Nurses' Role in Completing Anamnesis Supporting Coding of External Cause Injury Diagnoses

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ABSTRACT

The accuracy of ICD-10 external cause injury coding depends heavily on the completeness of anamnesis documentation, particularly information on event chronology, place of occurrence, and patient activity. Nurses, as primary healthcare professionals responsible for anamnesis documentation in the Emergency Department (ED), play a key role in supporting accurate diagnostic coding. However, incomplete documentation of external cause injury information remains a common challenge in hospital settings. This study aimed to analyze the role of nurses in ensuring the completeness of external cause injury anamnesis to support accurate diagnostic coding at Mitra Paramedika Hospital, Yogyakarta. A qualitative descriptive study with a case study approach was conducted involving 12 healthcare workers, consisting of 10 emergency nurses and 2 medical record coders. Data were collected through pre-tests, focused group discussions (FGDs), post-tests, medical record observations, and in-depth interviews. Descriptive analysis was used to assess changes in knowledge and documentation practices before and after the intervention. The results indicated that prior to the FGD, several nurses had limited understanding of the importance of documenting place of occurrence and patient activity for external cause coding. Following the FGD, all participants demonstrated adequate knowledge in the post-test. Additionally, the use of electronic medical records improved documentation readability and completeness, facilitating more accurate coding. This study concludes that nurses play a critical role in external cause injury documentation, and that educational interventions and electronic medical record implementation effectively enhance documentation quality and coding accuracy.

Keywords: The Role of Nurses, Completeness of Anamnesis, Coding Diagnosis, External Cause of Injuries, ICD-10

INTRODUCTION

Hospitals have the function and purpose of being health service facilities that organize service activities in the form of outpatient services, inpatient services, emergency services, referral services that include medical record services and medical support and are used for education, training and research for health workers (1). Every healthcare facility, especially hospitals, is required to consistently provide high-quality service. The quality of hospital services is determined by improvements in clinical performance and customer satisfaction. This can be seen from the completeness of medical records.

Medical Records are documents containing patient identity data, examinations, treatment, actions and other services that have been provided to patients, while Electronic Medical Records are Medical Records created using an electronic system intended for the organization of Medical Records (2). In order for data in medical records to meet information requests, universal standards are needed, including the structure and content of medical records; uniformity in the use of symbols, signs, terms, abbreviations, and ICDs; and data confidentiality and security. Medical records are closely related to health information management because the data in medical records can be used as a communication tool (information) and a basis for treatment for doctors and dentists in providing medical

services. Input for compiling disease epidemiology and demographic reports (patient social data) as well as hospital management information systems (3)(4).

The Professional Standards for Medical Recorders and Health Information states that a medical recorder must be able to assign disease codes and procedures correctly according to the classifications applied in Indonesia, namely ICD-10 regarding diseases and medical procedures in health services and management. Skills in clinical classification, codification of diseases and other health problems, as well as clinical procedures are influential in determining clinical classifications, codification of diseases and other health problems, as well as clinical procedures correctly according to the classifications applied in Indonesia, which are used for disease statistics and the financing system for health care facilities (5).

One of the classifications and coding of diseases is the external cause code, namely the code used to classify the external causes of a disease, whether caused by accidents, injuries, bleeding, poisoning, natural disasters, or other causes (6). External causes information is used to determine the external causes code classification. The external causes information is analyzed by the Coder to determine the complete external causes code down to the fifth character, including a three-character category that indicates how the accident occurred, a fourth character that indicates the location of the accident, and a fifth character that indicates the patient's activity at the time of the accident (7)

The benefits of medical records can be felt if the quality of the medical records is maintained, including completeness, accuracy, and integration. One indicator of completeness in quantitative medical record analysis is the completeness of the patient's history (3) Based on previous research, anamnesis is an interview between a patient/family member and a doctor or other authorized healthcare professional to obtain information about the patient's complaints and medical history. The purpose of anamnesis is to obtain information about the patient's problems. A detailed anamnesis will provide the information truly needed for healthcare services. Therefore, medical personnel or doctors treating patients must write a complete anamnesis to obtain accurate information for establishing a diagnosis. A nurse must be able to document nursing care in an integrated patient progress note that is complete, clear, accurate, and understandable to other PPA (professional care providers) (8).

