Analysis of Clinical Record-Keeping Education in Turkish Medical Faculties: Evaluation of Curriculum Programs

Article *in* Konuralp Tıp Dergisi · June 2025

DOI: 10.18521/ktd.1562359

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RESEARCH ARTICLE

Emre Emekli[1]
Muhammet Alperen Kilic[1]
Ozlem Coskun[2]

[1] Department of Radiology, Eskişehir Osmangazi University, Faculty of Medicine, Eskişehir, Türkiye.
[2] Department of Medical Education and Informatics, Gazi University, Faculty of Medicine, Ankara, Türkiye

Corresponding Author:
Emre Emekli
mail: emreemekli90@gmail.com

Received: 07.10.2024
Acceptance: 26.05.2025
DOI: 10.18521/ktd.1562359

The abstract titled "Tıp Fakültelerindeki Klinik Kayıt Tutma Derslerinin Analizi: Ders Dağılımları ve Eğitim Süreçleri" has been accepted as an oral presentation at the 14. National Medical Education Congress (UTEK 24), which will take place from October 31 to November 3 at Bursa

Konuralp Medical Journal
e-ISSN1309–3878
konuralptipdergi@duzce.edu.tr
konuralptipdergisi@gmail.com
www.konuralptipdergi.duzce.edu.tr

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ABSTRACT

Objective: Aimed to review the clinical record-keeping (CRK) courses offered in Turkish medical faculties and to determine their distribution according to topics. Additionally, considering the importance of early clinical experience in developing record-keeping skills, it aimed to assess the emphasis on practical and theoretical courses in the preclinical period.

Method: The pre-graduation education programs of medical faculties in Turkey with students in the 2023-2024 academic year were accessed through faculty websites. 122 out of 148 medical faculties were included in the study. All courses related to CRK were recorded in terms of their hours, the class in which they were offered, and whether they were practical or theoretical. Recorded course names were grouped under headings.

Results: Education programs of 86 (70.5%) of faculties were obtained. Of the total 1351 course hours related to CRK, 31.8% (429 hours) were theoretical, 9.6% (129 hours) were practical in the preclinical period; 58.7% (793 hours) were taught theoretically in the clinical period. The majority of theoretical courses (70.8%) were related to taking anamnesis, followed by legal document preparation (8.9%) and prescription writing (7.6%). Practical courses: 7.4% (100 hours) were on taking anamnesis. Courses on writing epicrises and electronic health records were quite limited.

Conclusions: Majority of CRK courses were offered in the clinical period and were theoretical. The limited number of practical courses may restrict students' opportunities to develop this skill. Increasing practical applications, especially in the preclinical period, can help students acquire CRK skills early and become more competent physicians after graduation. Therefore, it is recommended to increase the number and quality of CRK courses.

Keywords: Clinical Record Keeping, Medical Education, Training Program, Preclinical Education, Medical Schools.

Türkiye'deki Tıp Fakültelerinde Klinik Kayıt Tutma Eğitiminin Analizi: Ders Programlarının Değerlendirilmesi

ÖZET

Amaç: Türkiye'deki tıp fakültelerinde verilen klinik kayıt tutma (KK) derslerinin taranması ve derslerin konulara göre dağılımlarının belirlenmesi amaçlanmıştır. Ayrıca, kayıt tutma becerilerinin geliştirilmesinde erken klinik deneyimin önemini göz önünde bulundurarak, klinik öncesi dönemdeki pratik ve teorik derslerin ağırlığının belirlenmesi hedeflenmiştir.

Yöntem: 2023-2024 eğitim-öğretim yılında Türkiye'deki tıp fakültelerinin mezuniyet öncesi eğitim programlarına fakültelerin internet siteleri üzerinden ulaşıldı. 148 tıp fakültesinden 122'si çalışmaya dahil edildi. KK ile ilgili tüm derslerin saati, verildiği sınıf ve pratik veya teorik olup olmadığı kaydedildi. Kaydedilen ders isimleri daha sonra ortak başlıklar altında toplandı.

Bulgular: Çalışmaya dahil edilen 122 fakülteden 86'sının (%70,5) eğitim programlarına ulaşıldı. Toplam 1351 ders saatinin %31,8'i (429 saat) klinik öncesi dönemde teorik, %9,6'sı (129 saat) pratik; %58,7'si (793 saat) ise klinik dönemde teorik olarak veriliyordu. Teorik derslerin büyük çoğunluğu (%70,8) anamnez alma ile ilgiliydi, bunu adli belge hazırlama (%8,9) ve reçete yazma (%7,6) takip etti. Pratik derslerin ise %7,4'ü (100 saat) anamnez alma üzerineydi. Epikriz yazma ve elektronik sağlık kayıtları ile ilgili dersler oldukça sınırlıydı.

