

LETTER TO EDITOR

Enhancing Emergency Response through Artificial Intelligence in Emergency Medical Services Dispatching; a Letter to Editor

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*Received: June 2023; Accepted: July 2023; Published online: 22 August 2023***Cite this article as:** Emami P, Javanmardi K. Enhancing Emergency Response through Artificial Intelligence in Emergency Medical Services Dispatching; a Letter to Editor. Arch Acad Emerg Med. 2023; 11(1): e60. <https://doi.org/10.22037/aaem.v11i1.2097>.**Dear Editor**

The emergency medical dispatcher (EMD) serves as a crucial link between individuals in need of emergency medical assistance and the emergency medical services (EMS) resource delivery system. Through their expertise and training, EMDs are able to accurately assess emergency situations, provide appropriate guidance over the phone, and dispatch the necessary EMS personnel to the scene. With adequate training, program management, supervision, and medical guidance, the EMD can accurately assess the caller's needs, choose an appropriate response approach, furnish relevant information to responders, and offer suitable assistance and guidance to patients through the caller. By diligently adhering to a written and medically approved EMD protocol, informed decisions regarding EMS responses can be made in a reliable, replicable, and fair manner (1, 2).

Artificial intelligence (AI) is the concept of a computer program that utilizes existing information to make decisions and enhances its performance based on accumulated experience. Machine learning (ML), a crucial aspect of AI, focuses on developing systems that learn from past data to create models for classification, clustering, or regression. ML algorithms excel at recognizing patterns in intricate datasets, making them valuable for interpreting outcomes and generating personalized clinical judgments (3). In recent years, advancements in AI have made a significant impact on various industries, and EMS is no exception. AI has the potential to revolutionize the way emergency medical dispatching is conducted, improving response times, accuracy, and ultimately,

patient outcomes (4, 5).

AI has the potential to revolutionize how emergency calls are managed and responded to, ultimately improving the quality and efficiency of emergency medical care. Traditionally, EMS dispatching has relied on human operators to receive emergency calls, assess the situation, and dispatch appropriate resources. However, this process can be time-consuming and prone to human error, especially during high-pressure situations like out-of-hospital cardiac arrest when quick decisions are crucial (5). AI-driven dispatching systems, equipped with natural language processing and machine learning capabilities, can analyze and prioritize incoming emergency calls based on the severity and urgency of the situation. These systems can identify key information, such as location, symptoms, and available resources, and provide real-time recommendations for dispatching appropriate medical teams or resources (6). By leveraging AI, emergency call centers can optimize resource allocation, leading to faster response times and improved patient outcomes. AI algorithms can analyze historical data and ongoing trends to predict demand patterns, enabling better deployment of EMS units and reducing response time variability. Additionally, AI can assist in identifying potential cardiac events, strokes, or other medical emergencies by analyzing voice patterns or vital signs shared during emergency calls, facilitating early intervention and potentially saving lives (7, 8).

ML system is able to recognize a higher proportion of out-of-hospital cardiac arrest (OHCA) cases within the first minute compared to human dispatchers. ML system has the potential to be a useful tool in emergency calls (9).

It is important to emphasize that while AI can improve emergency dispatching, it should always complement, not replace, the human element. Trained professionals will continue to play a critical role in decision-making and providing

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empathetic support during emergencies. AI should be seen as a powerful tool to enhance their capabilities rather than a substitute for their expertise. As AI continues to advance, it is crucial for emergency medical services and policymakers to embrace these technologies responsibly.

Safeguards must be in place to ensure data privacy, transparency, and ongoing monitoring of AI systems to mitigate biases and ensure equitable emergency response (5, 6).

1. Conclusion

The integration of AI in EMS dispatching has the potential to revolutionize emergency care by optimizing resource allocation, reducing response times, and ultimately saving lives. It is imperative that we invest in research, implementation, and ongoing evaluation to maximize the benefits of AI while upholding ethical guidelines and maintaining the human touch in emergency medical services.

2. Declarations

2.1. Acknowledgments

None.

2.2. Conflict of interest

The authors declare that they have no conflict of interest.

2.3. Funding and support

This research received no specific grant from any funding agencies in the public, commercial, or non-profit sectors.

2.4. Authors' contribution

PE and KJ: Conception and design of the work. PE: Drafting the work and revising it critically for important intellectual content and translation. PE and KJ: Read and approved the final version and accountable for all aspects of the work.

2.5. Data Availability

Not applicable.

2.6. Using artificial intelligence chatbots

Not used in this article.

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