Based on previous research, it was found that the inaccuracy of the main diagnosis code for inpatients in accident cases was 39% because the coder had not determined the external cause code from the scene of the incident and the activities carried out and ignored the use of the fifth character in the external cause code (7). Meanwhile, based on other research, it is said that there is a relationship between the completeness of the anamnesis and the accuracy of the main diagnosis code for accident cases caused by external causes (6)

Based on previous research, it was stated that the external causes code in the medical records of emergency patients in accident cases that were taken randomly until November 2013 obtained 93.3% of inaccurate codes (inaccurate codes in the fourth and fifth characters as much as 83.3%; inaccurate codes in the fourth character as much as 3.3%; inaccurate codes in the fifth character as much as 6.7%) and accurate codes as much as 6.7%. Based on observations in the medical records of emergency patients, the large number of inaccurate external causes codes or external causes codes with point 9 (unspecified) in one of the fourth or fifth characters or both were caused by incomplete information on external causes provided by doctors. In addition, based on the results of observations of doctors on duty in the Emergency Installation, there were several things that caused doctors to be incomplete in exploring and providing external causes information in accident patients, namely knowledge, attitudes, age and length of service of doctors (6). External causes information is used for patient medical treatment. In addition, external causes information must be reported in the form of external causes codes in the Summary Report (RL) 4b Data on the Morbidity of Hospital Outpatients Causes of Accidents (9). External causes information is also used to create medical certificates for accident insurance claims and is used as the cause of death on death certificates if a patient dies in an accident..

Mitra Paramedika General Hospital Yogyakarta is a type D private hospital. Diagnosis coding at Mitra Paramedika General Hospital Yogyakarta is carried out by a coder with a Diploma in Medical Records and Health Information. The coder coded the diagnosis using the International Statistical Classification of Diseases and Related Health Problems 10th Revision (ICD-10). Based on the results of a preliminary survey, of the 10 medical record documents of outpatients with external causes of injury analyzed, only 2 medical record documents contained anamnesis of external causes and accurate diagnosis codes. In the other 8 medical record documents, the anamnesis of external causes of injury was not included. The low completeness of the documentation of the anamnesis of external causes of injury will certainly have a negative impact on coding accuracy. Therefore, based on the above problems, the researcher is interested in examining the Role of Nurses in Completing the Anamnesis of External Causes of Injury Cases in Supporting Diagnosis Coding at Mitra Paramedika Hospital.

METHOD

This study employed a qualitative descriptive approach with a case study design to systematically analyze and present phenomena related to nurses' knowledge and practices in completing anamnesis documentation to

support external cause injury coding. The study involved 12 informants, consisting of 10 Emergency Department (ED) nurses and 2 medical record coders at Mitra Paramedika Hospital, Yogyakarta. Informants were selected purposively based on their direct involvement and understanding of emergency nursing documentation and diagnostic coding processes. Data were obtained through multiple data collection methods, including pre-tests and post-tests, small group discussions (SGDs), in-depth interviews, direct observation, and electronic medical record (EMR) document review. The primary instruments used in this study were structured knowledge questionnaires, interview guides, observation checklists, and medical record review forms. The SGDs served as an educational intervention as well as a data collection strategy to explore changes in knowledge and documentation practices. Data processing involved data reduction, data display, and conclusion drawing. Qualitative data from interviews and discussions were analyzed thematically, while descriptive analysis was applied to compare pre-test and post-test results to assess changes in knowledge levels. Triangulation of data sources and methods was conducted to enhance data credibility. This study involved human participants. Ethical clearance was obtained from the Research Ethics Committee of Universitas Jenderal Achmad Yani Yogyakarta. Written informed consent was obtained from all participants prior to data collection. Institutional permission was granted by Mitra Paramedika Hospital. Participant anonymity and the confidentiality of medical record data were strictly maintained throughout the research proce

RESULTS

Characteristics of Research Participants

The research was conducted with 12 healthcare workers at Mitra Paramedika Hospital. The healthcare workers comprised two outpatient and inpatient coders, as well as a nursing staff member in the emergency department who directly completed the Anamnesis for External Injuries. The following table shows the characteristics of the respondents participating in this research.

