

REVIEW ARTICLE

Ethical Considerations in Emergency Medical Services (EMS): Understanding the Significance of Confidentiality - A Scoping Review.

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Abstract

Emergency Medical Services (EMS) play a critical role in the healthcare system, providing immediate care to individuals in life-threatening situations. The ethical principle of confidentiality is a cornerstone of healthcare that extends to prehospital care settings. This scoping review examines EMS confidentiality, explores its ethical implications, and its application considerations. PRISMA-ScR criteria were used for this scoping review. PubMed, Scopus, and Google Scholar were searched for literature. The search terms were “EMS,” “emergency medical services,” “confidentiality,” “ethics,” and “ethical considerations.” Empirical studies, review papers, EMS ethics, and rules of confidentiality were included in this review. Studies that did not address EMS ethics or confidentiality were excluded. The findings reveal that EMS confidentiality is influenced by ethical, legal, and practical factors. Legal and ethical frameworks, patient privacy and dignity, and practical challenges in EMS settings illuminated the need for confidentiality in EMS. This scoping review emphasises the need for confidentiality in EMS and the complexity of ethical issues. Understanding the importance of confidentiality in prehospital treatment can help design rules of ethics, policies, and training programmes for EMS providers. Further research is needed to identify challenges and develop techniques for maintaining confidentiality in various EMS scenarios to provide the best patient care while protecting their privacy.

Keywords: *confidentiality; emergency medical services; ethics.*

Introduction

Emergency Medical Services (EMS) play a crucial role in the overall healthcare system, providing timely and vital care to patients facing life-threatening situations. In the field of EMS, practitioners sometimes encounter challenging ethical dilemmas, and one specific and important ethical aspect concerns the principle of secrecy. Confidentiality is a crucial aspect of medical ethics that becomes even more important in the EMS (Emergency Medical Services) scenario, as quick judgements are necessary to save patients' lives. This scoping review thoroughly examines the current literature, focusing on the complex relationship between ethical issues and the principle of confidentiality in emergency medical care.

Emergency Medical Services (EMS) play a crucial role in healthcare, serving as the first point of care for people experiencing acute medical emergencies. The complex nature of these emergency procedures gives rise to a wide range of ethical concerns for EMS practitioners. Confidentiality, which is an integral aspect of medical ethics, safeguards patients' entitlement to privacy and autonomy, thereby cultivating a climate of trust between healthcare practitioners and beneficiaries. Within the realm of emergency care, confidentiality becomes a particularly complex matter due to the urgency of interventions, the possible absence of previous medical records, and the requirement for prompt decision-making. This review critically examines the complex ethical challenges involved in upholding confidentiality during high-pressure EMS situations.

Amidst these complicated concerns, existing literature has gathered diverse perspectives and interpretations, illustrating the complex nature of confidentiality in EMS. Trust plays a crucial role in fostering effective interaction between patients and healthcare providers. Confidentiality is particularly important as it promotes open communication, leading to improved accuracy in diagnosis and effectiveness in treatment [1,2]. Conversely, other studies demonstrate the

tremendous difficulty of maintaining privacy within this domain, as prehospital treatment sometimes involves chaotic situations that necessitate collaboration among specialists [3,4]. This scoping review explores the literature on ethical aspects concerning confidentiality in the EMS field. The review seeks to systematically analyse the current body of information by adopting a scoping technique. Its objective is to provide a thorough overview, identify recurring themes, pinpoint areas where knowledge is lacking, and suggest possible paths for future research. Moreover, its objective is to extract valuable knowledge about the strategies and protocols that can effectively balance the ethical requirement of confidentiality with the demands of emergency medical interventions.

In summary, this scoping review emphasises the crucial requirement of upholding confidentiality within the realm of emergency medical services. EMS practitioners encounter a complex ethical dilemma as they navigate the balance between safeguarding confidential information and the imperative nature of life-saving interventions. This dynamic emphasizes the complex framework of their professional setting. By participating in this academic investigation, individuals will develop an in-depth awareness of the ethical considerations associated with maintaining confidentiality in emergency medical care. These efforts will enhance decision-making, enhance patient care, and strengthen the ethical foundation of this vital component of healthcare.

