TMTD Türk Multidisipliner Tıp Dergisi
TURKISH JOURNAL OF MULTIDISCIPLINARY MEDICINE

OpusVia Publisher

Article

Approaches of Prehospital Emergency Medical Personnel to Forensic Cases: Occupational Safety, Decision-Making, and Forensic Evidence Training Needs

Fatma Ayşin Kurak[1],* and Hayriye Deniz Şelimen[2]

[1] Department of Nursing, Cyprus Science University, Kyrenia, TRNC; fatmakurak@csu.edu.tr

[2] Department of Nursing, Final University, Kyrenia, TRNC; den.selimen@gmail.com

Corresponding author: Fatma Ayşin Kurak | Tel.: +90 536 652 3736

Received: 05.10.2026 ◆ Accepted: 25.10.2026 ◆ Published: 15.11.2026

Cite this article as: Kurak FA, Şelimen HD. Approaches of prehospital emergency medical personnel to forensic cases: occupational safety, decision-making, and forensic evidence training needs. Turk J Multidiscip Med. 2026;1(1):17-22.

Abstract

Background: Prehospital emergency personnel must provide time-critical care while recognizing potential forensic implications, protecting evidence when feasible, and maintaining scene safety. Objective: To describe forensic-case practices, safety concerns, and training needs among Istanbul emergency medical services personnel in 2007.

Methods: This descriptive cross-sectional survey involved 400 personnel from the Istanbul 112 emergency service: 50 physicians, 50 nurses, 50 paramedics, 200 emergency medical technicians, and 50 drivers. Data were collected between 14 August and 14 September 2007 using a 25-item questionnaire and analyzed descriptively.

Results: Physicians were identified as the primary decision-makers regarding forensic classification by 231 respondents (57.75%), whereas 94 (23.50%) identified the whole team. Concern about personal safety was reported by 211 (52.75%); 336 (84.00%) had not received evidence-preservation training. A total of 347 (86.75%) reported no difficulty contacting the command-and-control center. In a reported subgroup of 87 respondents, 45 reported verbal threats and 22 physical violence; the percentages printed in the thesis do not consistently match this denominator.

Conclusion: This historical survey identifies substantial perceived safety risks and gaps in forensic evidence training despite favorable reported command-center accessibility. Contemporary prevalence cannot be inferred from the 2007 data.

Keywords: emergency medical services; forensic nursing; forensic evidence; prehospital care; workplace violence; occupational safety

Introduction

Prehospital emergency clinicians may be the first health professionals to enter the scene of a road traffic collision, assault, suspected abuse, poisoning, or firearm injury. Their clinical responsibilities intersect with forensic documentation, recognition of potentially relevant physical evidence, communication with authorities, and the protection of patient dignity. The immediate priority remains lifesaving assessment and treatment; forensic preservation must not delay necessary care [1–3].

Evidence may be lost inadvertently through clothing removal, unnecessary handling of objects, contamination, or incomplete records. Research in Türkiye has described deficiencies in forensic case recognition and evidence handling among prehospital workers [2–4]. More recent studies have likewise documented variable knowledge of evidence preservation, even where recognition and documentation are comparatively stronger [5,6].

The 2007 Istanbul thesis provides an early multidisciplinary snapshot that includes physicians, nurses, paramedics, emergency medical technicians, and ambulance drivers. This article re-examines its principal descriptive findings as historical evidence and interprets them in light of subsequent research. The objective was to describe respondents' approaches to forensic cases, decision-making patterns, perceived threats to safety, command-center coordination, and educational preparation.

Materials and Methods

Study design and setting

This descriptive, cross-sectional survey was conducted at Istanbul 112 emergency medical service stations from 14 August to 14 September 2007. The thesis identified an eligible workforce of 810 and reported participation by 400 personnel who had worked within the system for at least two years and consented to participate. The sampling procedure does not establish population representativeness.

Participants

The sample comprised 50 physicians (12.5%), 50 nurses (12.5%), 50 paramedics (12.5%), 200 emergency medical technicians (50.0%), and 50 drivers (12.5%). Of the 400 respondents, 256 (64.0%) were female and 144 (36.0%) male. These occupational strata were predetermined in the reported sample and should not be interpreted as the workforce distribution.

Data collection and variables

A researcher-administered 25-item questionnaire containing closed and open-ended questions assessed demographic and occupational characteristics, identification of forensic cases, perceived decision-making authority, difficulties at the scene, occupational safety, exposure to aggression, training in evidence preservation, and communication with the command center. Data collection took place in station-based groups. Questionnaire validation and reliability statistics were not established in the accessible thesis.