Table 1. Respondent Characteristics

Profesi PPA	Jumlah (n)
Emergency Room Nurse	10
Coder	2
Total	**12**

Completeness of History to Support Coding of Diagnosis of Injury Due to External Causes

The research activity prior to the FGD began with *a pretest* in the form of open-ended questions related to nurses' knowledge of the completeness of filling out medical histories in supporting the coding of external injury diagnoses. The assessment of the open-ended questions was that FGD participants were able to correctly answer the questions provided, which could be interpreted as the participants understanding the material.

Figure 1 FGD Process

In the *focused group discussion* (FGD) session, the research team discussed with all participants their understanding, practices, obstacles, and solutions for improving nurses' knowledge of completing medical histories to support the coding of external injury diagnoses at Mitra Paramedika Hospital for 2 hours or 120 minutes. The image below shows the discussion session in the research activity. The following is the frequency distribution of the *pretest* results:

Table 2 Frequency Distribution of Pretest

Num	Question Items	Pre Test			
		Understand		Do Not Understand	
		N	%	N	%
1	Medical records only serve as documentation of patient examination results	10	83,33	2	16,67
2	Complete medical records support the accuracy of information in hospital reporting	12	100	0	0
3	The role of nurses is very important in providing information related to the chronology of events surrounding external injuries suffered by emergency room patients.	12	100	0	0
4	Nurses must complete the patient's medical history Maximum 1 x 24 hours after the patient leaves the emergency room	12	100	0	0
5	The patient's activity at the time of the injury caused by external factors is very important in supporting accuracy of diagnosis codes	12	100	0	0
6	Location of injury is very important in supporting the accuracy of the diagnosis code	9	75	3	25
7	Anamnesis of external causes of injury is required in preparing a medical certificate for insurance claims (JASA RAHARJA).	12	100	0	0
8	Reporting outpatient morbidity at hospitals requires information from the medical history of the cause of injury due to external causes.	12	100	0	0
9	*External cause* is written as as cause of death in patients who died from injury cases External causes include accidents	10	83,33	2	16,67
10	Nurses do not need to trace the chronology of events for patients who died from external injuries	10	83,33	2	16,67

Based on the above, it is known that the level of nurses' knowledge regarding the completeness of filling out medical histories in supporting the coding of external injury diagnoses before the socialization was carried out, the majority of respondents stated that medical records only functioned as documentation of patient examination results, with 10 respondents (83.33%) understanding this and only 2 respondents (16.67%) understanding otherwise. There were still respondents who did not understand that the location of the external injury case was very important in supporting the accuracy of the diagnosis code, namely 3 respondents (25%), and there were still respondents who stated that respondents did not need to trace the chronology of events in patients who died from external injuries, including accidents, namely 10 respondents (83.33%).

After the *Focus Group Discussion* (FGD), participants were given *a post-test* as part of an evaluation to measure their understanding and knowledge gained during the discussion. This *post-test* aimed to ensure that the information presented during the FGD was well received and understood by the participants. In addition, *the post-test* also serves to evaluate the effectiveness of the material that has been provided, as well as to provide an overview of areas that still need to be improved or clarified further. The results of this *post-test* will be used as a reference for improving and enhancing training materials or methods in the future, as well as ensuring that the objectives of the FGD are achieved, namely to improve participants' understanding and skills in the topics discussed.