Methodology

The study employed a scoping review methodology, utilising the PRISMA-ScR framework, a set of guidelines specifically tailored for reporting systematic reviews and meta-analyses in the context of scoping reviews. The evaluation strategy adhered to a systematic and explicit methodology with the aim of comprehensively reviewing the existing literature on the correlation between ethical issues and

confidentiality in emergency medical services (EMS).

An extensive search was conducted across recognized electronic databases, including PubMed, Scopus, and Google Scholar. To ensure inclusivity, a carefully selected set of keywords was employed, encompassing terms like "EMS," "emergency medical services," "confidentiality," "ethics," and "ethical considerations." Additionally, specific filters were applied to refine the results by publication date (2019-2023) and language.

Inclusion and Exclusion Criteria:

The review incorporated empirical research, review articles, and proposals exploring the intertwined nature of ethical dilemmas and patient privacy within EMS. Clear criteria were established for inclusion and exclusion, ensuring the selection of relevant studies. Table 1 summarises key concepts, keywords, databases, inclusion criteria, and exclusion criteria relevant to the selection of academic papers addressing ethical concerns in Emergency Medical Services (EMS) and confidentiality between 2018 and 2023. By summarizing key concepts, keywords, databases, inclusion criteria, and exclusion criteria in Table 1, this review lays the groundwork for a comprehensive analysis of the current literature on ethical concerns and patient confidentiality in EMS.

Data extraction:

The data extraction process commenced with the creation of a carefully developed standardised data extraction form tailored to align with the primary goals and topic domains of the scoping review. Utilising the scoping review methodology, this approach to extracting structured data allowed for a systematic and comprehensive examination of relevant literature, thereby improving the complete integration of knowledge on the topic at hand. The data extraction technique entailed a comprehensive analysis of the following critical elements:

(i) *Creation of a Data Extraction Form:* Develop an organised data extraction form that aligns with the research objectives of the scoping review. The form should gather essential data from each selected study, including study characteristics, methodologies, ethical concerns, findings, and recommendations related to confidentiality.

(ii) *Study Selection:* This scoping review adopted a systematic approach to identify and extract relevant research exploring ethical concerns surrounding patient confidentiality in Emergency Medical Care (EMC). A comprehensive search strategy was employed, encompassing diverse sources such as empirical studies, systematic reviews, meta-analyses, and authoritative recommendations from professional organizations and ethical guidelines. The search utilized various keywords including "EMS," "emergency medical services," "ethics," "ethical considerations in EMS," and "confidentiality in EMS." Boolean operators "AND" and "OR" were strategically combined to refine the search and ensure capture of relevant literature. This initial search yielded 334 articles. Subsequent application of pre-defined inclusion and exclusion criteria (detailed in Table 1) further narrowed the selection to 16 articles deemed pertinent to the review's focus. The selection process and search strategy are visually represented in Table 2 and Figure 1.

(iii) *Data Extraction Process:* To ensure the robustness and credibility of this scoping review, data extraction followed a rigorous and independent approach. The authors utilized a pre-defined data extraction form designed to capture essential information from each selected study. This form encompassed key

elements such as study title, authors, publication year, study design, specific ethical themes explored, conclusions regarding patient confidentiality, and any recommendations presented. Data were extracted independently by each author to minimize potential bias and discrepancies. Any discrepancies identified during independent extraction were resolved through discussion and consensus, ensuring consistency and accuracy in the extracted data. Extracted data are comprehensively presented in Table 3, appended to this manuscript.

Data analysis:

This scoping review adheres to the PRISMA-ScR framework and employs a systematic approach to analyze the extracted data. The analysis aimed to identify and synthesize recurring themes and patterns related to ethical concerns and confidentiality in EMS. This multi-stage process ensured rigorous and comprehensive thematic analysis.

(i) *Immersion:* The authors immersed themselves in the extracted data, achieving a thorough understanding of the diverse ethical challenges and confidentiality considerations within EMS. This initial step facilitated deeper analysis and theme identification.

(ii) *Thematic Coding:* Drawing upon existing literature, a pre-defined coding framework was developed encompassing key themes like confidentiality, ethical obligations, legal and ethical frameworks, patient autonomy, and informed consent. Each data segment was meticulously scrutinized and assigned relevant codes, enabling systematic pattern recognition and theme development.

