

## Evaluation of Data Recording at Teaching Hospitals

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### Abstract

**Background and purpose:** Medical records of patients have an undeniable role on education, research and evaluation of health care delivery, and also could be used as reliable documents of past in cases of patients' legal complains. This study was done to evaluate medical data recording at teaching hospital of Birjand University of Medical Sciences in 2004.

**Methods:** In this descriptive-analytic study, 527 patients' records of patients who had been discharged from general wards of the hospitals after 24 hours of hospitalization were randomly selected. 18 standard titles of records include in each patient's record were evaluated using checklists. Data were analyzed using frequency distribution tables, independent t-test and Chi-square test.

**Results:** Items on records' titles were completed in a range of 0-100%. Titles of neonates and nursing care with 96% completeness were the most completed ones~ Titles of recovery, pre-delivery care, medical history, summary, and progress notes with 50% to 74% completeness were categorized as moderately completed titles; and titles of vital signs, pre-operation care and operation report were weak. Records of the infectious diseases ward were the most completed records (68%) and the least completed were from ophthalmology ward (35.8%). There were significant differences between the hospitals and between different wards.

**Conclusion:** Results of this study show the need for further education on record writing, taking medical history, and order writing and more importantly the need for a system of continuous monitoring of the records.

**Keywords:** MEDICAL RECORD, TEACHING HOSPITAL, EVALUATION

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### Introduction

Continuous monitoring and evaluation is essential to manage every system toward a better service quality. Continuous monitoring helps every system to detect its defects immediately and take actions to remove them. Evaluation is an effective tool to determine strengths and

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weaknesses of services (1). Patients' records as scientific documents with use in researches and legal cases have an undeniable role in education, research and evaluation of health care services. Patients' medical records as scientific documents are products of work of a large group of medical professionals stakeholders. Practicing physician, intern, resident, medical student, nursing student, nurse, and midwife record results of their findings and management in patients' records. Patients' records are important source which can be used by medical researchers especially for clinical researches, research in field of epidemiology

and for evaluating patients' responses to different treatment. Defects in data recording decrease quality of health care and problems in data analysis in retrospective studies (2).

In a study done by Tavakoli in Esfahan 30% of faculty members frequently and 30% of them occasionally referred to medical records; 52% of those faculties mentioned that they do their researches using medical records; 42% said that contents of patients' record rarely met their search needs (3). At Medical University of Mashad 75% of researcher used medical records for their studies (4). One important aspect of medical records is the legal issues besides medical and research related uses.

In fact medical records are used as strong documents by interested group to bring accusations and to defend patients' and health care providers' rights and to exonerate hospital staff (5).

On the other hand medical records are suitable information sources to calculate costs of services delivered, which is useful to be accountable to insurance organization.

Studies showed that there are deep gaps between costs based on bills of services recorded in patients' records and the real income based in services really delivered (6).

Despite the importance of medical records in reviewing progress of patients, medical education and legal issues of services delivered, results of studies showed that records were not carefully completed. Study at general teaching hospitals in Kerman showed that items on titles of nursing report were completed in more than 70% of records, titles of admission history and orders were completed in 50%-70% of records; and contents of summery titles were complete in less than 50% of records (7).

In another study at teaching hospital of Iran Medical University contents of titles were maximum 89% completed and none of 18 titles were 100% complete (1). Hospitals in Shiraz, despite being desired in some aspects, had defected in some items like marital status, name of close relative or friend and type of insurance, i.e. none of records studied include related information (8).

Records are helpful to be responsive to health organizations which are valid, accurate and complete. This study was done to evaluate medical recording at teaching hospitals of Birjand University of Medical Sciences.