Table 3. Post-Test Frequency Distribution

Num	Question Items	Post Test			
		Understand		Do Not Understand	
		N	%	N	%
1	Medical records only serve as documentation of patient examination results	12	100	0	0

Num	Question Items	Post Test			
		Understand		Do Not Understand	
		N	%	N	%
2	Complete medical records support the accuracy of information in hospital reporting	12	100	0	0
3	The role of nurses is very important in providing information related to the chronology of events surrounding the external causes of injury in emergency room patients.	12	100	0	0
4	Nurses must complete the patient's medical history Maximum 1 x 24 hours after the patient leaves the emergency room	12	100	0	0
5	The patient's activity at the time of the injury caused by external factors is very important in supporting accuracy of diagnosis codes	12	100	0	0
6	Location of injury is very important in supporting the accuracy of the diagnosis code	12	100	0	0
7	Anamnesis of external causes of injury is required in preparing a medical certificate for insurance claims (JASA RAHARJA).	12	100	0	0
8	Reporting outpatient morbidity at hospitals requires information from the medical history of the cause of injury due to external causes.	12	100	0	0
9	*External cause* is written as as cause of death in patients who died from injury cases External causes include accidents	12	100	0	0
10	Nurses do not need to trace the chronology of events in cases of patient death due to external causes.	12	100	0	0

Based on the table above, it is known that the level of nurses' knowledge regarding the completeness of filling out medical histories in supporting the coding of external injury diagnoses after the FGD was conducted showed a significant increase. All respondents stated that respondents have an important role in the completeness of filling out medical histories in supporting the coding of external injury diagnoses, with a 100% understanding rate. This reflects a high level of awareness among respondents regarding the importance of their role in ensuring the completeness of accurate anamnesis data. The involvement of respondents in the anamnesis filling process has been proven to greatly support the accuracy of diagnosis coding, which will ultimately improve the quality of health services and patient management. This increase in understanding provides hope for improvements in medical documentation processes and a more effective health system.

Following the *Focus Group Discussion* (FGD) on Nurses' Knowledge of the Completeness of Anamnesis Completion in Supporting the Coding of External Cause Injury Diagnoses, there was a significant increase between the *pre-test* and *post-test* scores, indicating the success of this activity in enhancing nurses' understanding of the topic.

Table 4 Pre-test and Post-test Improvement

Num	Question Item	Participant Percentage Pre-test	Participant Percentage Pos-test	Improvement Difference
1	Medical records only serve as documentation of patient examination results	83,33	100	16,67
2	Complete medical records support the accuracy of information in hospital reporting.	100	100	0
3	The role of nurses is very important in providing information related to the chronology of events surrounding external injuries suffered by emergency room patients.	100	100	0
4	Nurses must complete the patient's medical history within a maximum of 24 hours after the patient leaves the emergency room.	100	100	0
5	Patient activity at the time of the injury is very important in supporting the accuracy of the diagnosis code	100	100	0

Num	Question Item	Participant Percentage Pre-test	Participant Percentage Pos-test	Improvement Difference
6	The location of the injury is very important in supporting the accuracy of the diagnosis code.	75	100	25
7	An external injury anamnesis is required in preparing a medical certificate for insurance claims (JASA RAHARJA).	100	100	0
8	Reporting outpatient morbidity at hospitals requires information from the medical history of the cause of injury due to external causes.	100	100	0
9	External cause is written as as cause of death in patients who died from external causes including accidents	83,33	100	16,67
10	Nurses do not need to trace the chronology of events in cases of patient death due to external causes	83,33	100	16,67

In *the pre-test*, some respondents demonstrated limited knowledge about the importance of completing the medical history and how it relates to coding external injury diagnoses. Some nurses did not fully understand the concept of accurate coding and how complete medical history data can support the proper diagnosis process. However, after participating in the FGD, where respondents were given the opportunity to discuss, share experiences, and explore various aspects related to filling out medical histories and coding diagnoses of external causes of injury, there was a significant change in their understanding. The FGD emphasized the importance of collecting complete and accurate information from patients, as well as how this data is used in the diagnosis coding process to determine the appropriate treatment.

