

## Are the medical records of high quality in teaching hospitals?

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### ABSTRACT

**Background:** Documentation of medical data in patient records is needed to improve the quality of healthcare and medical knowledge progress. Documentation of patient history, clinical problems, treatment, and follow-up care are needed to improve practice and research.

**Objective:** To determine documentation of patient records at the internal medicine ward of Imam Khomeini Hospital, Tabriz, Iran.

**Method:** The study was descriptive and 100 patient records were selected through random sampling. Records were related to the patients who had been discharged from the general internal ward during April to June 2000. Data was collected using the questionnaire including 30 closed questions, and 5 open ones. The results were reported in ratios (%) averages and standard deviation. T-test was used to examine the association of length of stay and records data adequacy scores. Data was analysed by the SPSS software.

**Results:** Completeness of the patient records was moderately acceptable (68.7%). The difference between performance of residents, interns and students in documentation of primary diagnoses and differential diagnoses was significant ( $P < 0.001$ ) and performance of residents was more efficient (59.6%), (69.7%). Of the records, 22.2% were without summary sheet.

**Conclusion:** Patient records had many deficiencies. Instructions for documentation are necessary. Regular monitoring and evaluation by the attending physicians and writing skills education could be effective in accurate documentation.

**Key words:** DOCUMENTATION, MEDICAL RECORDS, REVIEW, TEACHING HOSPITALS, TABRIZ

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### Introduction

Medical record is the source of information for many purposes, including evaluation of the quality of care provided (1), (2). Poor documentation in medical records might reduce the quality of care and undermine analyses based on retrospective reviews (3). Because physicians have an important role in documentation (4), medical students become familiar with methods of history taking and documentation during their academic education prior to clinical courses. History taking, physical examination and regular documentation process are the first steps in patient assessment (5). The second step includes the analysis of all patient related data and information, to reach timely and appropriate prognosis (5). Studies showed, the medical students' performance in documentation did not stand up to the standards. In the research by Dehghan (1999), in Yazd, only 55.3% of patients' records had differential diagnosis; 35.2% of history sheets included review of system; and 81.4% of the patients' records had history sheet (6). In a study by Tofighi et al (1998) in Isfahan, 45.8% of the

records had acceptable summary sheet. In the sample hospitals, only 57.5% of the records had acceptable progress notes (7). In a study by Taylor et al (1994), adequate data, for the medical treatments was provided in 67%, for surgical operations 93%, and for all cases was 75% (8). In another study in Kerman, adequacy of histories, progress notes, and order sheets were 50-70% (9). Other studies in Isfahan (10,11,12), Kashan (13), Iran (14), and Shiraz (15) medical universities and in other countries (16,17,18,19,20) showed that there were many deficiencies in the patient records. This study was designed to determine documentation of medical records so that appropriate decisions and interventions about quality improvement of patient record could be made.

### Materials & Methods

In this survey records of patients who had been discharged from the general internal ward of Imam Khomeini Hospital, Tabriz, during April to June 2000 were randomly selected. Data was collected

using a structured questionnaire including 30 closed questions and 5 open ones,. The questions documented the presence of summary sheet, history sheet, progress note, order sheet (of standard forms approved by the Office of Deputy Ministry for Research Affairs) admission order and items which should be documented in those sheets by residents, interns and students. The questionnaires were completed at the medical record department through reviewing the records. Internal consistency of the questionnaire was established by examining 10 records. Considering scores for each closed question (Yes=1, No=0), the total score for each record was calculated. The records with scores 0-10 were categorized as inappropriate, 10-20 were categorized as moderately appropriate, and 20-30 were categorized as appropriate. Frequency of answers was also calculated for open questions. The results were reported in ratios (%) averages and standard deviation. T-test was used to examine the association of length of stay and records data adequacy scores.

## Results

A total of 100 records were selected. Because of lack of information on one deceased patient, that record was excluded. Differential diagnoses and primary diagnoses were documented on the records (59.6%), (69.7%) by residents, (8.3%), (35.4%) by interns, and (12.1%), (17.1%) by students, respectively (Table 1). The difference between performance of residents, interns and students in documentation of differential diagnoses and primary diagnoses was significant ( $P<0.001$ ). Average length of stay for the patients was 5.5+5.25 days. Considering the total score [30], the majority of records (68.7%) were between 10 and 20 (moderately appropriate) (table 2). The average score for records was 17.97, and the standard deviation for records was 4.28. There was no significant relationship between scores of adequacy and the average time of patients' stay. Documentation of primary diagnosis on the admission order was 92.9%. Regarding vital signs on the admission order, the study yielded the following results: BP (89.9%), PR (73.7%), RR (38.4%) and BT (27.3%). Of the records, only 18.2% had every four vital signs on the admission order sheet, and 8.1% had no vital signs. Of the records, 22.2% had no summary sheet, and there was not follow-up plan in 59.6% of the records

which had summary sheet. The students history sheet did not exist in 56.6% of the records, and it didn't follow the standard order in 42.4% of the records which had that sheet. Interns' history sheet didn't exist in 25.3% of records, and 68.7% of them were in standard order. The sequence of visits was right on 74.7% of the records, and the sequence of orders was appropriate on 76.8% of the records. The final diagnoses were documented on 50% of summary sheets, and 80.8% of the admission and discharge summary.

