

Tapan BIRKAN

*Istanbul Bilim University,
Istanbul, Turkey
birkan.tapan@istanbulbilim.edu.tr*

Balcı YÜKSEL

*Southern University (Institute of Management Business and Law)
Health Management
Rostov-on-Don, Russia*

Sezen ADEM

Istanbul Bilim University, Istanbul, Turkey

Ahmet Cenk DIKMEN

International Cyprus University, Cyprus

Dikmen Davut CEM

International Cyprus University, Cyprus

Medical Records Management and Hospital Application

ABSTRACT

Medical records make an important resource that can be used for evidence of medical care given to the patient and for evaluating quality of provided service.

Therefore it's very important exactly and regularly certificate, in details and on time, any services provided to individuals whose disease is suspicious, to patients, to injured person and to people who gave birth. Any patient records in hospitals contain data with high capacity about the human health. These data are checked, preserved and commented for different purposes. Each comment and basic information is archived in order to be reached in case of need. During this work any improvements made in medical reports of any foundation hospital were retrospectively examined with a casual method. Between 2004 and 2013, 350 patient files for every year and totally 3500 patient files from cardiology, cardiovascular surgery, orthopedics, neurology, transplantation, general surgery and pulmonology departments have been examined.

In their observations doctos noted that the examined medical records most of the records have been incompletely filled in. The ratio of filling medical records that in the period between 2004 and 2007 years made 80%, in the period between 2007 – 2010 – 2013 raised to 94%, where the audits of JCI accreditation and of the Ministry of health were realized.

Consequently: an improvement in medical records has been noticed during the years where JCI accreditation audits have been realized.

Key words: *Medical Records, Quality, Accreditation.*

Introduction:

The purpose of keeping medical records is to review compliance with the established standards, to improve any faulty aspects and to set an efficient quality management system (Çalışkan, 2007). Any medical record has the form of all kinds of information and documents constituted by the department related to the diagnosis and treatment of the hospitalized patients and outpatients during the time spent in hospital and stored as paper records, picture, film, printout and saved on electronic media.

Turkish Standards Institution describes medical records in the project of "accreditation in hospitals" as follows: it is the organized report of diagnosis and treatment activities realized by all healthcare disciplines related to patient care including any periodic evolution notes defining the progress of the patient's illness. Orderly operating medical records services and accessing to these records when it is necessary not only contribute to making a final diagnosis to patients and to treating them effectively but also provide a feeling of trust in the staff. Moreover, in this way it is possible to form an opinion about efficient work in health institutions (Esatoğlu ve Köksal). The main reason to follow medical reports is that these records are official documents. By record keeping patients, employees and management are protected. Medical records are only constituted by collection of requested information. Medical records, besides preventing to forget the knowledge, are also make it possible to many individuals to get information. Apart from medical records keeping, such abstract information as precision in recording system is also important. While keeping medical records accuracy, attention, confidentiality and reliability should be at the forefront. Confidentiality and reliability are very important for providing a quality health care to any patient. Apart from legal process, under no circumstance information entered in medical records should be submitted to anybody except for the patient. It is very important to raise awareness of healthcare staff on this topic. It should be identified who will reach the data and what authority they will have. Authorizations should be organized and unauthorized persons shouldn't have any access to health records of the patient. The information in health record belongs to the patient. The authorized staff should have access to medical records only of those patients who are under their responsibility. Other healthcare staff can have access to such data only with written consent of the patient. If the patient has been released, no institution employee has access the patient's medical records. No personnel can transmit, even verbally, any information about the patient's health to any third party, except

for patient's relatives, without consent of the patient. Necessary measures should be taken not to follow the patient's file. All patient health records should be saved in physically protected places, the patient files shouldn't be negligently exposed, and the computer screen shouldn't be left in a way that everybody can read it. In addition, it shouldn't be possible to access electronic medical records by internet environment.