## Methods

This descriptive-analytic study was conducted at teaching hospital of Birjand University of Medicine, Emam Reza hospital and Valiasr hospital. Patients' records had 18 standard titles for patients discharged from general hospital in second half of 2004 after 24 hours of being hospitalized. A total of 572 records comprising 4% of all records filed in medical record units of the hospital during the second half year of 2004 were randomly selected. Standard titles including admission, summary, medical history by interns or medical students, progression, pre-and post-operation care, anesthesiology, operation report, consultation request, physicians' order, nursing report, vital signs, laboratory reports, pre delivery care, delivery care, neonates, imaging and lab reports were quantitatively evaluated by the researcher and one assistant.

Data gathering labels were 18 single checklists, one for each standard title, including 500 questions extracted from valid scientific materials used to teach standards of medical record writing. Checklists were reviewed and revised by 5 faculty members for its content validity . Every "yes" answer scored one and every "no" answer scored zero. Total score of each title was the title score. Data were analyzed using descriptive statistics. T-test and Chi-square test were used to compare scores and to determine relative frequency respectively.

## Results

The most frequent records reviewed were from Valiasr hospital (57.5%), general surgery and gynecology wards(15.7%), and the least frequent records reviewed were from psychiatry and ophthalmology wards(2.6% and 2.8% respectively). The average hospitalization period was 3.6 days. Among 55 items on admission titles

some items like items of name, surname, father's name, gender and marital status were 100% filled out and some including past history of hospitalization, patent permission to use data in records and discharge status were not filled out in any of records. Items which were filled out in English, admission titles of records from surgery wards, by practicing physicians were final diagnosis (26.2%), primary diagnosis (21%), diagnosis while hospitalization (8.4%) and operation done (6.7%).

Items on top of titles were filled out in a range of 5% to 85%, including name and surname (85%), record number, ward, responsible physician and date of admission (61.7%), date of birth (34%), father's name (24%), room number (17%), and bed number (5%), from the most frequently filled out to the least one.

Summary titles were filled out in a range of 7% to 93%, on which items of chief complaint and primary diagnoses were 92% filled out; recommendation in discharge were filled only in 7% of records. Summary titles in 164 records (28.6%) were filled by physicians and in 407 records (71.4%) by interns. The average score of records completed by physicians were  $38 \pm 15$  and the average score of records completed by interns was  $60.3 \pm 18.3$  ( $P < 0.001$ ).

Of all records, 446 (78%) included medical history titles. Medical history by interns were included in 369 records (69.2%) and medical history by medical students were in 169 records (29.5%). Only 20.8% of records included medical histories by both items and medical students. Among 16 items on titles of medical history completed either by interns by medical students.

The highest scores were of present illness and past medical history (more than 90%) and the lowest scores were of differential diagnosis, problem list, address and date of history taking (less than 10%). Total average score of this title completed by medical students was  $72.2 \pm 21.7$  ( $P < 0.001$ ).

Among all records received only 218 (38.1%) composed of 55.6% from Valiasr hospital and 14.4% from Emam Reza hospital include titles of progress notes ( $P < 0.001$ ). records from same

wards including psychiatry, orthopedic and ophthalmology wards lack these titles.

Items on physician's orders titles were completed in a range of 6 to 96% including date 96%, completeness of the first orders 55%, time 38%, and orders ordered in a standard way 29%, history 14%, and differentials diagnosis 6%. 25% of records had some wards crossed out which were in interns' orders. Apart from differential diagnosis, which was completed in 73% of records by physicians, all other items on these titles in more than 60% of records were completed by interns.

Handwritings in were good 59.3% of records, were bad but legible in 24% and were both bad and illegible in 16.8%. Titles of nursing care with a score of 94.7% were the most completed category of titles with a high compatibility with standards.