The *post-test* conducted after the FGD showed a clear improvement in participants' scores. All respondents were able to answer more questions correctly, indicating that they now have a deeper understanding of the procedure for completing a comprehensive medical history and its relationship to coding diagnoses of external injuries. This shows that the FGD succeeded in strengthening nurses' knowledge of how comprehensive medical history information can affect the quality of patient diagnosis and treatment. This increase in scores reflects the success of FGDs as an effective learning method, where participants are not only given theory but also given the opportunity to discuss, ask questions, and gain a deeper understanding of topics relevant to their work. With FGDs, nurses now better understand the importance of a complete medical history in supporting the process of accurate diagnosis coding, which ultimately has an impact on improving the quality of patient care.

DISCUSSION

Based on the results of the study, most emergency forms were not completely filled out. The medical records for the emergency forms of accident patients consist of the patient's name, medical history, previous medical history, medication history, allergy history, pain scale, physical examination of consciousness, physical examination of limbs, differential diagnosis, working diagnosis, treatment, plan, doctor's signature and name, date, and time, which are all filled out completely. Respondents also inquired about the chronology of events, such as whether there was another party involved in the accident, the location, the position of the fall, and which area was injured, so as not to worsen the injury by carelessly lifting the patient's body. However, they did not ask about where the patient was going or what they were doing when the incident occurred. Studies have shown that incomplete clinical documentation directly affects the precision of ICD coding and hospital morbidity statistics (10). In emergency care settings, missing contextual injury information has been reported as a common limitation in injury surveillance systems (11).

There are still some respondents who do not fully understand that information about the location of the patient's external injury is very important in supporting the accuracy of the diagnosis code. In fact, details about the location of the incident, whether it occurred at home, at work, on the road, or in other public places, play a crucial role in the process of accurate diagnosis coding. Without clear and complete information about the location of the incident, the diagnosis code assigned may be inaccurate or incomplete, which in turn can affect patient care management, as well as the accurate recording and reporting of medical data.

The importance of this understanding is not limited to medical personnel, but also to the entire team involved in managing patient medical records. By understanding the vital role of the location of the event in determining the diagnosis code, the coding process can be carried out more accurately, thereby improving the quality of medical services and supporting the accuracy of reporting for administrative and health research purposes. When

patients are asked about their condition or the events they have experienced, this information is recorded manually on a chronology sheet as part of the medical documentation. However, when recording in the Hospital Management Information System (SIMRS), it was found that the system does not yet provide a specific column for writing the chronology. In fact, the chronology of events is very important in supporting the diagnosis coding process in patient medical records. The unavailability of a chronology column in the SIMRS makes it difficult for medical personnel to record and verify information completely, which in turn can affect the accuracy of diagnosis coding and optimal care planning.

Understanding the chronology of events in medical records is a crucial component that affects not only healthcare providers but also the entire medical records management team, as it directly influences the accuracy of diagnostic coding and the quality of health data. Numerous studies indicate that incomplete documentation particularly the absence of detailed event chronology can hinder medical coders in assigning accurate diagnostic codes, thereby affecting clinical service quality, the accuracy of reimbursement claims, and the validity of data used for administrative purposes and health research. Pepo and Yulia reported that inaccurate and incomplete recording of diagnoses and event chronology leads to diagnostic coding errors, ultimately compromising overall medical record quality (12). Similar findings were reported by Febriana, who demonstrated a significant relationship between medical record completeness and diagnostic coding accuracy, showing that insufficient clinical information increases the likelihood of coding errors (13). Other studies have shown that complete medical documentation significantly improves the probability of accurate diagnostic coding compared to incomplete records, underscoring the importance of systematic and comprehensive chronology documentation (14). In the context of hospital information systems, research on electronic medical records indicates that systems lacking dedicated fields or structured features for documenting event chronology may reduce documentation quality and diagnostic coding accuracy (15). This is consistent with international evidence suggesting that high-quality medical records form the fundamental basis for clinical coding, medical audits, and health research; therefore, limitations in hospital information systems that fail to accommodate structured chronology documentation may have systemic implications for service quality and evidence-based decision-making (15)

