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Evaluating the Type and Number of Errors in Medical Records Documentation in Tehran Ayatollah Taleghani Hospital

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ABSTRACT

Introduction: Recording medical information of hospital records is in fact the documentation of the medical team activities in the hospital. Therefore, correct, accurate, and timely record of patients' information can play a vital role in improving the educational, medical, research, legal, and statistical activities. This study aimed to investigate the type and number of errors in medical records documentation and its effective factors in Ayatollah Taleghani Hospital.

Methods: This descriptive-analytic study was cross-sectional. A sample of 330 patients' records in Ayatollah Taleghani Hospital was investigated through a self-made checklist. Data were analyzed using the SPSS software and descriptive and analytical methods.

Results: The number of errors in the records showed that, among the examined errors, No Specify the type of diagnosis and take medicine Time in more than 50% of the cases were not accurately recorded. The least error was due to the absence of time and stamp. There was a significant relationship between medical record errors and some demographic characteristics.

Conclusion: According to the results and the existence of errors in recording files, hospital doctors and nurses' efforts to promote the documentation of cases were necessary. Rewardingly, some methods, such as initial training of newly arrived residents, encouraging methods, and periodic evaluation of cases can be used.

Keywords: Medical Records, Medical Errors, Documentation, Hospitals

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Introduction

One of the most important pillars of the health system that promotes the quality of the provided services is its continuous monitoring and evaluation; since continuous monitoring can quickly identify and solve the problems. The patient's record is the primary tool for this purpose. In health centers, collecting and analyzing the statistics are done using the medical record. The managers of the centers use the patient's record to understand the performance of employees and different wards. Therefore, the medical record should act as a lifelong system to meet primary or special care needs [(1)].Several medical centers research studies show the high prevalence of medical errors and the high distance between the quality of provided health care and the standard conditions, such as drug mistakes, complications and post-operative infections, inadequate cancer screening, inappropriate care after heart attacks, and patients' death [(2)].

In this regard, the data documented in the medical records will have a significant effect on the quality of patients' care, awareness of compliance with professional medical standards, care process, communication between physicians and other professionals involved in patients' care, as well as planning and evaluation of the provided care [(3)]. Without a complete and accurate record, health care providers may not be able to defend themselves well against allegations of failure to take care of the patient. Increasing the emphasis on preventing abuse and fraud in the health care industry has increased the importance of addressing the proper documentation of medical records [(4)]. In legal matters, an incomplete record reflects poor care and treatment. Deleting details is a serious mistake in documenting. Legal authorities dealing with medical negligence believe that if something is done but not recorded, it can be considered as a failure. Those who document the contents of patients' medical records have a great impact on the quality of records. All health care professionals and those who document the information in the patient's record must understand the importance of establishing an accurate and complete medical record and its legal and medical applications [(5)].

A medical record is a valuable tool in providing quality care to the patient, preventing illness and promoting health. It is also helpful in preparing health services statistics in order to evaluate efficiency and effectiveness and it can also be effective for the patient's treatment and care services. Quality care, on the other hand, depends on complete and comprehensive medical records, and this is very difficult without the right information [(6)].

Therefore, the systematic analysis of documentation done in medical records for content control and the information of patient care must be complete. Documentation is a process consisting of three stages of recording a data message, recording the date of the message, and confirming and acknowledging the message by the messenger [(7)]. In general, the document and documentation must have three characteristics of completeness (quantitatively), accuracy (lack of error) and adequacy (clear, and the existence of a logical connection among data). Accordingly, the medical records of the patient are a set of documented facts about the patient's health status including biographies, physical examinations, tests and reviews, diagnoses, treatment plans, treatment measures, evaluations, treatment outcomes, care, and discharge plans (follow up) [(8)]. Arranging, correcting, and completing medical records is the responsibility of the medical practitioner, while completing the medical record during the period of hospitalization is the responsibility of the nurse. The medical records department is responsible of the quantitative and qualitative examination of the medical records after discharging, andultimately, and the examination of incomplete records is the responsibility of the medical committees, including the Medical Record Committee [(9)].