Among all records reviewed 66 (11.5%) included consultation titles, on which the most filled out items were name and surname (95%) and the least ones were time of consultation request, father's name and bed number. Titles of vital signs diagrams were included in all records, on 28.8% of these titles about 12%, only temperature diagram. On 41.6% temperature and blood pressure diagrams, on 15.9% temperature, plus rate and blood pressure diagrams, and on 7.9% all four vital signs were recorded. 1.2% of records had no diagrams. only in 7% of records recommended colors and in less than 10% standard signs were noticed and used to record. Dates of hospitalization in 9.3% of records and dates of post operation hospitalization in 9.9% of records were recorded. Titles of nursing reports, pre operation care anesthesiology, recovery, pre delivery and neonate in records which most include these titles were reviewed. Scores of neonate titles and nursing report titles were the highest (95%) and score of pre operation care and operation report titles were the lowest, 43.35 and 35.7% respectively.

There was neither signature nor stamp of the responsible physician of Para clinic services on 60% of titles of laboratory and Para clinical reports.

Considering all titles of all records, the highest score (67.9% completeness) was from infectious disease ward and the lowest from ophthalmology ward.

## Discussion

The result of this study showed that among 18 standard titles of patients' records, titles of neonate, nursing care and pre-delivery care scored 74-96 were the most completed titles, titles of recovery admission, progression, and physician's orders, delivery and medical history by medical students scored 54-68 were moderately completed titles and titles of pre-operation care, vital signs, medical history by interns and operation report scored 36-46 were the weakest; these are compatible with results of the study done Aria, which showed that the most completed titles of nursing report (70%); titles of admission, medical history progression's notes, physician's order, vital signs diagrams, consultation and water input and output were moderately completed (50% - 70%); and titles of summary, vital signs, laboratory report, operation report, anesthesiology, pre-operation care, post operation, Para clinical investigation report were weakly completed, less than 50% (7). Study of Asadi showed that data in titles of admission, summary discharge, consultation request, pre operation care, operation care, operation report, post operation report, nursing report, vital signs, pathology report, and laboratory report were completed in a range of 0-69%. Data on titles of anesthesiology, radiography report, and water input and out put were completed in a range of 0-69%. Overallly titles were completed in a range of 50-77%. Results of this study are compatible with our study in some aspects and incompatible in the others (9). This study showed that major defects in titles if physician's orders were lack of recording time, not well-ordered physician's orders, frequent repetition of records of RPO and bad hand writing, i.e. hand writing of 40% of records were not good and in 25% of the crossed at words were seen .

Recording operation reports, not recording at

assistant's names, gas numbers, biopsy, type of anesthesia, date and time were the most frequent defects, so that operation reports were the minimally scored ones.

On one the sidogy titles, items of patients' personal data, date, pre-operation statues, laboratory report, pre medications and hydration therapy were the most missed items.

Titles of vital signs were of one of the weakest categories. Defects on the titles in short included not recording hospitalization duration, duration of hospitalization after surgery, blood pressure and pulse in many cases and respiratory rates in almost all cases. Only on a few titles, recommended colors and standard signs were used to recording vital signs.

Medical records constitute are category of the most important and detailed information sources and are useful tools to deliver quality services. If records were incomplete, ineligible or not well-kept, cases delivered by therapy wouldn't be dependable and might be assumed as faults. Studies at national forensic organization of Iran from 1997-2000 showed that day by day medical staffs are more accused of. One of the obvious causes of this fact is incompatibleness of medical histories and operational reports (10). On the other hand medical records are reliable sources on progression of medical patients' conditions and treatments delivered, which could be used for research, evaluation of effectiveness and efficiency of care, statistical data gathering, medical education, calculation of cost of services and to document medical data for health community at national or provincial levels at World Health Organization.

Medical records either completed manually or printed included data encompassing all aspect of patient care. Medical records are the only documents of quality of care delivered at teaching hospitals. Evaluation of clinical competence could be done through patents' records. Records are useful for accountability and being responsive to the increasing needs of medical community, forensic medicine and medical education and research, which are accurate, complete and valid.

Result of this study the need to teach recording,

history taking, orders writing and also the need to exert surveillance by who are responsible.

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