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Introduction

- In the emergency department (ED), high-acuity presentations encountered at low frequencies are associated with reduced staff comfort.¹
- The high-stress, high-acuity environment of the ED is a popular site for in-situ simulation, although some perceive running *in situ* simulation to be challenging in busy emergency departments.²
- Previous studies have shown that simulation can improve confidence with, and performance of, specific practical skills for physicians and nurses.^{3,4}
- These studies suggest that *in situ* simulation be used as a tool for education, as well as a tool that allows experienced providers to continue to practice infrequently used skills.⁵
- Select studies have also shown that simulation can improve the preparedness and teamwork of multidisciplinary teams, while decreasing anxiety with managing high-acuity, low-frequency cases.^{1,6}

Objectives:

- Examine the effect of *in situ* simulation on interprofessional provider comfort with the identification and management of high-acuity low-frequency events in the ED.
- Assess the feasibility of implementing weekly simulation as an interprofessional education initiative in a high-volume ED.

References:

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Methods

- This was a retrospective pre-test post-test quasi-experimental design.
- Weekly *in situ* simulation events were facilitated by an interdisciplinary team in a high-volume ED in Hamilton, Ontario that sees an average of 185 patients per day.
- 34 simulation events were held between January 18, 2019 and November 22, 2019. These included:
 - 17 neonatal resuscitations
 - 9 pediatric emergencies
 - 4 adult codes
 - 2 obstetric emergencies
 - 2 combined obstetric emergencies with neonatal resuscitation