Medical records not only can be cited in legal cases and misdiagnosis of medical personnel, but also can contain useful information for medical researchers as they are the most important sources

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of patient information collection in quantitative and qualitative research studies. In many diseases, the accurate information about the diagnosis is based on hospital records, and patients' responses to the type of disease will not be very helpful [10]. On the other hand, incomplete recording may lead to insurance deductions and financial consequences, which have been cited in various studies [11]. However, the results of numerous studies in the field of recording and reporting indicate that incorrect, inaudible, and illegible records does not have legal value in legal trials [12-14].

Due to the importance of the process of medical records documentation, if this process is done incompletely, it can have adverse effects on the patient's therapeutic process besides losing hospitalized patients' information. Therefore, the present study was conducted with the aim of investigating the type and number of errors in medical record documentation and its effective factors in Ayatollah Taleghani Hospital.

Methods

This study was descriptive-analytic that retrospectively reviewed the medical records. The statistical population of the study was patients' medical records admitted to Ayatollah Taleghani Hospital. The sampling method of medical records was stratified randomly and from each section 30 medical records of patients who were discharged from the hospital were selected. Data were collected from 11 wards consist of Gastroenterology, Hematology, Oncology, Heart, Vascular Surgery, General Surgery, Nephrology, ENT, Orthopedic, Women, and Jaw.

The following formula was used to estimate the sample size:

$$n \geq \frac{\left(z_{1-\frac{\alpha}{2}}\right)\sigma^2}{d^2}$$

In the previous studies the standard deviation of error was 0.31, the confidence coefficient was 0.95 and the error rate was 0.05, and the number of samples was 330 cases. The tool used in this study was a checklist. The checklist consisted of 40 questions in the of areas biographies, disease history, counseling, and treatment staff performance. Physicians and nurses' information, such as the type of specialty, section type, the shift of data registration, gender, age and occupied bed of each department were also received from the hospital statistics ward. In order to complete the checklist, the researcher was referred to the archives department after obtaining the license for the study, and the records were reviewed based on the checklist.

After collecting the completed checklists, the information was entered into SPSS software version 21. For describing the information and errors, frequency and percentage statistics were used and for data analysis Pearson correlation coefficient and Chi-square test were utilized.

Results

The examination of the errors in the records showed that in the detected errors, No Specify the type of diagnosis and take medicine Time was not accurately recorded in more than 50% of the cases. The least error was due to the absence of time and stamp (Table 1).

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Table 1. Investigating the Number of Errors in Medical Records Documentation

Error	Frequency	Percentage
Lack of diagnosis	183	55.5
Absence of signature	71	21.5
Absence of date	142	43
Illegible handwriting	51	15.5
Absence of stamp	14	4.2
Not taking the medication time	199	60.3
Absence of time	14	4.2
Lack of drug dosage	30	9
Lack of patient's information	86	26.1

Based on the results, there was a significant relationship between the errors of absence of time, the lack of diagnosis, the absence of signature, the absence of date and illegible handwriting in the wards, and the majority of recorded errors were related to the oncology and nephrology wards (Table 2).

Table 2. Determining the Relationship between the Number of Errors in Medical Records Documentation and Hospitalization Wards (Numbers to Percent)