Sonuç: KK tutma derslerinin büyük çoğunluğunun klinik dönemde ve teorik olarak verildiği belirlenmiştir. Pratik derslerin sınırlı olması, öğrencilerin bu beceriyi geliştirme fırsatını kısıtlayabilir. Özellikle klinik öncesi dönemde pratik uygulamaların artırılması, öğrencilerin KK tutma becerilerini erken dönemde kazanmalarına ve mezuniyet sonrasında daha yetkin hekim olmalarına katkı sağlayabilir. Bu nedenle, tıp fakültelerinde KK tutma derslerinin sayısının ve niteliğinin artırılması önerilmektedir.

Anahtar Kelimeler: Klinik Kayıt Tutma, Tıp Eğitimi, Eğitim Programı, Klinik Öncesi Eğitim, Tıp Fakülteleri.

INTRODUCTION

Clinical records (CRs) are fundamental tools in healthcare, encompassing patients' symptoms, medical history, laboratory and imaging results, and treatment notes. Whether electronic or paper-based, clinical records are crucial for ensuring continuity of care and enhancing communication among multidisciplinary healthcare teams, including doctors, nurses, and other healthcare professionals (1-3). As the foundation of communication, clinical records also reflect the quality of patient care (2). Incomplete, inappropriate, or illegible records can lead to unnecessary delays, unnecessary procedures for patients, and medical errors (2, 4). In addition to their importance in communication, CRs serve as legal documents and evidence in financial audits of healthcare services, forensic investigations, patient complaints, and compensation lawsuits (1, 3). Due to all these characteristics, CR training is included in medical school curricula, and every graduating physician must understand the importance of CRs and be able to maintain them properly.

There is data in the literature showing that a significant portion of healthcare workers' time is spent on maintaining clinical records (5). Studies have demonstrated that a substantial part of the workload for interns and resident physicians involves writing discharge summaries and preparing other documents related to clinical records (6, 7). In addition, it has been reported that there are deficiencies in the training provided in our country regarding CR maintenance (8). These findings highlight the critical role that CRs play in clinical operations. In today's increasingly digital world, electronic health records (EHRs) have begun to be maintained. This has relatively reduced the workload for physicians and healthcare workers (9). However, the necessity has also emerged to provide pre-graduation training to physicians on the use and operation of EHRs.

In medical education, teaching students the skills related to maintaining CRs prepares them for their professional careers after graduation. This training enables students to acquire the ability to document clinical encounters accurately and effectively, allowing them to provide high-quality care in their medical practice. Additionally, it is evident that training on EHRs is also a necessity in modern medical education.

This study aims to review the clinical record-keeping courses offered in medical schools and to determine the distribution of these courses according to topics. Secondly, considering the importance of early clinical experience in developing record-keeping skills, the study seeks to assess the balance of practical and theoretical courses during the preclinical period.

MATERIAL AND METHODS

This study did not involve human participants, interventions, or identifiable personal data. The data were obtained from publicly available sources (medical faculty websites). Therefore, ethical approval was not required, in accordance with national research guidelines.

The pre-graduation education programs of medical schools in Turkey, with active students during the 2023-2024 academic year, were accessed via the medical schools' websites. According to the Higher Education Institution's website (10), there were a total of 148 medical faculties during this academic year, 98 of which were state universities and 50 were foundation universities. Among these, 36 faculties provided education in English, while 112 offered education in Turkish. Twenty-six of these faculties offered both Turkish and English programs within the same medical school. Therefore, it was assumed that the curricula were the same, with only language differences, and one medical school from each of these universities was included in the study. Consequently, 122 faculties were included in the study, and it was aimed to access the educational programs of all of them.

In the accessible medical school curricula, all courses related to clinical records (such as medical records, electronic medical records, electronic record systems, taking medical history, writing discharge summaries, writing consultation notes, writing forensic reports, etc.) were recorded, including the class in which they were offered and whether they were practical or theoretical in the clinical period. When examining the clinical period curricula, some were excluded from the study due to various limitations, such as the inability to detail practical course hours in the curricula, the difficulty in determining the number of practical hours for students divided into groups, and the designation of certain independent learning hours as activities like taking patient histories, making standardization challenging. The recorded course names were later grouped under common headings (taking medical history, forensic documents, prescriptions, writing discharge summaries, general knowledge of medical records). The evaluation and classification of the courses in the curricula were carried out by a resident physician and a faculty member with a doctorate in medical education.