(iii) *Theme Identification:* Guided by inductive thematic analysis, the coded data underwent rigorous examination to identify salient themes and subthemes. This iterative process revealed prominent narratives surrounding ethical dilemmas and confidentiality practices within the EMS context.

(iv) *Synthesis and Reporting:* A comprehensive narrative synthesis was constructed, presenting the findings, implications, and scope of each identified theme. Key points were further reinforced through direct quotations or paraphrased excerpts from selected studies, offering a nuanced understanding of the research landscape.

This scoping review, grounded in PRISMA-ScR principles, offers valuable insights into the intricate interplay between ethical considerations and confidentiality in EMS. By illuminating key themes and areas for further investigation, this research contributes significantly to a more comprehensive understanding of the ethical landscape within this critical healthcare field.

Results

The review identified three key themes that shed light on the significance of confidentiality in EMS such as supportive legal and ethical frameworks, patient privacy and dignity and practical challenges in EMS settings.

Supportive legal and ethical frameworks

Emergency Medical Services (EMS) operate within intricate legal and ethical frameworks across many healthcare systems and cultural environments. These frameworks, influenced by specific circumstances and regulations, are crucial for maintaining ethical patient care. The World Health Organisation (WHO) and the International Federation of Emergency Medicine (IFEM) stress the importance of patient confidentiality and ethical behaviour in Emergency Medical Services (EMS). These recommendations are a global reference for countries [5]. The ethical guidelines of the General Medical Council (GMC) and the Data Protection Act are applicable in the UK. These frameworks emphasise patient confidentiality and the ethical handling of medical information by EMS professionals. EMS patient data protection is established by ethical principles and statutory requirements like the Health Insurance Portability

and Accountability Act (HIPAA) in the US. Adherence to these frameworks is necessary to prevent legal complications. An ethical framework has been developed that includes values such as fairness, justice, equality, benefit maximisation, solidarity, sustainability, good governance, human rights, financial risk protection, efficiency, and cost-effectiveness [5]. The Malaysian Medical Council (MMC) and the Ministry of Health (MOH) have established ethical principles for Emergency Medical Services (EMS) in Malaysia. The Personal Data Protection Act (PDPA) provides legislative frameworks to protect patient data. The regulations jointly influence the ethical environment for EMS practitioners in Malaysia. In the fast-paced and unpredictable realm of emergency medical services (EMS), the concept of informed consent might present a challenging dilemma. When patients are incompetent or in critical conditions, it may be impossible to get their explicit consent for treatment. EMS workers in Malaysia face complex ethical and legal dilemmas that require a detailed comprehension of frameworks and rules to handle these difficult situations. Furthermore, it is necessary to create a context-specific ethics support strategy customised for prehospital environments. The study focused on action research with prehospital emergency staff in Denmark [7].

Legal and ethical frameworks influence the implementation of emergency medical services (EMS) globally. The article highlights the significance of ongoing communication, investigation, and global cooperation to enhance EMS legal and ethical structures. By recognising the complex legal and ethical frameworks, EMS practitioners and policymakers can collaborate to enhance and standardise ethical principles for emergency medical care, thereby improving patient outcomes in various environments.

Patient Privacy and Dignity

In the complex environment of emergency medical services (EMS), protecting patient

privacy and dignity relies on maintaining confidentiality among crises and urgent situations. This crucial principle promotes confidence and upholds ethical standards, guaranteeing the security of sensitive medical information [8]. Ensuring patient data security is of utmost importance for EMS professionals, requiring secure communication connections, data encryption, and strict compliance with legal regulations. EMS practitioners preserve patient dignity by securing sensitive information in addition to data protection. They acknowledge the importance of patient-centred interventions in emergencies due to the consciousness of vulnerability. This patient-focused method aligns with bioethical principles of autonomy and respect, highlighting the importance of informed consent, confidentiality, and patient autonomy as ethical requirements [2].

