (Subcategories) correspond to the diagnosis and ICD 10</td>
<td>46 (71.86 %)</td>
</tr>
<tr>
<td>5.</td>
<td>The 5-character category (Activity code) corresponds to the diagnosis, and ICD 10</td>
<td>0 (0%)</td>
</tr>
</tbody>
</table>

Description: Category 1 character is the use of code V in chapter XX; Category 2 characters, namely to indicate the vehicle used by the victim at the time of the accident; Category 3 characters, namely for the vehicle used by the opposing party when it collided with the victim; 4th character code for the victim’s role at the time of the accident; The 5th character is a code that shows the victim’s activities at the time of the accident.

Factors related to the inaccuracy of external cause codes in traffic accident cases

Based on the results of the interview, factors that cause inaccurate results coding External causes consist of man, material, method, and machine factors. Meanwhile, the money factor has no influence because result coding external causes do not affect the nominal financing.11-13

Lack of the coder’s accuracy in carrying out coding is still found (man factor). The coder said this was because doctors often did not write down a complete diagnosis, which made the coder do the coding based on a simple diagnosis alone. Doctors also often don’t write down the external cause completely because Hospital X in Merangin Regency doesn’t do coding up to code activation.

Incompleteness in filling out medical records will affect the accuracy of the disease diagnosis code (material factor). Previous studies stated that the completeness of the written diagnosis could reflect the accuracy and high level of understanding of the patient’s condition by medical personnel so that it will not give rise to different perceptions from other medical personnel who will provide care to the patient in the future. In addition, the completeness of writing diagnoses will help coding officers in carrying out clinical coding and ensure the accuracy of clinical coding.12 The doctor’s writing is unclear and difficult to read, and the results of the anamnesis are less detailed, causing coding officers to be unable to provide specific codes and is the cause of inaccuracy in external cause coding in traffic accident cases.

The next factor is the method or standard operating procedure. Hospital X in the Merangin Regency only has an SOP for giving disease codes in general and has not provided detailed information about the procedures for giving codes for the specificity of external causes of traffic accident cases. Likewise with the machine factor, in this study, Siloam Hospital Kebon Jeruk has used the 4th character in coding the external cause of traffic accidents, but the 5th character has not been applied. The machine factor is a facility and infrastructure needed to carry out work in the medical records and health information unit.13 Hospitals as health service units are required to follow ICD-10 provisions by coding up to the 5th character. This aims to ensure uniformity of services provided in the field of medical records and the quality of services provided by hospitals can be in accordance with established standards.

4. Conclusion

Most of the external cause items are recorded in traffic accident cases. Hospital X in Merangin Regency is written completely. Factors related to inaccurate external cause codes include man, method, material, and machine.
5. References