Referring to the provisions of ICD 10 in Chapter XX, activities at the time of injury are specifically identified. According to the WHO (*World Health Organization*), it is important to record activities at the time of injury as health data for epidemiology and injury prevention programs. In Chapter XX of ICD-10, activities at the time of injury are specifically identified. These activity codes are placed in the 5th character position of the external cause code.(16) This activity code indicates the condition or activity of the victim at the time of injury. This is important for research purposes, accident insurance claims, the police, the Environmental Agency, the Manpower Agency, insurance companies, and other parties related to the case, as well as for disease indices for internal hospital reports.(9)

Furthermore, based on the results of the FGD, there has been insufficient socialization regarding the importance of filling out the medical history, which includes information on the location and activity of the incident in the diagnosis of external cause injuries. This indicates a lack of uniform understanding among medical personnel, especially nurses, regarding the crucial role of this information in accurate diagnosis coding. Information about the location and activity of the incident is very important to describe the context of the injury in more detail, which can affect the determination of diagnosis and further treatment. The lack of socialization has resulted in a lack of attention to these important aspects, which in turn can lead to incomplete medical records. Therefore, efforts are needed to increase understanding and awareness among the entire medical team about the importance of carefully recording this information. More intensive dissemination and training on how to fill out medical histories, including crucial elements such as the location and activity of the incident, will greatly help improve the quality of coding diagnoses of external injuries and support more effective and targeted medical services.(17)

The codification of diagnoses using a new electronic system will be implemented in 2024, replacing the manual method previously used. Prior to the implementation of the electronic system, the coding process was carried out using Excel to recap diagnosis data. Although effective for data processing, this method still had limitations in terms of accuracy and efficiency. With the implementation of electronic coding using the ICD (*International Classification of Diseases*), the coding process has become more structured and standardized. This system allows medical personnel to select diagnosis codes directly from a pre-provided menu, thereby reducing the risk of data entry errors. In addition, coding using electronic ICD facilitates faster and more accurate medical data reporting and analysis. The accuracy of the codes is very high after the implementation of RME, which is influenced by doctors writing down the results of patient examinations in detail, completely, and in a timely manner.(18)

One of the major advantages of using electronic systems is improved legibility and clarity of clinical documentation, which reduces the potential for misinterpretation that frequently occurs in handwritten records. With the implementation of such systems, the diagnostic coding process becomes more efficient and transparent,

while minimizing errors, thereby supporting improvements in the quality of medical services and patient medical records (19)(20). Prior to the adoption of electronic systems, diagnostic coding was performed manually, often resulting in illegible handwriting. This condition created obstacles in data retrieval processes, as medical personnel or administrative staff were required to spend additional time interpreting and verifying the recorded information. Errors in reading handwritten notes or difficulties in interpreting manually written codes frequently slowed documentation processes and clinical decision-making, and may have led to inaccuracies in diagnosis or patient treatment (21–23).

Coders responsible for diagnostic coding are able to read physicians' documentation and retrieve supporting clinical information more easily and efficiently following the implementation of electronic medical records compared to paper-based systems. Prior to the adoption of electronic medical records, diagnoses and clinical notes were recorded manually on paper charts; although physicians' handwriting was generally legible at the beginning of clinical examinations, increasing patient volume often led to declining handwriting quality and less complete clinical documentation (24,25). In addition, diagnostic documentation was frequently inconsistent in terms of completeness and terminology, as some diagnoses were recorded in Indonesian while others were documented using English medical terms. This inconsistency is further exacerbated by the presence of free-text fields within the system, which allow healthcare providers to enter information in an unstructured and non-standardized manner, despite the availability of predefined diagnostic options intended to support more accurate coding (23,26,27). Such inconsistency and incompleteness in diagnostic documentation may reduce coding accuracy, hinder the interpretation of medical data, and adversely affect care planning and continuity of patient care. Numerous studies have highlighted that non-standardized diagnostic documentation is a major contributing factor to coding errors and delays in health insurance claim processing. Inaccurate diagnostic coding by coders can result in delays in reimbursement from the National Health Insurance (BPJS Kesehatan) to hospitals, leading to financial losses and potential delays in the payment of physicians' and other healthcare professionals' service fees, which may ultimately disrupt healthcare service delivery and financing (28).