Hartigan et al. (2018) emphasised the increased importance of maintaining patient privacy in emergency situations because of their heightened vulnerability. It is crucial to carefully incorporate these ideals into EMS procedures to show respect for patients and provide empathetic treatment. These values need to be thoughtfully included into EMS procedures to honour patients and deliver empathetic treatment. EMS professionals work in a distinctive and demanding setting, frequently facing ethical challenges as a regular part of their everyday work. The challenges might arise from several circumstances such as limited resources, time limits, patient incapacity, and conflicting values. Despite the intricacies involved, prioritising patient autonomy and honouring individual values are crucial factors in ethical decision-making for EMS practitioners [10].

Practical challenges in EMS settings

This study uncovers the inherent conflict between the rapid, high-stress environment of EMS and the crucial requirement to uphold patient anonymity. An important problem identified is the communication of information among healthcare teams during emergency operations.

Collaborative care delivery may conflict with ensuring patient privacy, requiring EMS staff to carefully balance providing timely care with maintaining information security [13]. Factors such as limited resources, unpredictable prehospital conditions, and the essential requirement for coordinated care add complexity to the situation. These factors pose challenges to maintaining patient confidentiality in these environments [16]. Narrative reviews emphasised the intricate ethical issues in emergency medicine, including decision-making for incapacitated patients, resource allocation during emergencies and pandemics, obtaining informed consent, and managing interactions with local authorities and media [11]. Prehospital emergency personnel are especially prone to these ethical difficulties because of the distinctive characteristics of their job. It is difficult to respect patient autonomy and get informed consent in emergency settings because of time limitations and lack of knowledge [8]. This requires a detailed and situation-specific strategy to maintain ethical standards while delivering efficient care in frequently turbulent circumstances.

Discussion

The review emphasises the complex interplay among legal frameworks, patient confidentiality, and practical challenges in upholding privacy in the dynamic field of Emergency Medical Services (EMS). The paper highlights the importance of maintaining confidentiality for ethical and patient-centered care through the analysis of three key themes.

Supportive Legal and Ethical Frameworks

The review underscores the crucial role of legal and ethical frameworks in shaping EMS practices globally. Legal and ethical frameworks vary due to the complexity of healthcare systems, cultural contexts, and regulatory landscapes in different countries. Patient confidentiality is emphasised, although rules vary, requiring context-specific measures. Frameworks like WHO and IFEM

guidelines, alongside regional regulations like HIPAA and Malaysia's PDPA, establish benchmarks for patient data protection and ethical conduct [5, 6]. These frameworks offer a moral compass for EMS personnel, guiding their decisions while navigating complex situations like incapacitated patients or emergencies [3,12]. As the review rightly points out, continuous dialogue, research, and international collaboration are crucial for refining and universalizing these frameworks, ensuring their effectiveness in diverse settings [5,13].

Patient Privacy and Dignity

The preservation of patient privacy and dignity in the emergency medical services (EMS) setting is a complex and multifaceted issue. The review poignantly emphasizes the link between confidentiality and patient dignity. In EMS, where vulnerability is heightened, safeguarding private information fosters trust and empowers patients to participate in their care [2,15]. Data security measures like encryption and secure communication channels become essential for upholding this trust [9, 14]. Moreover, respecting confidentiality goes beyond data protection; it requires EMS personnel to be mindful of how they handle sensitive information and engage with patients. By prioritizing patient-centered communication and respecting autonomy, EMS practitioners can demonstrate compassion and uphold human dignity even in times of crisis [8, 2].

Practical challenges in EMS settings

The practical challenges identified in the scoping review resonate with the complex nature of emergency medical settings, where swift decision-making is paramount. The review acknowledges the practical challenges faced by EMS personnel in maintaining confidentiality. Time constraints, resource limitations, and collaborative care models create situations where information sharing becomes essential [10,11]. This poses a delicate balancing act for EMS professionals, who must weigh the need for

timely communication against the imperative of confidentiality. Recognizing these challenges is crucial for developing solutions that prioritize both data protection and effective patient care. Further exploration of such initiatives, alongside technological advancements in secure communication and data management, could offer valuable tools for navigating practical hurdles while upholding ethical principles.