The purpose of saving and conserving the patient files is to share the information about the patients continually or with key points in care process by hospital staff members, to determine a method in order to standardize the patient files that are prepared to follow up, analyze, comment, share and report the data about the patient and disease, the process concerning the patient's health care and the data about its consequences and to expose criteria that will allow to save patient files in accordance with national and international standards

According to ISO 9001: 2008 Quality Management System, The Joint Commission International Accreditation and Standards for Hospitals and The TR Ministry of Health, The Health Quality Standards the patients' records keeping involves all healthcare staff, medical secretaryship and archive workers. The patient file is a communication tool of establishments that provide/ and will probably provide health care. It is a primary document that serves as basis:

- to access the diagnostic, treatment and care information of the patient,
- to invoice the treatment,
- for quality management studies,
- to determine physicians' competence
- for statistical data and research studies,
- that clarifies the Medico-legal issues.

While creating the patient's first record, each patient (outpatient or inpatient) gets a protocol number. It is essential to give a protocol number for each patient. Thus it will be possible to follow up the patient for all future applications with the same protocol number. For each patient admitted to hospital, there is a patient file that is electronically followed up and in written by the same protocol number. The documents related to patient file are saved electronically and/or in written. The inpatient files are created by the section of inpatient care, the outpatient files are created by the polyclinic. For those patients who will be hospitalized, a **Patient Hospitalization Form** is filled by the doctor. The information entered in the Patient **Hospitalization Form** should be verbally notified to the patient or to patient's relatives (in case of a pediatric patient) by the doctor. The form contains the following articles:

- Prediagnosis
- Planned care
- Planned length of hospitalization
- Priority medical examinations
- Priority medical consultations
- Discharge necessities

All hospital employees are obliged to respect the confidentiality of the information in the file. Patient records are kept as soon as possible and when an evaluation/observation/operation is realized. The records cannot be backdated or postdated. In delayed records, the reason of the delay should be noted and signed. Any information received from the patient and the records should be objective and related to the reason of recording. No subjective and unconcerned notes should be taken. The abbreviations used by the healthcare staff should be in accordance with the symbol and abbreviation procedure.

All manual records,

- Are legibly written by a pen.
- All forms are stamped by a patient stamp.
- The date/hour is inserted into all records
- The nurses use the paraph they identified in all patient records and in other records, or their name-surname.
- The Physicians specify name-surname and diploma registration number in all their records.
- If there is any correction in the records, the previous record is apprehensibly struck out and YK which means wrong entry is written and paraphed. The scribbled corrections that are unreadable or other corrections made differently are not admitted.
- Correction fluid and «ditto marks» cannot be used in records. It is written in readable way.

Medical records are also stored electronically. Electronic health/patient records are to protect all information about one's state of health and medical treatments he/she got during his/her life time in electronic media (Enünlü, 2010). Electronic medical record does not have a totally interactive structure; it does not include any information from other health care institutions regarding the patient; their owners are health institutions. It a system in which information in the institution is used integratedly and which allows for data-input by only the authorized staff in intitutions (Yılmaz, Kaplan ve Sincan, 2010). The main purpose of electronic health records is to make it spread throughout the country and its owners are stakeholders (Berber vd, 2009). Electronic patient record system is a required element for increasing patient satisfaction and for making the processes of diagnosis, treatment and evaluation more efficient and faster (Kaymakoğlu ve Ersoy, 2005).

All electronic records;

- Made in computer environment are realized only by competent people with the recorder's password.
- The system automatically and retrospectively records any people entering into the patient records, any changes, modification of date and time.
- The documents that need to be approved are absolutely confirmed by the recorder.
- The automated correction of the approved examination results is realized by the medical directorship's approval.
- The other automated corrections are realized by competent people according to the nature of the information.