Coders who perform coding can easily and quickly read doctors' handwriting and find supporting information. Before the implementation of electronic medical records, doctors wrote down diagnoses and explanations in paper medical records. At the beginning of the examination, the doctors' handwriting was still legible, but as the number of patients served increased, the doctors' handwriting became less legible and the explanations written were incomplete. The writing of diagnoses in medical records is still inconsistent and incomplete. Some diagnoses are sometimes written in Indonesian, while others use medical terms in English. This is due to the existence of free text fields in the system, which allow medical personnel to write information in an unstructured and inconsistent manner, even though there are diagnosis options available that can support more accurate coding. This inconsistency in writing can affect the accuracy of diagnosis coding, hinder the medical data interpretation process, and potentially cause errors in patient care planning. Therefore, efforts are needed to align the recording system with stricter rules and ensure that diagnoses are written in a more standardized manner and in accordance with applicable medical codes. Inaccurate diagnosis coding by coders will delay BPJS Kesehatan claim payments to hospitals, causing financial losses to hospitals and delays in payments for doctors' medical services and other health services, which could affect service activities and financing.(28)

With the implementation of an electronic diagnosis coding system in 2024, this problem can be overcome. The electronic system makes it easier to ensure that each diagnosis is clearly recorded and easy to read. Digitally structured writing ensures that information is not only more readable but also quickly and accurately accessible. This allows for a more efficient data retrieval process, shortening the time previously wasted searching for and verifying information, and improving accuracy in diagnosis coding (29). Thus, the implementation of this electronic system contributes to improving the quality of medical records and healthcare services as a whole. The high level of coding accuracy after the implementation of EMR is influenced by several factors, namely that doctors' handwriting can be read well using electronic medical records and the information contained in EMR is more complete. *Coders* find it easier to read diagnoses of mental and behavioral disorders, and the information is written in full by psychiatrists, so *coders* do not need to refer to other forms as they would with paper medical records. Factors affecting inaccuracy in the study were due to manual coding and staff not reading the information carefully (30).

Based on the results of the FGD, it was found that medical record coders did not confirm with nurses when they found that the diagnosis of external causes of injury was not recorded in the medical records. This is reflected in the lack of communication and coordination between coders and nurses in ensuring the completeness of medical data, which should be part of the verification process to ensure the accuracy of documentation. This phenomenon creates the potential for errors in diagnosis coding, which can impact the quality of health services and the management of external cause injury cases. With a significant percentage, this problem indicates the need for increased collaboration between medical record coders and nurses to ensure that every diagnosis, including external cause injuries, is accurately recorded in the patient's medical records. The incompleteness of the

information provided by doctors makes it difficult for coding staff to determine the correct code for the external cause of injury in traffic accident patients. In addition, when coding staff encounter unclear or incomplete information, they do not first confirm with the doctor concerned but proceed directly with coding. This causes miscommunication between doctors and coding staff, resulting in incorrect codes.(7,20)

External causes of injury refer to explanations of the factors that lead to injuries, poisoning, or other adverse effects experienced by patients. These external causes encompass a wide range of circumstances, including accidents, physical violence, exposure to hazardous substances, or other events that directly affect patient health. Comprehensive documentation of external causes is essential in diagnostic coding, as it enables healthcare professionals and coders to assign accurate codes that appropriately reflect the circumstances surrounding the patient's condition. In addition to the cause itself, information regarding the place of occurrence is equally important, as it provides contextual details about where the external cause took place, such as at home, in the workplace, on public roads, or in other settings, which has implications for clinical management, injury surveillance, prevention strategies, and health policy planning (31). Several studies have emphasized that incomplete or inaccurate documentation of external causes and place of occurrence can lead to misclassification in injury coding, reduce the quality of morbidity and mortality statistics, and limit the usefulness of health data for epidemiological analysis and prevention programs. Accurate recording of external causes has also been shown to support health insurance claims processing, medico-legal documentation, and national injury reporting systems, highlighting the importance of standardized and comprehensive documentation within medical records (32,33).