The scoping review calls attention to the need for ethical and practical solutions that strike a delicate balance between effective healthcare delivery and the protection of patient privacy [12]. The nuanced nature of these challenges implies that a one-size-fits-all approach may not be sufficient. Context-specific guidelines and training programs may be necessary to equip EMS practitioners with the skills and ethical frameworks needed to navigate these complex scenarios. Additionally, fostering a culture of open communication and continuous ethical education within EMS organizations may contribute to a more resilient and ethically informed healthcare environment.

Recommendations

This scoping review emphasises the crucial importance of anonymity in establishing trust and maintaining ethical standards in emergency medical services (EMS). The assessment suggests practical recommendations for different stakeholders to prioritise patient privacy, considering the difficulties encountered by EMS professionals.

Regular training and instruction are essential for EMS professionals to develop ethical decision-making abilities and understand clear, practical guidelines for information sharing. It is crucial to communicate effectively with patients, implement secure communication channels, and report confidentiality concerns through established procedures. Policymakers and organisations can help by creating thorough legal frameworks, investing in secure technology and infrastructure, and emphasising ethical training for employees. Establishing a culture of

confidentiality through leadership, communication, and confidential reporting systems is crucial [9,17].

Engaging in simulation exercises, utilising mobile applications, and doing research in multiple settings can offer essential knowledge and resources for maintaining confidentiality in the changing field of Emergency Medical Services (EMS) [18]. By adopting these suggestions, EMS providers, policymakers, and organisations can collaborate to establish an atmosphere that values and safeguards patient anonymity, hence enhancing trust and ethical standards in emergency medical care.

Limitations

This scoping review offers a comprehensive overview of ethical concerns and confidentiality issues in emergency medical services (EMS). However, certain limitations merit consideration. The inherent inclusivity of scoping reviews may introduce selection bias, potentially influencing the interpretation of findings. Additionally, prioritizing breadth over depth may limit the exploration of individual studies' nuanced characteristics and unique research questions. Finally, drawing precise recommendations for policy or practice can be challenging due to the broad nature of the findings.

Conclusion

This scoping review underscores the multifaceted role of confidentiality in ethical EMS practice. While acknowledging the challenges of balancing transparency and data protection in dynamic settings, it highlights the importance of ongoing research, training, and policy development. Collaborative efforts by EMS providers, policymakers, and researchers, focusing on secure technology, ethical training, and context-specific guidelines, can pave the way for a future where patient confidentiality becomes an integral part of the EMS landscape, fostering trust and ethical care.

Table 1. Search criteria and concepts.

Concept	Keywords
Emergency medical services (EMS)	EMS, emergency medical services
Ethics	Ethics, ethical considerations in EMS
Confidentiality	Confidentiality in EMS
Databases	PubMed, Scopus, Google Scholar
Inclusion criteria	2018 to 2023; English; empirical research and review papers that addressed ethical concerns in EMS and confidentiality.
Exclusion criteria	Exclude papers that do not specifically address ethical concerns in EMS or confidentiality within the context of emergency medical services and written in languages other than English.

Table 2. Database and key words in search strategies

Database	Keywords
Google scholar (n=252)	1.EMS, emergency medical services
Scopus (n=18)	2.Ethics, ethical considerations in EMS
Pubmed (n=64)	3.Confidentiality in EMS