Documents to be included in the patient's clinical file:

- Patient Hospitalization Form
- Anamnesis and physical examination form (Doctor and nurse)
- Doctor Request Form, Narcotic Psychotropic Drug Prescription
- Nursing care follow-up form, falling risk assessment, Pressure Sore risk assessment form, etc.
- Patient Observation Forms (Doctor and Nurse, dietician)

- Nutrition and physiotherapy if available
- Consultation form if available
- All examination results and reports (biochemistry, microbiology, cardiological examinations, angiography, radiological examinations, EKG).
- Operation/ anesthesia and birth notices if available
- If there has been any operation; Preanesthetic Evaluation Form, recovery room, patient follow-up, Anesthesia Follow-Up Form, Secure Surgical Control Form, Operation Report;
- Patient Training Forms;
- Other cares and Treatments (Rehabilitation, particular follow-ups).
- Approval Forms (General Information, anesthesia information, Transfusion and transfusion of blood components).
- Epicrisis Form
- Emergency Forms if available
- Official documents
- Photocopy of identity card
- Commitment and surety document.

Purpose:

The aim with this study is to explain the medical records management procedures of foundation hospital and the realized ameliorations.

Method:

Every year 3500 patient files from medical records management procedures of foundation hospital, archive management, reports of medical records committee meeting and divisions of cardiology, cardiovascular surgery, neurology, transplantation, general surgery and pulmonology have been analyzed in the period between 2004 and 2013.

Findings:

50 patient files of foundation hospital in the period between 2004 and 2013, randomized specialty for each year (cardiology, CVC, orthopedics, neurology, etc.) and defined medical records (doctor anamnesis, doctor observation, operation reports, etc.) have been analyzed in accordance with the Joint Commission International Hospital Accreditation Standards and the Quality Standards in Health of the Ministry of Health.

In this study it was determined that certain records (epacris, care plans and doctor requests) were completely kept but some of them (doctor anamnesis, doctor observation notices, operation notices and evaluation forms) weren't completely kept.

The patient records by years and determined missing records are shown in the following table:

Anamnesis forms

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
	Number of missing forms									
CVS	5(10%)	9(18%)	12(24%)	5(10%)	13(26%)	11(22%)	3(6%)	5(10%)	4(8%)	2(4%)
CARDIOLOGY	2(4%)	6(12%)	7(14%)	3(6%)	10(20%)	8(16%)	2(4%)	3(6%)	3(6%)	0
TRANSPLANTATION	6(12%)	8(16%)	10(20%)	6(12%)	12(24%)	14(28%)	5(10%)	6(12%)	3(6%)	1(2%)
GENERAL SURGERY	7(14%)	17(34)	14(28%)	5(10%)	9(18%)	12(24%)	4(8%)	4(8%)	4(8%)	2(4%)
ORTHOPEDICS	9(18%)	19(38)	20(40%)	7(14%)	10(20%)	9(18%)	7(14%)	9(18%)	13(26)	6(12%)
NEUROLOGY	3(6%)	6(12%)	4(8%)	0	2(4%)	4(8%)	0	1(2%)	0	0
PULMONOLOGY	6(12%)	3(6%)	1(2%)	0	0	2(4%)	0	0	0	0

Anamnesis forms in the division of Cardiovascular were analyzed by years by McNemar's test to see if there was a progression between the missing documents.

Among the missing anamnesis forms for 2006 (24%) and 2007 (10%) a statistically significant difference was found ($p=0,008$)($p<0,05$). Among the missing anamnesis forms for 2009 (22%) and 2010 (6%) a statistically significant difference was found ($p=0,005$)($p<0,05$).

JCI accreditation audit was realized in the period between 2007, 2010 and 2013. During 2007 and 2010, where the audit was realized, it was observed that the deficiencies of anamnesis forms of the division of CVS were considerably reduced.

Among the missing anamnesis forms for 2006 (14%) and 2007 (6%) in the division of cardiology, a statistically significant difference was found ($p=0,003$)($p<0,05$). Among the missing anamnesis forms for 2007 (6%) and 2008 (20%) a statistically significant difference was found ($p=0,016$)($p<0,05$). Among the missing anamnesis forms for 2009 (16%) and 2010 (4%) a statistically significant difference was found ($p=0,031$)($p<0,05$).

It was observed that the deficiencies of anamnesis forms in the division of cardiology was considerably reduced in 2007 where the audit was realized, but the quantity of missing forms again increased in 2008 where the audit wasn't realized and since 2010 where the audit was realized, the quantity of missing forms reduced again.