Statistical analysis

The thesis states that data were entered into Excel and analyzed using SPSS. This manuscript reproduces reported counts and proportions only; individual-level data were unavailable for reanalysis. No new significance tests, regression models, or confidence intervals were calculated. Where original percentages conflict with reported counts, the discrepancy is explicitly identified rather than silently reconciled.

The thesis describes institutional permission and approval of the thesis proposal. An independently verifiable research ethics committee decision number was not available in the source; no approval number is asserted here. Before submission, original permission documentation and the author's consent to thesis-derived publication should be verified.

Results

Participant characteristics. Among the 400 respondents, the age distribution extracted from the thesis was 180 (45.0%) aged 19–24 years, 100 (25.0%) aged 25–34 years, 96 (24.0%) aged 35–44 years, and 24 (6.0%) aged 45–55 years. The educational-category counts in the thesis total 398 rather than 400; accordingly, these categories are not presented as a complete distribution.

Characteristic	n	% of 400
Physicians	50	12.5
Nurses	50	12.5
Paramedics	50	12.5
Emergency medical technicians	200	50.0
Drivers	50	12.5
Female	256	64.0
Male	144	36.0

Forensic classification and decision-making. When asked who determined whether an event was a forensic case, 231 respondents (57.75%) selected the physician, 94 (23.50%) the team, 63 (15.75%) the police, and 12 (3.00%) the prosecutor. These figures represent staff perceptions of decision-making, not a legal determination of professional responsibilities.

Scene-related conflict and occupational safety. Personal safety concerns during forensic calls were reported by 211/400 (52.75%). The thesis additionally highlights concerns among 39/50 nurses (78.0%). Problems with patients' relatives were reported by 45/50 physicians (90.0%) and 50/50 drivers (100.0%) in the relevant occupational comparisons. These are questionnaire reports and do not establish incident rates for all EMS calls.

Threats and violence. The thesis summary identifies a subgroup of 87 for questions on attacks by relatives. It reports 45 verbal threats and 22 episodes of physical violence, while the corresponding published percentages are internally inconsistent with the stated denominator. The numerators are retained without presenting an unsupported overall prevalence estimate.

Training and operational communication. Of 400 respondents, 336 (84.0%) reported no education in evidence preservation. Conversely, 347 (86.75%) reported no difficulty reaching the command-and-control center during forensic cases. The thesis also describes limited instruction on legal reporting duties. These indicators measure reported experience and training exposure, not observed technical competence. Additionally, 319/400 (79.75%) respondents stated that their knowledge of legal authority and responsibilities in forensic cases was insufficient (thesis, Figure 6.13).

Table 2. Reported responsibility for identifying a forensic case (N = 400)

Respondent-selected decision-maker	n	%
Physician	231	57.75
Ambulance team	94	23.50
Police	63	15.75
Prosecutor	12	3.00

Source: Thesis, Figure 6.7 (overall distribution), p. 45. Percentages are based on all 400 respondents.

Table 3. Reported scene-related conflicts by occupational group

Source of conflict	Physicians (n=50)	Nurses (n=50)	Paramedics (n=50)	EMTs (n=200)	Drivers (n=50)
Patients	22 (44%)	36 (72%)	29 (58%)	115 (57.5%)	0 (0%)
Patient relatives	45 (90%)	24 (48%)	15 (30%)	115 (57.5%)	50 (100%)
Police	15 (30%)	21 (42%)	15 (30%)	74 (37%)	25 (50%)
Other ambulance personnel	15 (30%)	24 (48%)	16 (32%)	74 (37%)	10 (20%)
Bystanders	45 (90%)	20 (40%)	30 (60%)	120 (60%)	40 (80%)

Source: Thesis, Table 6.2, p. 46. Multiple responses appear possible; categories are not mutually exclusive.

Table 4. Key reported forensic preparedness and safety indicators

Indicator	n / N	%
No training in forensic evidence preservation	336 / 400	84.00
Perceived insufficient knowledge of legal responsibilities	319 / 400	79.75
Concern about personal safety in forensic cases	211 / 400	52.75
No difficulty contacting command and control center	347 / 400	86.75

Source: Thesis summary and Figure 6.13 (p. 58). These indicators describe separate survey questions, not a composite scale.

