Humber River Health

DEVELOPING A CUSTOM GENERATIVE PRE-TRAINED TRANSFORMER TO CREATE CLINICAL SIMULATION SCENARIOS

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DESCRIPTION

Developing comprehensive clinical simulation scenarios can be labour-intensive, requiring a deep understanding of the nuances of different clinical environments, and the creativity to anticipate different scenarios. This project introduced a custom Generative Pre-Trained Transformer (GPT), on OpenAI's ChatGPT that was trained on 10 textbooks related to clinical simulation. The GPT utilizes a collaborative approach with the user to generate detailed scenarios and learning objectives based on inputs regarding members involved, and the nature of the scenarios. Presented scenarios include pre-, intra-, and post-procedural vitals, materials required (e.g. high/low fidelity mannequin), and step-by-step procedural outlines for the facilitator and a debriefing guide. The goal is to streamline scenario development, reduce preparation effort, and ensure effective, simulated training for healthcare teams.

OBJECTIVE

To automate the creation of detailed, deployable clinical simulation scenarios using a custom GPT.

ACTIONS TAKEN

- Identified key challenges in the manual creation of detailed clinical simulation scenarios for training.
- Trained custom GPT on 10 clinical simulation textbooks.
- Programmed the GPT to ask the user targeted questions about the team members participating in the scenario, required materials, and the clinical setting.
- Developed multiple simulation scenarios based on these inputs, including detailed instructions, vitals monitoring (pre-, intra-, and post procedural), and required phantoms/materials.

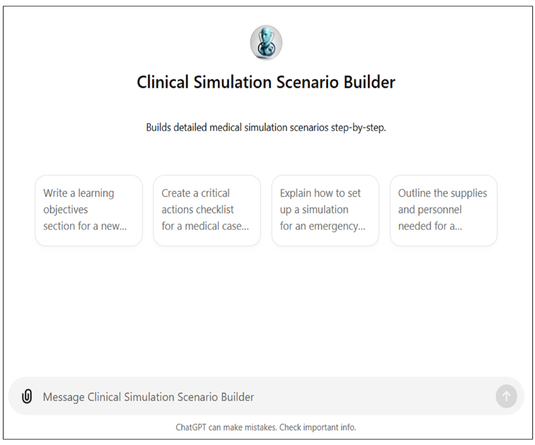

Figure 1. Screenshot of the custom GPT screen, with guiding prompts for the user.

Figure 2. QR code to access custom GPT.

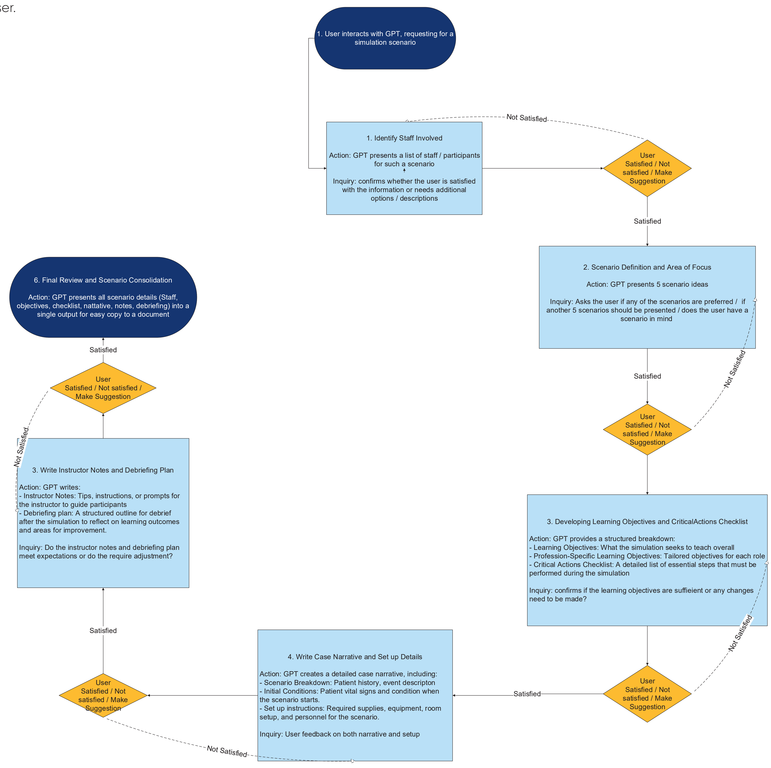

Figure 3. Process map outlining the steps in drafting clinical simulation scenarios with the custom GPT.

SUMMARY OF RESULTS

Multiple simulation scenarios were developed and implemented in the Interventional Radiology Department focusing on deteriorating patients. Plans are underway to evaluate generated scenarios in other clinical environments, as well as scenarios involving complex interpersonal dynamics. Feedback will be solicited from patient and family advisor groups and clinicians to assess the effectiveness and realism of the simulations. This input will guide further refinement of the GPT, ensuring the scenarios meet the needs of various healthcare teams and improve preparedness across the organization.

LESSONS LEARNED

A custom GPT can be developed, and refined to generate comprehensive clinical simulation scenarios with ease.