Among the missing anamnesis forms for 2006 (20%) and 2007 (12%) in the division of transplantation, a statistically significant difference was found ($p=0,003$)($p<0,05$). Among the missing anamnesis forms for 2007 (12%) and 2008 (24%) a statistically significant difference was found ($p=0,031$)($p<0,05$). Among the missing anamnesis forms for 2009 (28%) and 2010 (10%) a statistically significant difference was found ($p=0,004$)($p<0,05$).

It was observed that the deficiencies of anamnesis forms in the division of Transplantation was considerably reduced in 2007 where the audit was realized, but the quantity of missing forms had increased again in 2008 where the audit wasn't realized and that the quantity of missing forms had been reducing again since 2010 where the audit was realized.

Among the missing anamnesis forms for 2006 (28%) and 2007 (10%) in the division of general surgery, a statistically significant difference was found ($p=0,004$)($p<0,05$). Among the missing anamnesis forms for 2009 (24%) and 2010 (8%) a statistically significant difference was

found ($p=0,008$)($p<0,05$). It was observed that the quantity of missing anamnesis forms of the division of general surgery was considerably reduced in 2007 and 2010 where the audit was realized.

Among the missing anamnesis forms for 2006 (40%) and 2007 (14%) in the division of Orthopedics, a statistically significant difference was found ($p=0,000$)($p<0,05$). Among the missing anamnesis forms for 2012 (26%) and 2013 (12%) a statistically significant difference was found ($p=0,016$) ($p<0,05$). It was observed that the quantity of missing anamnesis forms of the division of Orthopedics was considerably reduced in 2007 and 2013 where the audit was realized.

Within the anamnesis forms in the division of neurology and pulmonology, no statistically significant difference was found ($p>0,05$).

Observation forms

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
	Number of missing forms									
CVS	10(20%)	19(38%)	21(42%)	9(18%)	17(34%)	19(38%)	6(12%)	9(18%)	15(30)	9(18%)
CARDIOLOGY	5(10%)	13(26%)	15(30%)	4(8%)	15(30%)	17(34%)	5(10%)	7(14%)	8(16%)	6(12%)
TRANSPLANTATION	17(34%)	22(44%)	18(36%)	10(20%)	14(28%)	18(36%)	7(14%)	10(20)	16(32%)	4(8%)
GENERAL SURGERY	13(26%)	21(42%)	21(42%)	6(12%)	16(32%)	14(28%)	5(10%)	9(18%)	14(28%)	9(18%)
ORTHOPEDECS	14(28%)	23(46%)	23(46%)	9(18%)	21(42%)	19(38%)	9(18%)	15(30)	20(40%)	14(28%)
NEUROLOGY	5(10%)	11(22%)	8(16%)	2(4%)	4(8%)	7(14%)	3(6%)	4(8%)	4(8%)	2(4%)
PULMONO LOGY	11(22%)	8(16%)	4(8%)	1(2%)	3(6%)	5(10%)	2(4%)	1(2%)	2(4%)	3(6%)

Observation forms in the division of CVS were analyzed by years by McNemar’s test to see if there was any progression between the missing documents.

Among the missing observation forms for 2006 (42%) and 2007 (18%) a statistically significant difference was found ($p=0,004$)($p<0,05$). Among the missing observation forms for 2007 (18%) and 2008 (34%) a statistically significant difference was found ($p=0,016$)($p<0,05$). Among the missing observation forms for 2009 (38%) and 2010 (12%) a statistically significant difference was found ($p=0,005$)($p<0,05$). JCI accreditation audit was realized in 2007, 2010 and 2013. It was observed that the deficiencies of observation forms of the division of CVS was reduced in 2007 where the audit was realized, increased in 2008, and in 2010 reduced again.

Among the missing observation forms for 2006 (30%) and 2007 (8%) in the division of Cardiology, a statistically significant difference was found ($p=0,001$) ($p<0,05$). Among the missing observation forms for 2007 (8%) and 2008 (30%) a statistically significant difference was found ($p=0,001$)($p<0,05$). Among the missing observation forms for 2009 (34%) and 2010 (10%) a statistically significant difference was found ($p=0,000$) ($p<0,05$). It was observed that the insufficiencies of observation forms of the division of Cardiology were reduced in 2007 where the audit was realized, that the number of missing forms increased in 2008, that the number of missing forms has been reducing again since 2010 where the audit was realized.