Knowledge of the location of the incident helps medical personnel to better understand the context of the incident and provide a more accurate diagnosis. Furthermore, the activities carried out by the victim at the time of the incident also provide additional relevant information. These activities describe the activities or conditions that the patient was engaged in when the injury occurred, such as whether the victim was driving a vehicle, exercising, or performing certain work. Information about these activities is important to support a deeper understanding of how the injury occurred and to help determine a more accurate diagnosis. Thus, external causes, the location of the incident, and the victim's activities are three interrelated elements that are very important in supporting the accuracy of diagnosis coding and providing a clearer picture of the medical incident experienced by the patient.(7)

Additionally, there are several factors that cause doctors to be incomplete in exploring and providing information on the *external causes* of accident cases, namely the doctor's knowledge, attitude, age, and length of service. *External cause* information is used for the medical treatment of patients. In addition, *external cause* information must be reported in the form of *external cause* codes in the Recapitulation Report (RL) 4b Data on the Morbidity Status of Outpatients Hospitalized for Accident Causes.(9) External cause information is also used to create medical certificates for accident insurance claims and is used as the cause of death on death certificates if accident patients die.

The Medical Records and Health Information Professional Standards state that a medical recorder must be able to accurately assign disease and procedure codes in accordance with the classification applied in Indonesia, namely ICD-10, regarding diseases and medical procedures in health services and management. Clinical classification skills, disease coding, and other health issues, as well as clinical procedures, influence the accurate determination of clinical classifications, disease coding, and other health issues, as well as clinical procedures in accordance with the classifications applied in Indonesia, which are used for disease statistics and the health care facility financing system.(5)

Overall, the results confirm that FGD is an effective educational strategy for improving nurses' understanding of the importance of comprehensive anamnesis documentation in supporting external injury coding. Interactive and collaborative learning approaches have been demonstrated to improve knowledge retention and clinical documentation behavior (34)(35). The significant improvement between pre-test and post-test scores in this study aligns with evidence that structured educational interventions enhance documentation quality and coding reliability.

CONCLUSION

This study shows that the completeness of filling out the external cause injury anamnesis, particularly information regarding the chronology of events, the location of the incident, and the patient's activities, greatly influences the accuracy of external cause diagnosis coding based on ICD-10. Nurses, as health workers who play a direct role in the initial assessment of patients in the Emergency Room, have an important contribution in providing this information. The results of the study show that before the Focus Group Discussion (FGD) was conducted, there were still nurses who did not fully understand the importance of a complete medical history in supporting diagnosis coding. After the FGD was conducted, there was a significant increase in knowledge, as shown by all respondents achieving a 100% level of understanding in the post-test. In addition, the implementation of electronic medical records also improved the readability and completeness of diagnostic information, thereby facilitating the coding

process. Thus, improving nurse competence, supporting electronic medical record systems, and interprofessional collaboration are key factors in improving the accuracy of coding diagnoses of external injuries.

Hospitals are advised to optimize their electronic medical record systems by providing structured columns specifically for recording the chronology of events, the location of the incident, and patient activities, as well as establishing SOPs that strengthen coordination between nurses, doctors, and coders. Nurses are expected to consistently assess and document the anamnesis of external cause injuries completely and in a timely manner as the basis for diagnosis coding and morbidity reporting. Coders are advised to clarify with healthcare personnel if the anamnesis information is incomplete before assigning a diagnosis code. This study was conducted using a qualitative case study design in a single hospital with a limited number of informants, which may restrict the generalizability of the findings. Data were largely based on self-reported information and short-term observations, potentially introducing response bias and limiting assessment of long-term effects. Additionally, this study did not quantitatively examine the statistical relationship between anamnesis completeness and diagnostic coding accuracy Further research is expected to develop quantitative or mixed methods research designs to measure the relationship between the completeness of anamnesis and the level of accuracy of diagnosis coding more broadly.

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