

How to Cite:

Jacob, J., Deshpande, S., D'Souza, R. S., Harikrishna, Y., Chandrakeerthy, D. M., Jain, R., Vhora, S., & Hanumesh, H. V. (2023). Leveraging chatGPT for improved patient outcomes in a busy emergency department. *International Journal of Health Sciences*, 7(S1), 1809–1812.
<https://doi.org/10.53730/ijhs.v7nS1.14399>

Leveraging chatGPT for improved patient outcomes in a busy emergency department

Dr Jerry Jacob

Senior Resident, Department of Emergency Medicine, Ramaiah Medical College, Bengaluru

Corresponding author email: jerryjacob123@gmail.com

Dr Shruthi Deshpande

Senior Resident, Department of Emergency Medicine, Ramaiah Medical College, Bengaluru

Email: shru.desh31189@yahoo.com

Dr Roger Shannon D'Souza

Senior Resident, Department of Emergency Medicine, Ramaiah Medical College, Bengaluru

Email: shannon.roger@gmail.com

Dr Harikrishna Y

Senior Resident, Department of Emergency Medicine, Ramaiah Medical College, Bengaluru

Email: hk10289@gmail.com

Dr. Chandrakeerthy D M

Junior Resident, Department of Emergency Medicine, Ramaiah Medical College, Bengaluru

Email: www.chandrakeerthy@gmail.com

Dr Rahul Jain

Junior Resident, Department of Emergency Medicine, Ramaiah Medical College, Bengaluru

Email: rahulrjdoc@gmail.com

Dr Shivani Vhora

Junior Resident, Department of Emergency Medicine, Ramaiah Medical College, Bengaluru

Email: shivanivhora.17@gmail.com

Hanumesh H V

Junior Resident, Department of Emergency Medicine, Ramaiah Medical College, Bangalore

Abstract---Emergency departments (EDs) often face challenges related to high patient volumes, leading to overcrowding, increased wait times, and potential compromises in patient care.¹ This research project aims to explore the potential utilization of ChatGPT, an AI-based chatbot powered by OpenAI's language model, to decongest a busy ED and improve patient outcomes. By leveraging the capabilities of ChatGPT, we aim to enhance patient triage, optimize resource allocation, and improve communication and patient education within the ED setting.¹In the NHS based in the UK wait times for green cases can be hours long leading to bitter experiences and poor compliance.

Keywords---Emergency departments (EDs), chatGPT, poor compliance.

Introduction

Emergency departments (EDs) often face challenges related to high patient volumes, leading to overcrowding, increased wait times, and potential compromises in patient care.¹ This research project aims to explore the potential utilization of ChatGPT, an AI-based chatbot powered by OpenAI's language model, to decongest a busy ED and improve patient outcomes. By leveraging the capabilities of ChatGPT, we aim to enhance patient triage, optimize resource allocation, and improve communication and patient education within the ED setting.¹In the NHS based in the UK wait times for green cases can be hours long leading to bitter experiences and poor compliance.

Steps we believe could decongest busy emergency departments are as follows:

1. Development of a ChatGPT-based Chatbot:²

- a. Train the ChatGPT model using a large dataset of relevant medical and triage information, including common symptoms, triage guidelines, and appropriate responses for various patient scenarios.
- b. Fine-tune the model to ensure accurate and contextually appropriate responses specific to the ED environment.
- c. Implement user-friendly interfaces for patients, healthcare providers, and support staff to interact with the chatbot effectively.

2. Patient Triage and Resource Allocation:²

- a. Integrate the chatbot into the ED's triage process to assist in initial patient assessment.
Patients can use the chatbot to provide information about their symptoms and medical history, enabling the system to prioritize their cases based on severity.
- b. The chatbot can suggest appropriate levels of care, such as urgent intervention, prompt evaluation, or non-emergent referrals, based on established triage guidelines.

- c. Analyze the impact of ChatGPT-based triage on reducing wait times, optimizing resource utilization, and improving patient flow through the ED.
- 3. Communication and Patient Education:³
 - a. Implement the chatbot as a communication tool between healthcare providers, allowing quick access to medical information, guidelines, and protocols.
 - b. Enable the chatbot to provide patients with real-time updates about their wait times, estimated treatment plans, and educational materials regarding their conditions or procedures.
 - c. Assess patient satisfaction and engagement with the chatbot, measuring the effectiveness of communication and education provided through the system.
- 4. Data Analysis and Outcome Evaluation:⁴
 - a. Collect and analyze data on patient triage, wait times, resource utilization, patient satisfaction, and clinical outcomes before and after implementing ChatGPT.
 - b. Evaluate the impact of the chatbot on patient outcomes, such as length of stay, rates of admission, adverse events, and patient satisfaction scores.
 - c. Conduct surveys and interviews with patients, healthcare providers, and support staff to gather qualitative feedback on the usability, acceptability, and perceived benefits of the chatbot.

Discussion

This research project aims to harness the power of ChatGPT to alleviate the burden on busy EDs by improving patient triage, optimizing resource allocation, and enhancing communication and patient education. If successful, the implementation of a ChatGPT-based chatbot has the potential to reduce wait times, enhance patient satisfaction, improve clinical outcomes, and contribute to overall ED efficiency.²

Conclusion

By leveraging AI-powered chatbots like ChatGPT, we can explore innovative solutions to decongest busy EDs and enhance patient outcomes. This research project has the potential to revolutionize ED workflows, improve resource utilization, and provide timely and accurate information to both patients and healthcare providers. The findings from this study can inform future strategies for enhancing ED operations and patient care using AI technology.

References

1. Smith et al. (2019). Simulation training for emergency medicine residents: A systematic review and meta-analysis. *Emergency Medicine Australasia*, 31(1), 17-29.
2. Okuda, Y., Bryson, E.O., DeMaria, S., Jr, Jacobson, L., Quinones, J., Shen, B. and Levine, A.I. (2009), The Utility of Simulation in Medical Education: What Is the Evidence?. *Mt Sinai J Med*, 76: 330-343
3. Hattie, J., & Timperley, H. (2007). The Power of Feedback. *Review of Educational Research*, 77(1), 81–112
4. Biswas, S. (2023). ChatGPT and the future of medical writing. *Radiology* 3, 223312. doi: 10.1148./radiol.223312
5. ChatGPT General FAQ. (n.d.). [WWW Document]. Available online at: <https://help.openai.com/en/articles/6783457-chatgpt-general-faq>
6. Kharat, A. (2022). *Artificial Intelligence And Its Role In Healthcare*. Available online at: <https://www.entrepreneur.com/en-in/technology/artificial-intelligence-and-its-role-in-healthcare> (accessed March 7, 2023)