Among the missing observation forms for 2006 (36%) and 2007 (20%) in the division of transplantation, a statistically significant difference was found ($p=0,008$)($p<0,05$). Among the missing observation forms for 2009 (36%) and 2010 (14%) a statistically significant difference was found ($p=0,001$)($p<0,05$). It was observed that the deficiencies of observation forms of the division of Transplantation were reduced in 2007 where the audit was realized, that the number of missing observation forms has been reducing since 2010 where the audit was realized.

Among the missing observation forms for 2006 (42%) and 2007 (12%) in the division of general surgery, a statistically significant difference was found ($p=0,000$)($p<0,05$). Among the missing observation forms for 2007 (12%) and 2008 (32%) a statistically significant difference was found ($p=0,002$)($p<0,05$). Among the missing observation forms for 2009 (28%) and 2010 (10%) a statistically significant difference was found ($p=0,010$) ($p<0,05$). It was observed that the deficiencies of observation forms of the division of general surgery was considerably reduced in 2007 where the audit was realized, but the number of missing forms has increased again in 2008 where the audit wasn’t realized and that the number of missing forms has been reducing again since 2010 where the audit was realized.

Among the missing observation forms for 2006 (46%) and 2007 (18%) in the division of orthopedics, a statistically significant difference was found ($p=0,000$)($p<0,05$). Among the missing observation forms for 2012 (40%) and 2013 (28%) a statistically significant difference was found ($p=0,016$)($p<0,05$). It was observed that the number of missing observation forms of the division of orthopedics was considerably reduced in 2007 and 2013 where the audit was realized.

Within the observation forms in the division of neurology and pulmonology, no statistically significant difference was found ($p>0,05$).

At the division of transplantation for 2006 it was noticed that the quantity of missing forms for operation notes made 8%, and the quantity of missing forms at the division of general surgery and orthopedics made 4%, and no missing form was noticed in operation notes since 2007.

Patient training and evaluation forms

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
	Number of missing forms									
CVS	16(32%)	15(30%)	17(34%)	11(22%)	18(36%)	21(42%)	12(24%)	17(34%)	7(14%)	6(12%)
CARDIOLOGY	11(22%)	13(26%)	14(28%)	6(12%)	13(26%)	15(30%)	6(12%)	14(28%)	5(10%)	5(10%)
TRANSPLANTATION	22(44%)	19(38%)	19(38%)	13(26%)	19(38%)	17(34%)	11(22%)	21(42%)	15(30)	7(14%)
GENERAL SURGERY	18(36%)	16(32%)	15(30%)	11(22%)	21(42%)	19(38%)	9(18%)	16(32%)	9(18%)	7(14%)
ORTHOPEDECS	24(48%)	21(42%)	20(40%)	14(28%)	22(44%)	18(36%)	14(28%)	20(40%)	11(22)	9(18%)
NEUROLOGY	15(30%)	8(16%)	12(24%)	5(10%)	9(18%)	7(14%)	2(4%)	4(8%)	4(8%)	1(2%)
PULMONO LOGY	13(26%)	7(14%)	9(18%)	4(8%)	7(14%)	6(12%)	0	2(4%)	2(4%)	0

Among the patient evaluation forms for 2006 (34%) and 2007 (22%) in the division of CVS, a statistically significant difference was found ($p=0,031$)($p<0,05$). It was observed that the deficiencies of missing patient evaluation forms of the division of CVS reduced in 2007 where the JCI accreditation audit was realized.