RESULTS

Out of the total 122 universities, access was gained to the educational programs of 86 faculties (70.49%), including 72 state and 14 foundation universities. The educational programs for the 2024-2025 academic year were accessible for 31 faculties, while the programs for the 2023-2024 academic year were accessible for 55 faculties. Of the faculties with accessible programs, 72 had already graduated students. Out of the 86 medical faculties that were reached, the complete curricula of 61 faculties (70.93%) were obtained. Access was gained to the first-year curricula of one faculty (1.16%), second-year curricula of three faculties

Table 1. Theoretical Course Names and Hour Distribution

Course Names	Course Hours (%)
History Taking - Medical History - Patient History	**957 (70.84%)**
General History Taking	22 (1.63%)
Adult Patient	99 (7.33%)
Internal Medicine	20 (1.48%)
Hematology	18 (1.33%)
Gastroenterology	32 (2.37%)
Nephrology	19 (1.41%)
Rheumatology	12 (0.89%)
Oncology	1 (0.07%)
Pulmonary Medicine	87 (6.44%)
Cardiovascular	98 (7.25%)
Geriatrics	2 (0.15%)
Immunology	1 (0.07%)
Endocrinology	5 (0.37%)
Pediatrics	130 (9.62%)
Otolaryngology (ENT)	18 (1.33%)
Gynecology/Obstetrics	96 (7.11%)
Psychiatry	70 (5.18%)
Child Psychiatry	12 (0.89%)
Musculoskeletal System/Locomotor System	32 (2.37%)
Neurology	40 (2.96%)
Surgery	71 (5.26%)
Dermatology	10 (0.74%)
Infectious Diseases	18 (1.33%)
Emergency Medicine	4 (0.30%)
Urology	26 (1.92%)
Genetics	5 (0.37%)
Sexual History	4 (0.30%)
Ophthalmology	5 (0.37%)
Prescription	**102 (7.55%)**
Prescription Writing	101 (7.48%)
Magistral Prescription	1 (0.07%)
Forensic Documents	**120 (8.88%)**
Death Certificate Preparation	20 (1.48%)
Autopsy Report	5 (0.37%)
Forensic Report Writing	82 (6.07%)
Sexual Assault History/Report	13 (0.96%)
Informed Consent	**28 (2.07%)**
Reporting Legally Mandated Diseases	**2 (0.15%)**
Preparing Athlete's License/Health Report	**1 (0.07%)**
Preparing Patient File	**1 (0.07%)**
Microbiology Test Request	**1 (0.07%)**
Consultation in Emergency Department	**1 (0.07%)**
Writing/Preparing Discharge Summary	**4 (0.30%)**
Discharge Summary Note	2 (0.15%)
Preparing Discharge Summary and Admission Note in Pediatrics	2 (0.15%)
General Medical Record	**5 (0.37%)**
Medical Records	2 (0.15%)
Electronic Health Record	1 (0.07%)
Hospital Information Systems and Applications	1 (0.07%)
Documentation Processes, Recording, and Reporting in Medical Practice	1 (0.07%)

(3.49%), and up to the third, fourth, and fifth-year curricula of seven faculties each (8.14%).

In total, 31.75% (429 hours) of the 1351 course hours related to record-keeping were delivered as theoretical courses during the preclinical period, while 9.55% (129 hours) were practical. During the clinical period, 58.7% (793 hours) of the courses were theoretical. When the theoretical courses were classified by topic, 70.84% (957 hours) were focused on taking medical history, 8.88% (120 hours) on preparing forensic documents, 7.55% (102 hours) on writing prescriptions, 0.37% (5 hours) on general medical record knowledge, and 0.3% (4 hours) on writing discharge summaries (Table 1). Regarding the practical courses, 7.4% (100 hours) were dedicated to taking medical history, 0.44% (6 hours) to obtaining consent, and 0.3% (4 hours) to preparing forensic documents (Table 2).