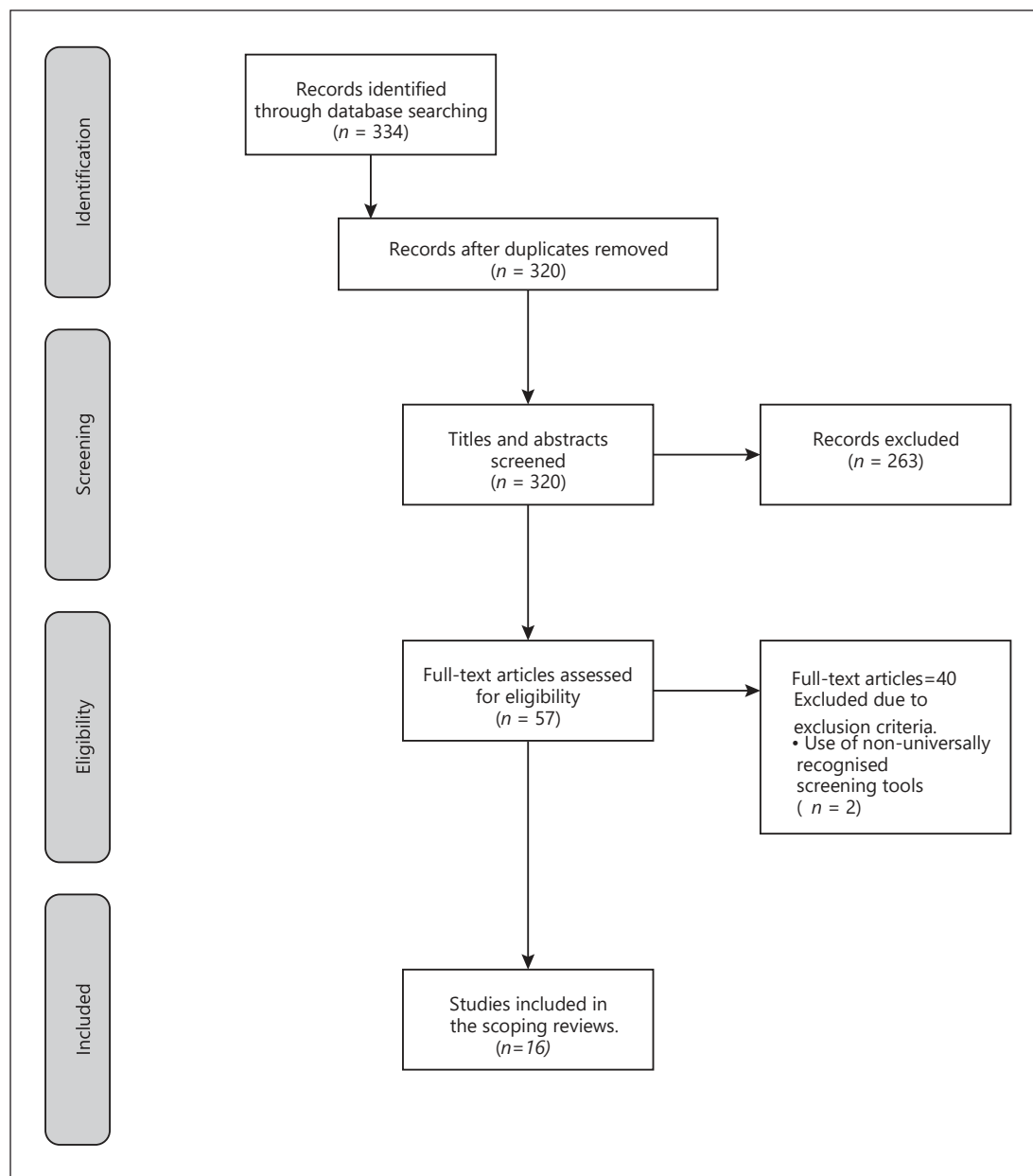


Figure 1. PRISMA-ScR flow diagram showing the studies in this scoping review.