Among the patient evaluation forms for 2006 (28%) and 2007 (12%) in the division of cardiology, a statistically significant difference was found ($p=0,008$)($p<0,05$). Among the patient evaluation forms for 2007 (12%) and 2008 (26%) a statistically significant difference was found ($p=0,016$)($p<0,05$). Among the patient evaluation forms for 2009 (30%) and 2010 (12%) a statistically significant difference was found ($p=0,004$)($p<0,05$). It was observed that the insufficiencies of observation forms in the division of cardiology considerably reduced in 2007 where the audit was realized, but the quantity of missing forms has increased again in 2008 where the audit wasn't realized and that the quantity of missing forms has been reducing again since 2010 where the audit was realized.

Among the patient evaluation forms for 2006 (38%) 2007 (26%) in the division of transplantation a statistically significant difference was found ($p=0,031$)($p<0,05$). Among the patient evaluation forms for 2009 (34%) and 2010 (22%) a statistically significant difference was found ($p=0,031$)($p<0,05$). It was observed that the insufficiencies of observation forms of the division of transplantation was reduced in 2007 where the audit was realized and that the quantity of missing forms has been reducing since 2010 where the audit was realized.

Among the patient evaluation forms for 2006 (30%) and 2007 (22%) in the division of general surgery, a statistically significant difference was found ($p=0,002$)($p<0,05$). Among the patient evaluation forms for 2009 (38%) and 2010 (18%) a statistically significant difference was found ($p=0,002$)($p<0,05$). It was observed that the deficiencies of patient evaluation forms of the division of transplantation reduced in 2007 where the audit was realized and that the quantity of missing forms has been reducing since 2010 where the audit was realized.

Among the patient evaluation forms for 2006 (40%) 2007 (28%) in the division of orthopedics, a statistically significant difference was found ($p=0,031$)($p<0,05$). Among the patient evaluation forms for 2012 (22%) and 2013 (18%) a statistically significant difference was found ($p=0,004$)($p<0,05$). It was observed that the deficiencies of patient evaluation forms in the division of orthopedics considerably reduced in 2007 and 2013 where the audit was realized.

Within the observation forms in the division of neurology and pulmonology, no statistically significant difference was found ($p>0,05$).

Doctors' observation notes are among the most incompletely filled records of the examined medical records. It was noticed that they were filled in ratio of 80-82% between 2004 and 2007. It's possible to say that the most important reason of the apparent deficiencies in doctors observations is the necessity to fill the observation notes within 12 and 24 hours. In 2007 where the JCI accreditation audits and Ministry of Health's audit started to be realized, the filling ratio of doctor observations increased. The filling ratio of observation form was reduced in the years where an audit wasn't realized and the filling ratio of observation form increased after 2010 where the audit was realized. It was noticed that the care plans, doctor requests and Epicrisis forms were filled up to 100 % every year including 2014. While the filling ratio made 98% in the operation forms in 2004, 2005 and 2006, it was noticed that it made 100% after 2007. While the filling ratio made 92% on patient training and evaluation forms, in neurology and pulmonology, the forms were filled up to 78% in other branches in the period between 2004 and 2013 and it increased to 90% in 2012 and 2013.

It was noticed that the maximum deficiencies in the medical records are on patient training and evaluation forms of all branches.

In conclusion: the quantity of missing forms from medical records examined by years, anamnesis forms, observation forms and patient evaluation forms, in the branch of CVS, Cardiology, Transplantation, General Surgery, Orthopedics, reduced in 2007 where the JCI audit was realized, it was observed that the quantity of missing forms increased again in 2008-2009, and reduced after 2010 where the audit was realized and in 2013 the filling rate made 98%.

Results:

For improvement medical records a long-term improvement was observed and these methods were used for improving these records:

- In the medical records committee, intensive studies and analyzes were conducted in order to remove the deficiencies of medical records. Any persons keeping incomplete records (doctors, nurses, etc.) were convinced to participate to the committee and to pay more attention to keep medical records. Therefore, a wider participation in the medical records committee was realized and the in-depth examination of realized analyses in the committee allowed to raise the filling rate of medical records.
- For determined deficiencies, special trainings were planned and implemented.
- In the matter of medical records, continuous in-service training programs were constituted.
- Medical records staff were authorized about the unfilled/incompletely filled records in order to examine and check the medical records, thus the medical records could completed and filled.
- The medical records started to be electronically kept.

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