Discussion

The most consequential finding is the absence of evidence-preservation training among 84% of surveyed personnel. This is not simply a curricular concern: prehospital interventions may alter clothing, wounds, trace materials, and the location of objects before investigators arrive. In a later Turkish survey, Asci and colleagues reported that only 15.6% of 141 prehospital personnel had received forensic-case training, and approximately one quarter lacked sufficient knowledge of evidence storage and protection [2]. Caliskan and colleagues similarly identified difficulties with recognizing and approaching forensic cases in an independent Turkish sample [3]. The convergence across these studies supports a persistent educational challenge, although their settings, questions, and periods differ and their percentages should not be pooled.

A more recent Jordanian survey of 441 emergency medical team professionals found moderate knowledge concerning evidence recognition and collection but comparatively low knowledge of preservation [5]. This distinction is important: awareness that a case may be forensic does not establish proficiency in preserving potentially probative materials. Likewise, a Brazilian prehospital nursing study reported an association between forensic knowledge and performance of evidence-related procedures, especially documentation [7]. These external studies reinforce the practical relevance of the Istanbul findings but cannot demonstrate that training caused better outcomes in the historical sample.

A second central issue is occupational safety. More than half of the Istanbul participants reported concerns about their safety, and the thesis described substantial conflict involving patients' relatives. Such responses indicate a perceived exposure to volatile scenes, where emergency personnel must rapidly assess threats while caring for injured people. Importantly, the reported 87-person violence subgroup cannot be used to estimate the prevalence of violence in the entire sample without a clear subgroup definition. Future studies should distinguish verbal abuse, threats, physical assault, and scene hazards; specify the exposure period; and report profession-specific denominators.

The prominence of physicians in reported forensic classification decisions (57.75%) may reflect the operational hierarchy and local practice of the period. However, identifying a potential forensic event, documenting clinical observations, reporting under applicable law, and collecting or transferring physical evidence are different functions. The study measured respondents' views, not legal competence or actual compliance. A Turkish study of emergency healthcare teams emphasized that staff may affect crime-scene evidence inadvertently and may lack adequate knowledge of scene protection and chain-of-custody procedures [4]. Standard protocols should therefore distinguish responsibilities by professional role and avoid placing investigative tasks ahead of urgent patient care.

The favorable command-center finding (86.75% reporting no communication difficulty) is encouraging but narrow. Successful contact does not by itself establish timely police support, adequate scene security, accurate records, or lawful evidence transfer. A contemporary framework would examine the entire sequence from dispatch risk assessment and arrival through medical intervention, handover, and documentation. Guidance concerning sexual-assault survivors also emphasizes patient-centered consent, immediate clinical priorities, and careful evidence preservation within applicable legal rules [8].

Recent findings suggest that the historical concerns remain relevant. A 2024 Turkish cross-sectional study directly examined emergency health personnel's approaches to forensic scenes [6], while a 2026 emergency-department study reported that 56.3% of 64 healthcare professionals had received no formal forensic-case management training [9]. Neither is directly interchangeable with the 2007 Istanbul prehospital sample: the newer studies differ in recruitment, care setting, and outcome definitions. They are useful for identifying recurring training priorities rather than proving a temporal trend.

The implications for practice are specific. Initial and refresher training should address scene safety, recognition of forensic indicators, objective injury documentation, minimizing unnecessary manipulation of potential evidence, contamination prevention, role-appropriate packaging and handover, and chain-of-custody documentation. Scenario-based interprofessional exercises may clarify the respective roles of dispatchers, ambulance crews, emergency departments, and law enforcement. Training effectiveness should be assessed through observed performance and audit indicators, rather than attendance alone [2,4,5,7].

Limitations. The study was conducted in one city in 2007, relied on self-reports, and used a sample with fixed occupational group sizes. Questionnaire validity and reliability were not demonstrated, and individual records were unavailable for verification or adjusted analysis. Some tabulated percentages and subgroup denominators conflict within the thesis. The findings are therefore descriptive and historically situated; they must not be represented as current estimates of Turkish EMS practice. A further limitation of this article is that comparisons with subsequent literature are interpretive and not a systematic review.

Conclusion

In this 2007 survey of 400 Istanbul prehospital emergency personnel, lack of training in forensic evidence preservation and concern about personal safety were the principal findings. Most respondents reported accessible command-center communication, yet that did not eliminate concerns about legal and forensic preparedness. Role-specific training, clear scene-safety procedures, structured documentation, and coordinated evidence handover are reasonable priorities for service improvement. Prospective multicenter research with validated instruments and observed practice measures is needed to assess current conditions.

Patents

Not applicable. No patents have resulted from the research reported in this manuscript.

Supplementary Materials

No supplementary materials are associated with this article.

