Simulating Goals of Care Discussions Prior to Major Surgery Using ChatGPT: A Generative Artificial Intelligence Approach

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Background

Encounters prior to major surgery afford a unique opportunity for patient-provider communication, particularly regarding goals of care (GoC). Unfortunately, discussions involving surgeons, primary care providers, and anesthesiologists are often deferred or left incomplete due to providers' discomfort and inexperience in navigating these sensitive conversations. Simulations have shown promise as solutions to provide increased exposure to trainees of these challenging discussions [1, 2]. In addition, large language models such as ChatGPT, have recently shown the ability to be used play the roles of characters in a variety of settings [3]. The work aims to address this issue by using a language model (ChatGPT) to simulate GoC conversations, providing a training tool for general surgery and anesthesia resident physicians to improve their communication skills and enhance the alignment of surgical outcomes with patients' values and preferences.

Intervention

The intervention involves using ChatGPT, a state-of-the-art language model, to create simulated patient-provider conversations focusing on goals of care (GoC) prior to major surgery. These simulations offer a realistic and interactive environment where resident physicians can engage in conversations with "synthetic patients" based on common clinical scenarios, receive specific feedback, and refine their communication techniques, all without the pressure or risks of real-world clinical interactions.

Measures

The expected improvement or outcome of the intervention is to enhance communication competencies among resident physicians in both the general surgery and anesthesia disciplines. This, in turn, is anticipated to lead to increased patient satisfaction and improved alignment of surgical outcomes with patients' values and preferences. Dually, it will equip residents with the necessary skills to have goals of care discussions with their patients as attending surgeons and anesthesiologists. Overall, this intervention aims to revolutionize how educators prepare trainees for difficult and important patient-provider conversations in the context of major surgery.

Discussion

This intervention can be applied at general surgery and anesthesia programs across the country through the development of an open access case-based curriculum, which not only employs the use of ChatGPT to simulate patient-provider conversations before major surgery, but also integrates existing palliative care education, ethical guidelines, and feedback based learning strategies. Some the barriers that may exist to implementation include the busy schedules of residents and finding skilled educators. These challenges can be overcome through having institutional and program director support and working directly with palliative care physicians and faculty specializing in surgical palliative care to help champion and lead these efforts.

References

[1] Downar, J. *et al.* Standardized patient simulation versus didactic teaching alone for improving residents' communication skills when discussing goals of care and resuscitation: A randomized controlled trial. *Palliat. Med.* **31**, 130–139 (2017).

[2] Nagpal, V. *et al.* Effective Goals-of-Care conversations: From skills training to bedside. *MedEdPORTAL* **17**, 11122 (2021).

[3] Shanahan, M., McDonell, K. & Reynolds, L. Role play with large language models. *Nature* 1–6 (2023).