Error	Lack of diagnosis recording		No signature		No date		Illegible handwriting		No stamp		Not taking the medication time		No time		Lack of recording patient's information	
	f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%
Gastroenterology	24	13.1	15	21.1	23	16.2	5	9.8	3	21.4	20	10.1	4	28.6	5	5.8
hematology	24	13.1	15	21.1	22	15.5	7	13.7	0	0	19	9.5	0	0	11	12.8
Oncology	28	15.3	11	15.5	22	15.5	4	7.8	0	0	21	10.6	0	0	4	4.7
Heart	21	11.5	5	7	18	12.7	1	2	2	14.3	17	8.5	3	21.4	6	7
Vascular Surgery	19	10.4	0	0	6	4.2	8	15.7	0	0	15	7.5	0	0	13	15.1
General surgery	25	13.7	8	11.3	18	12.7	8	15.7	1	7.1	18	9	0	0	8	9.3
Nephrology	28	15.3	10	14.1	18	12.7	9	17.6	2	14.3	22	11.1	5	35.7	5	5.8
ENT	3	1.6	1	1.4	1	0.7	0	0	0	0	20	10.1	0	0	11	12.8
Orthopedic	6	3.3	3	4.2	14	9.9	4	7.8	4	28.6	17	8.5	2	14.3	9	10.5
Women	3	1.6	0	0	0	0	4	7.8	2	14.3	20	10.1	0	0	9	10.5
Jaw	2	1.1	3	4.2	0	0	1	2	0	0	10	5	0	0	5	5.8
P-Value*	0.001		0.001		0.001		0.006		0.08		0.1		0.001		0.1	

***Chi square test**

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In examining the recorded errors based on gender, the results showed that there was a significant relationship between illegible handwriting, Not taking the medication time and lack of patient's information and gender; moreover, the error rates in men were more than women. The majority of errors occurred in the morning shift, such as errors of lack of recognition, lack of signature, illegible handwriting, not taking the medication time and lack of patient's information, and the error rate was significant regarding shifts. Based on the results, only a significant relationship was found between the error of lack of record documentation and the age of recorders, and in other errors, this relationship was not significant. Furthermore, the oncology and hematology wards with higher bed occupancy rates had more errors (Table 3).

Table 3. Determining the Relationship between the Number of Errors in Medical Records Documentation and Underlying Variables (Numbers to Percent)

Error	Bed occupancy rate		Age			Degree			Shift			Gender	
	P-Value*	r	P-Value**	More than 35	Less than 35	P-Value**	super specialist	specialist	P-Value**	M.E	M	P-Value**	Female	Male
Lack of diagnosis recording	0.0001	0.254	0.05> P	43.2	56.8	0.07	54.3	45.7	0.05>P	22.3	77.7	0.25	50.9	49.1
Absence of signature	0.0001	0.54	0.07	47.7	52.3	0.074	46.4	53.6	0.05>P	37.9	62.1	0.05>P	61.3	38.7
Absence of date	0.0001	0.362	0.1	49.5	50.5	0.1	50.2	49.8	0.07	40.6	59.4	0.1	45.5	54.5
Illegible handwriting	0.0001	0.289	0.09	51.3	48.7	0.05>P	22.6	77.4	0.05>P	21.5	78.5	0.05>P	31.7	68.3
Absence of stamp	0.0001	0.502	0.08	46.4	53.6	0.09	46.7	53.3	0.1	47.8	52.2	0.06	46.1	53.9
Not taking the medication time	0.0001	0.458	0.05	56.6	43.4	0.1	49.3	50.7	0.05>P	36.7	63.3	0.05>P	33.3	66.7
Absence of time	0.0001	0.241	0.06	45.3	54.7	0.09	52.2	47.8	0.4	49.5	50.5	0.11	42.2	57.8
Lack of recording patient's information	0.0001	0.308	0.08	52.3	47.7	0.08	**43.2**	56.8	0.05>P	**50.3**	49.7	0.05>P	**28.5**	71.5

* Pearson ** Chi square test

Discussion

The findings of the study showed that nearly 22% of the cases had signature errors and 26% had patient's information errors. The findings of the study by Azimi et al. showed that the name and signature of the record responsible were completed for 75.85% of the cases. The existence of the name and signature of the recorder on the record sheets is one of the most important cases that can be referred to if there is an error in the records [15]. In a study entitled "Investigating the status of information recording in medical records of Hamedan University of Medical Sciences", signatures were recorded in most nursing care sheets, and in the counseling paper of 83% of the items, the requesting hour and date were recorded. Furthermore, for 82% of the cases, the consultant physician's signature and

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the stamp was recorded, which indicates that the cases were recorded in Hamedan and Zabul, with similar percentage [16].