Ethics

The original research was conducted in Istanbul, Türkiye, between 14 August and 14 September 2007. The source thesis reports that institutional permission was obtained and the thesis proposal was approved. However, an independently verifiable ethics committee approval number and date were not available in the source documentation.

Author Contributions

Fatma Ayşin Kurak and Hayriye Deniz Şelimen contributed to the preparation of this manuscript. The specific contributions of each author to conceptualization, methodology, investigation, formal analysis, data curation, supervision, and manuscript preparation require confirmation before a definitive CRediT authorship statement can be provided. Both authors should review and approve the final version of the manuscript.

Funding

Funding information was not specified in the available research documentation.

Institutional Review Board Statement

The original study involved 400 prehospital emergency medical personnel working within the Istanbul 112 Emergency Medical Services system in 2007. The source thesis reports institutional permission and approval of the thesis proposal. However, the name of an approving research ethics committee, the official approval number,

and the approval date could not be verified from the available documentation. These details should be confirmed against the original institutional records before publication.

Informed Consent Statement

The original study reports that the 400 participating emergency medical personnel consented to participate in the research. Participation was based on the study's eligibility criteria and consent procedures as described in the source thesis.

Data Availability Statement

The findings presented in this manuscript were derived from a descriptive cross-sectional survey conducted among 400 prehospital emergency medical personnel in Istanbul, Türkiye, in 2007. The manuscript was prepared using aggregated findings reported in the original thesis. Individual-level participant data were not available for reanalysis. The descriptive results reproduced in this article are presented in the manuscript tables and accompanying text. Access to the original participant-level dataset has not been established.

Acknowledgments

The authors acknowledge the emergency medical personnel who participated in the original study and contributed information regarding forensic case management, occupational safety, and professional training needs in prehospital emergency care.

Conflicts of Interest

Conflict-of-interest declarations from the authors were not available in the submitted manuscript and require confirmation before publication.

Abbreviations

The following abbreviations are used in this manuscript:

Abbreviation	Full Term
EMS	Emergency Medical Services
EMT	Emergency Medical Technician
SPSS	Statistical Package for the Social Sciences
112 EMS	112 Emergency Medical Services
N	Total sample size
n	Number of participants
%	Percentage

References

1. Lynch VA, Duval JB. Forensic Nursing Science. 2nd ed. St. Louis: Mosby Elsevier; 2011.

2. Asci O, Hazar G, Sercan I. The approach of prehospital health care personnel working at emergency stations towards forensic cases. Turk J Emerg Med. 2015;15(3):131-135. doi:10.1016/j.tjem.2015.11.007.

3. Caliskan N, Karadag M, Yildirim N, Bingol U. Determination of the knowledge level of health care staff working in pre-hospital emergency health services on the recognition of a forensic case. Aust J Forensic Sci. 2014;46(1):64-72. doi:10.1080/00450618.2013.788682.

4. Emergency healthcare teams' approach to crime scene and evidences in forensic cases: a descriptive study in Turkey. J Forensic Nurs? 2014. doi:10.1080/19409044.2013.868063.

5. Knowledge about crime scenes and evidence management among emergency medical team professionals. BMC Emerg Med. 2025. doi:10.1186/s12873-025-01230-y.

6. Gülekçi Y, Ay EN, Şener H, Yüksek FE. Evaluation of emergency health services personnel's approach to forensic cases: cross-sectional study. Turkiye Klinikleri J Foren Sci Leg Med. 2024;21(3):139-149. doi:10.5336/forensic.2024-103780.

7. Preservation of forensic evidence by nurses in a prehospital emergency care service in Brazil. J Forensic Nurs. 2020. PMID:31895321.

8. EMS care of survivors of sexual assault: a position statement and resource document of NAEMSP. Prehosp Emerg Care. 2025. doi:10.1080/10903127.2025.2579074.

9. Çeçen Çamlı D, Soylu M. Forensic case applications to adult emergency departments between 2019–2024 and healthcare professionals' forensic practices. Bull Leg Med. 2026;31(1):9-17. doi:10.17986/blm.1771.

10. Cingil A. Hastane öncesi acil sağlık çalışanlarının karşılaştığı adli olgulara yaklaşımları [master's thesis]. Istanbul: Marmara University; 2007.

11. Hancı İH, Tuğ A, Öğünç G, Sertçe S, Durgun S. Olay yeri incelemesi, delillerin toplanması ve laboratuvara gönderilmesi. In: Hancı İH, editor. Adli Tıp ve Adli Bilimler. Ankara: Seçkin Yayıncılık; 2002.

12. Taviloğlu K. Travmada genel yaklaşım. Cerrahi Dergisi. 2004;9:173-180.