Table 2. Practical Courses and Hour Distribution

Course Names	**Course Hours (%)**
Prescription Writing	**14 (1.04%)**
History Taking - Medical History - Patient History	**100 (7.40%)**
General History Taking	45 (3.33%)
Musculoskeletal/Locomotor System	4 (0.30%)
Cardiovascular	6 (0.44%)
Gynecology/Obstetrics	3 (0.22%)
Neurological	7 (0.52%)
Simulated History Taking	13 (0.96%)
Endocrinology	1 (0.07%)
Gastroenterology	4 (0.30%)
Nephrology	3 (0.22%)
Psychiatry	4 (0.30%)
Pulmonary/Respiratory System	6 (0.44%)
Surgery	4 (0.30%)
Preparing Forensic Documents	**4 (0.30%)**
Preparing Forensic Reports	3 (0.22%)
Preparing Death Certificates	1 (0.07%)
Informed Consent	**6 (0.44%)**
Laboratory Request Forms	**1 (0.07%)**
Discharge Summary	**2 (0.15%)**
Refusal of Treatment Form	**1 (0.07%)**

DISCUSSION

In this study, the majority of the CR courses (58.7%) were found to be concentrated in the clinical period. Given that practical courses during the clinical period were not included in the study, this represents a significant proportion. A review article in the literature also evaluated studies on educational interventions related to CR training. It was noted that most of these studies were planned as single-group pretest-posttest designs during the clinical period (11). It is well known that early exposure to clinical skills is important for acquiring and maintaining the necessary skills (12). Therefore, increasing the number of course hours in the preclinical period is essential for developing clinical record-keeping skills.

When examining the topics of CR courses in this study, it was found that the majority of theoretical courses focused on taking medical history, followed by writing prescriptions and preparing forensic documents. Similarly, the highest number of practical course hours was dedicated to taking medical history. However, there were significantly fewer course hours devoted to topics such as writing discharge summaries and requesting consultations. Additionally, general CR knowledge and EHR-related courses were limited to just five hours in total. In a study conducted in Turkey, students reported that they generally learned about CR and how to request consultations from resident physicians (8). The same study indicated that faculty members attributed the incomplete and poor-quality CR to a lack of proper education (8). Considering that CR education is lacking in the curricula, it is clear that the course content, particularly concerning topics other than taking medical history, needs to be revisited.

Regarding the departments offering these courses, most were taught by internal medicine departments, with pediatrics and internal medicine being the most prominent. Surgical departments, on the other hand, lagged behind in this area. Given that medicolegal issues are more common in surgical departments, maintaining high-quality CR is even more crucial in these fields. Studies in surgical departments have also highlighted the inadequacy of CR-related documentation (13). Therefore, it is essential to consider this issue when planning course curricula.

Due to educational deficiencies, it has been observed that medical students often disregard the curriculum and turn to alternative sources (14). Videos and online educational materials accessible through the internet are frequently used for this purpose. However, attention must be paid to the quality and comprehensiveness of these resources. A study by Emekli and Kıyak (2024) evaluated the comprehensiveness and educational quality of videos available on YouTube for clinical record-keeping training. The results of the study indicated that a significant portion of the videos failed to cover the essential components of clinical record-

keeping and that their educational quality was below expected standards. It was also noted that these deficiencies persisted even in videos uploaded by universities and professional organizations (15). Therefore, it has become imperative for medical educators to encourage the use of reliable learning resources.

For all these reasons, the only viable solution to improving the quality of CR is to enhance the formal curriculum with better teaching methods, strategies, and increased practical training. Similar justifications have led to numerous studies in the literature. Many of these studies have reported positive outcomes following educational interventions (16-19). These studies have shown improvements in various parameters, such as the quality and accuracy of clinical records and the timeliness of record completion, each assessed using different criteria. However, in a few studies, it was noted that the implemented educational programs or interventions did not have any positive effects (20, 21).

This study has some limitations. Firstly, the educational programs of all medical schools in Turkey could not be accessed; only the programs of 86 out of 122 faculties included in the study were available. This limitation may prevent the data obtained from representing all medical faculties. Additionally, due to the lack of detailed and standardized documentation of practical course hours during the clinical period, these courses were not included in the study. This restricted the analysis of practical training, which is crucial for developing clinical record-keeping skills. Lastly, the study only examined course names and hours listed in the curricula and did not evaluate the effectiveness of the course content or the applied teaching methods. Therefore, the results are limited to providing a quantitative analysis of clinical record-keeping education in medical faculties.

This study analyzed CR courses by reaching a significant portion of medical schools in Turkey. It was found that most CR-related courses were offered during the clinical period. However, there were notable differences between faculties, particularly with the low proportion of practical courses. CR skills are critically important for preventing errors in medical practice, ensuring patient safety, and facilitating accurate communication after graduation. Yet, the study found that these courses were less prevalent in the preclinical period and were primarily theoretical. The limited availability of practical courses may restrict students' opportunities to develop these essential skills. In the clinical period, the lack of detail and standardization in practical course hours further complicates the measurement of effectiveness. In conclusion, there is a need to increase the number and quality of CR courses in medical schools. Expanding practical training in the preclinical period could help students acquire these skills earlier, contributing to their competence as physicians after graduation.

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