In the present study, illegibility occurred in 16% of the cases. The illegibility is one of the reasons of making errors in the implementation of doctors' orders. In a study in Spain, 59.3% of nurses considered physicians' bad handwriting effective in error occurrence [17]. Compared to the present study, the level of illegibility in other studies was 18, 8 and 13 percent.

In this study, the error of not recording date and time was 43% and 4%, respectively. In Azimi et al. study, these errors were 11.9% and 4.9%, respectively, which were less than other errors such as medication errors [15]. However, in a study, the error of not recording date and time was the most important error (91%) [18]. In another study, the date and time error rate was 27.6% [19], which is different from this study. However, writing the prescription date is legally and therapeutically important; since a prescription is documentable evidence [20]. Moreover, these two errors were more in morning shifts, and they occurred more in oncology and hematology wards due to the completion of all records (including medical orders) by the faculty members in these two sections without having any assistants.

In the present study, not taking the medication time was 60%. This amount was 25% in a study by Azimi et al., which was more than another study with the estimation of 3% [21], and less than another study that determined this error 47.8% [17].

In this study, the number of errors in recording drug dosage was reported 9%; however, it was 27% in the study by Azimi et al. This study showed different types of errors made by physicians and the majority of cases in this study had at least one error in recording the medical records. Compared with other studies, it has been shown that recording errors occurred in each case of reports written by the physicians, such as a study that showed that in any of the descriptions of patients' diagnoses; fracture was not mentioned [22]. Another study showed that errors can occur at each stage of the prescribing process [23] so that 56% of them can occur in the writing process [24]. Another study showed that in 60% of the patients, there was at least one error in prescribed drug orders [25].

Conclusion

The results of this study showed that there were errors in recording medical records by physicians, nurses, and staff of medical records in the examined cases. This leads to the loss of patients' information that can have adverse effects on the patient's treatment process. Therefore, it is necessary to pay more attention to the authorities, physicians, medical staff, and health information management experts. It is necessary to improve patient record documentation by physicians, therefore some strategies can be used, such as educating the newly arrived residents, considering commendatory techniques and having periodic evaluation

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Conflict of interest

Authors declare no conflict of interests.

References

1. Francis C, De Souza MC. Hospital administration. 3rd ed. New Delhi, India: Jaypee Brothers Medical Publishers; 2004.

[Downloaded from jhr.ssu.ac.ir on 2026-09-17]

[DOI: 10.18502/jchr.v7i4.270]