## Discussion

The documented records show that patient problems are managed and followed appropriately (21), and a poor medical record indicates poor care (24). In our study, there were no students' history sheet in 56.6%, no interns' history sheet in 25.3%, and no internal medicine residents' in 10.1% of records. Schwartz and Boisoneaus in their study on documentation of external causes of injuries (1995) found that students had made more (81%) in comparison with residents (70%)(25). In internal medicine wards, history taking and documentation is one of the criteria for evaluation of students and interns. In this stage, medical students could learn communication skills and the way of reaching correct diagnosis. In our study in spite of students and interns present in the ward, students' history sheets and interns' sheets were lacking in 56.6% and 25.3% of the records respectively. It seems there has not been adequate attention to appropriate training of the students. Lack of every kinds of history sheets in 2.02% of the records, indicates ignorance of patient rights about having a complete medical record. It is unknown, how the procedures initiated, and how decisions about the patients were made. As a result, such records would not be useful in the cases of readmissions or research needs. In his study (6), Dehghan found out that 18.6% of the records did not have any history sheet (8). Written communication between colleagues is essentially a part of medical record (23), and teaching physicians may refer to and use students' documentation of the "review of systems and past family and social history" as their only source of information (24). Poor documentation skills in written communication among physicians may result in unnecessary repetition of tests, delayed diagnosis, and inadequate treatment (24).

**TABLE 1.** Comparison of some deficiencies in patient records according to different levels of medical education

Primary diagnosis		Differential diagnosis		Signature of physician		Existence of history sheet		Deficiency
No	Yes	No	Yes	Unacceptable	Acceptable	No	Yes	
30.3%	69.7%	40.4%	59.6%	10.1%	89.9%	10.1%	89.9%	Educational level
64.6%	35.4%	91.7%	8.3%	30.3%	69.7%	25.3%	74.4%	Internal medicine resident
82.9%	17.1%	87.9%	12.1%	72.7%	27.3%	56.6%	43.4%	Intern
								Student

**TABLE 2.** Distribution of documentation scores for the records

Frequency (%)	Scores
6(6.1)	0-10 (inappropriate)
68(68.7)	10-20 (moderately inappropriate)
25(25.2)	20-30 (desirable)
99(100)	Total

Documentation of differential diagnosis and primary diagnoses are key points, and indicates the teachers' attention to classic education and the learners abilities. Review of students' notes is a valuable source of feedback for teaching clinical medicine (25). Undocumented differential diagnosis and primary diagnoses on 40.4%, 30.3% of the records by internal residents, on 91.7%, 64.6% by interns, 87.9% by interns, 57.9%, 82.9% by students, indicates insufficient training of medical students. Besides history taking and documentation, signing of reports accompanied by name, indicate the commitment of every writer. If the writer is unknown, It will affect his sense of responsibility. Unfortunately, in 72.7% of the records, students had been careless about their signature. Summary sheet which contains patients' information including history, procedures, final diagnosis, etc., indicates subsequent trend in diagnosis and treatment. Since patients will refer to other facilities and providers, accuracy of summary sheet states the sensitivity of writer to a patient's future. In our study lack of acceptable summary sheet in 22.2% of the records, indicates lack of attention to patient rights and poor training. In the study by Tofighi et al (1998) in Isfahan, 54.2% of the records did not have acceptable summary sheet (6). Generally in our study, the completeness of records was considered immoderate level. Documentation of data in the study of Ahmadzadeh (1998) was desirable (17), in the study of Taylor et al (1994), was at an average

level (10), that is, adequacy of data, for the medical treatments was 67%, surgical operations 93% and for all cases was 75% (10). In her study, Aryaai (9) found, documentation of data on history sheet, progress note and physician order, was moderately acceptable (11). Dalton et al (2002) believed, more documentation of patient pain history, clinical problems, treatment, and follow-up care is needed to improve practice and research (28), but Asadi (14), in her study found no complete medical documents. (16).

## Conclusion

Considering these deficiencies, the patient records do not meet the standards of medical records. Quality of information requires adequate documentation. Many attempts such as essential planning, providing instructions for documentation, regular monitoring and evaluation by teaching physicians, and teaching writing skills to the staff in charge of documentation at different levels, can improve the quantity and quality of medical documentation. The findings of this study were provided to hospital administration for necessary interventions.

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