References

- [1]. Sonis JD, Aaronson EL, Lee RY, Philpotts LL, White BA. Emergency Department Patient Experience: A Systematic Review of the Literature. *Journal of Patient Experience*. 2018;5(2):101-106. <https://doi.org/10.1177/2374373517731359>
- [2]. Cimino J, Braun C. Clinical Research in Prehospital Care: Current and Future Challenges. *Clinics and Practice*. 2023;13(5):1266-1285.
- [3]. Bruun H, Milling L, Mikkelsen S, Huniche L. Ethical challenges experienced by prehospital emergency personnel: a practice-based model of analysis. *BMC Medical Ethics*. 2022;23(1):80. <https://doi.org/10.1186/s12910-022-00821-9>
- [4]. Andersson U, Maurin Söderholm H, Wireklint Sundström B, et al. Clinical reasoning in the emergency medical services: an integrative review. *Scand J Trauma Resusc Emerg Med*. 2019; 27:76. <https://doi.org/10.1186/s13049-019-0646-y>
- [5]. Farzaneh A, Ravaghi H, Fanaei A. The Ethical Framework for Policymaking of Universal Health Coverage: A Systematic Review. *Journal of Clinical & Diagnostic Research*. 2020;14(3):IE01-IE06. <https://doi.org/10.7860/JCDR/2020/43038/13589>
- [6]. Code of Professional Conduct (in force until 23rd day of February 2021). Malaysian Medical Council. <https://mmc.gov.my/wp-content/uploads/2022/05/CODE-OF-PROFESSIONAL-CONDUCT-CPC-IN-FORCE-UNTIL-23RD-DAY-OF-FEBRUARY-2021.pdf>. Accessed February 18, 2024.
- [7]. Bruun H, Milling L, Mikkelsen S, Huniche L. Ethical challenges experienced by prehospital emergency personnel: a practice-based model of analysis. *BMC Medical Ethics*. 2022;23(1):80. <https://doi.org/10.1186/s12910-022-00821-9>
- [8]. Hartigan L, Cussen L, Meaney S, O'Donoghue K. Patients' perception of privacy and confidentiality in the emergency department of a busy obstetric unit. *BMC Health Serv Res*. 2018 Dec 18;18(1):978. <https://doi.org/10.1186/s12913-018-3782-6>. PMID: 30563545; PMCID: PMC6299575.
- [9]. Torabi M, Borhani F, Abbaszadeh A, et al. Experiences of pre-hospital emergency medical personnel in ethical decision-making: a qualitative study. *BMC Med Ethics*. 2018; 19:95. <https://doi.org/10.1186/s12910-018-0334-x>.
- [10]. Abd-El Ghaffar, B., Mohamed, A., El-liethey, N. Patient Satisfaction Regarding Emergency Department: Literature Review. *Alexandria Scientific Nursing Journal*, 2022; 24(2): 19-27. <https://doi.org/10.21608/asalexu.2022.248618>

- [11]. Mientkiewicz L, Grover P. Adolescent Confidentiality and Consent in an Emergency Setting. *Pediatr Emerg Care*. 2022 Dec 1;38(12):697-699. <https://doi.org/10.1097/PEC.0000000000002880>. PMID: 36449739.
- [12]. Koskimies EM, Koskenniemi J, Leino-Kilpi H. Patient's informational privacy in prehospital emergency care: Paramedics' perspective. *Nurs Ethics*. 2020;27(1):53–66. <https://doi.org/10.1177/0969733019834977>.
- [13]. Janeway HH, Samra S, Song JS. An Ethical, Legal, and Structural Framework for Law Enforcement in the Emergency Department. *Ann Emerg Med*. 2021 Dec;78(6):749-751. <https://doi.org/10.1016/j.annemergmed.2021.08.009>. Epub 2021 Oct 28. PMID: 34756450.
- [14]. Baker EF, Geiderman JM, Kraus CK, Goett R. The role of hospital ethics committees in emergency medicine practice. *Journal of the American College of Emergency Physicians Open*. 2020;1(4):403–407. <https://doi.org/10.1002/emp2.12136>.
- [15]. Mientkiewicz L, Grover P. Adolescent Confidentiality and Consent in an Emergency Setting. *Pediatr Emerg Care*. 2022 Dec 1;38(12):697-699. <https://doi.org/10.1097/PEC.0000000000002880>. PMID: 36449739.
- [16]. Armstrong, S., Langlois, A., Siriwardena, N. et al. Ethical considerations in prehospital ambulance-based research: qualitative interview study of expert informants. *BMC Med Ethics* 20, 88 (2019). <https://doi.org/10.1186/s12910-019-0425-3>
- [17]. Bhalla K, Sriram V, Arora R, et al. The care and transport of trauma victims by layperson emergency medical systems: a qualitative study in Delhi, India. *BMJ Global Health*. 2019;4:e001963.
- [18]. Kapalo, K. A., Bonnell, J. A., LaViola, J. J. Outside the Box: Contextualizing User Experience Challenges in Emergency Medical Technician (EMT) and Paramedic Workflows”. In *HCI International 2020–Late Breaking Papers: Interaction, Knowledge and social media: 22nd HCI International Conference, HCII 2020, Copenhagen, Denmark, July 19–24, 2020, Proceedings 22* (pp. 133-150). Springer International Publishing.