2. Stratton KM, Blegen MA, Pepper G, et al. Reporting of medication errors by pediatric nurses. Journal of Pediatric Nursing. 2004; 19(6): 385-392.
3. Zare Fazlollahi Z, Khoshkalam Aghdam M, Lotfnezhad Afshar H, et al. The rate of adherence to principles of diagnosis recording in medical records of patients with fractures admitted to urmia motahari hospital. Health Information Management. 2011; 8(3): 405-411. [Persian].
4. Roach Jr WH, Hoban RG, Broccolo BM, et al. Medical records and the law. Sudbury Massachusetts: Jones & Bartlett publishers; 2006.
5. Farzandipour M, Rabie R, Ayatollahi H, et al. Principals of medical information documentation. Kashan: Morsal; 2006.
6. Andersen A, Yigzaw KY, Karlsen R. Privacy preserving health data processing. In: Healthcom'14, 16th International Conference on E-health Networking, Application & Services. Natal, Brazil: IEEE; 2014.
7. Savica R, Carlin JM, Grossardt BR, et al. Medical records documentation of constipation preceding Parkinson disease a case-control study. Neurology. 2009; 73(21): 1752-1758.
8. Tanco K, Kwon JH, Park JC, et al. Frequency, predictors and medical record documentation of chemical coping among advanced cancer patients. Journal of Clinical Oncology. 2015; 33(15_suppl): e20595-e20595.
9. Hammoud MM, Dalrymple JL, Christner JG, et al. Medical student documentation in electronic health records: a collaborative statement from the Alliance for Clinical Education. Teaching and Learning in Medicine. 2012; 24(3): 257-266.
10. Bergmann MM, Byers T, Freedman DS, et al. Validity of self-reported diagnoses leading to hospitalization: a comparison of self-reports with hospital records in a prospective study of American adults. American Journal of Epidemiology. 1998; 147(10): 969-977.
11. Tavakoli N, Saghaeean Nejad S, Rezayatmand M, et al. Hospital records documentation and medical insurance cuts. Health Information Management. 2006; 3(2): 53-61.
12. Müller-Staub M, Needham I, Odenbreit M, et al. Improved quality of nursing documentation: results of a nursing diagnoses, interventions, and outcomes implementation study. International Journal of Nursing Terminologies and Classifications. 2007; 18(1): 5-17.
13. Klaus CA, Carrasco LE, Goldberg DW, et al. Use of attribute association error probability estimates to evaluate quality of medical record geocodes. International Journal of Health Geographics. 2015; 14(1): 26-42.
14. Klasco RS, Wolfe RE, Lee T, et al. Can medical record reviewers reliably identify errors and adverse events in the ED?. The American Journal of Emergency Medicine. 2016; 34(6): 1043-1048.
15. Azimi L, Markazimoghaddam N, Rostami K, et al. Assessing the physicians' order errors in medical records and it's effective factors (a case study). Journal of Hospital. 2016; 15(2): 41-48. [Persian].
16. Seif Rabiee MA, Sedighi I, Mazdeh M, et al. Study of hospital records registration in teaching hospitals of Hamadan university of medical sciences in 2009. Scientific Journal of Hamadan University of Medical Sciences and Health Services. 2009; 16(2): 45-49. [Persian].
17. Valizadeh F, Ghasemi SF, Nagafi SS, et al. Errors in medication orders and the nursing staff's reports in medical notes of children. Iranian Journal of Pediatrics. 2008; 18(Suppl 1): 33-40. [Persian].
18. Abbassi Sh, Tavakoli N. Quantitative analysis of medical record of patients admitted in the Gharazi hospital. Health Information Management. 2011; 8(1): 50-60.
19. Hartel MJ, Staub LP, Röder C, et al. High incidence of medication documentation errors in a Swiss university hospital due to the handwritten prescription process. BMC Health Services Research. 2011; 11(1): 199-204.
20. Iannello C. Australian pharmaceutical advisory council (apac)-guiding principles to promote quality use of medicines. Journal for Community Nurses. 2005; 10(1): 5.
21. Garbutt J, Milligan PE, McNaughton C, et al. A practical approach to measure the quality of handwritten medication orders: A tool for improvement. Journal of Patient Safety. 2005; 1(4): 195-200.
22. Zare Fazlollahi Z, Khoshkalam AM, Lotfnezhad AH, et al. The rate of adherence to principles of diagnosis recording in medical records of patients with fractures admitted to Urmia Motahari Hospital. Health Information Management. 2011; 8(3): 405-411.
23. Velo GP, Minuz P. Medication errors: prescribing faults and prescription errors. British Journal of Clinical Pharmacology. 2009; 67(6): 624-628.

[Downloaded from jhr.ssu.ac.ir on 2026-09-17]

[DOI: 10.18502/jchr.v7i4.270]

24. Bates DW, Cullen DJ, Laird N, et al. Incidence of adverse drug events and potential adverse drug events: implications for prevention. Jama. 1995; 274(1): 29-34.
25. Van Doormaal JE, Van den Bemt PM, Mol PG, et al. Medication errors: the impact of prescribing and transcribing errors on preventable harm in hospitalised patients. BMJ Quality and Safety in Health Care. 2009; 18(1): 22-27.

[Downloaded from jhr.ssu.ac.ir on 2026-09-17]

[DOI: 10.18502/jchr.v7i4.270]