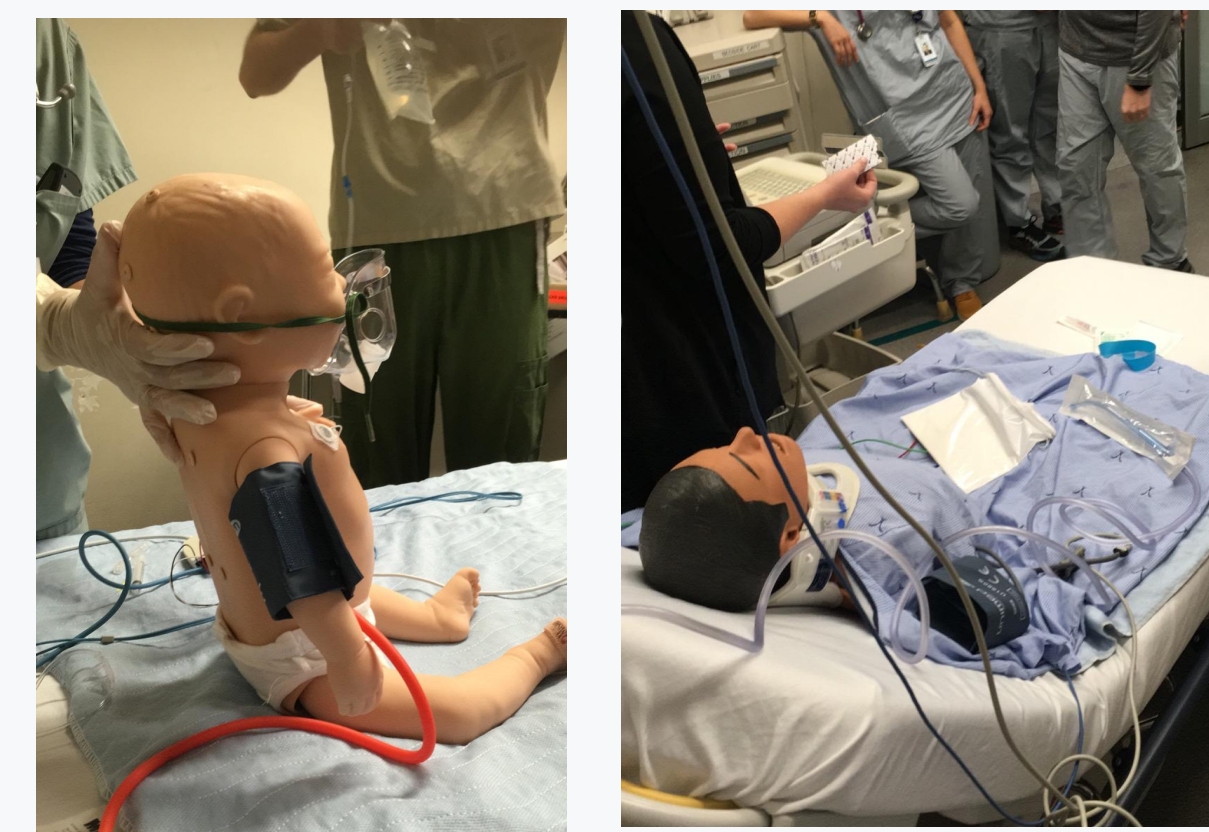


Figure 1: Images of mannequins used during simulation events.

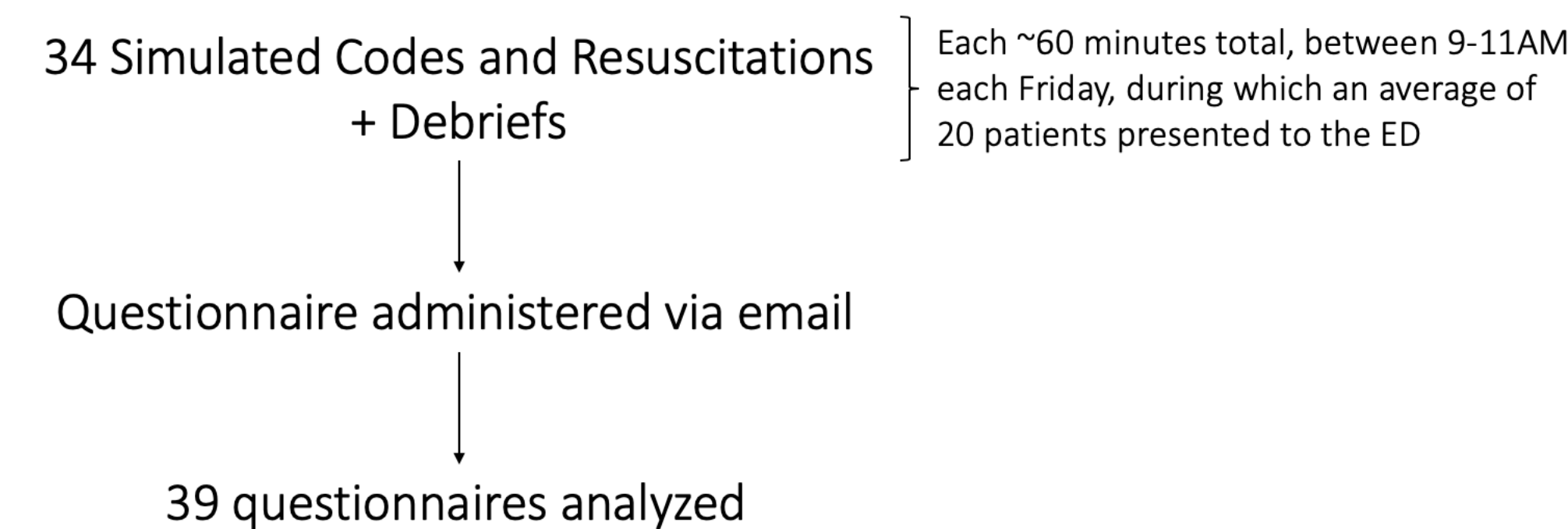


Figure 2: flow chart of methods.

- Participants included individuals from various disciplines working on shift at the time of the event.
- During the simulation, facilitators worked together in real-time using a low-fidelity mannequin and provided vitals to the team verbally.
- Debriefs were guided by the DISCERN tool (Debriefing In Situ Conversation after Emergent Resuscitation Now), which elicits what went well and what could be improved from the participants.
- Questionnaires administered following the event asked participants to rank their comfort with emergency codes before and after the simulation using two 5-point Likert scales.
- T-tests were used to analyze differences in self-reported comfort scores.

Results

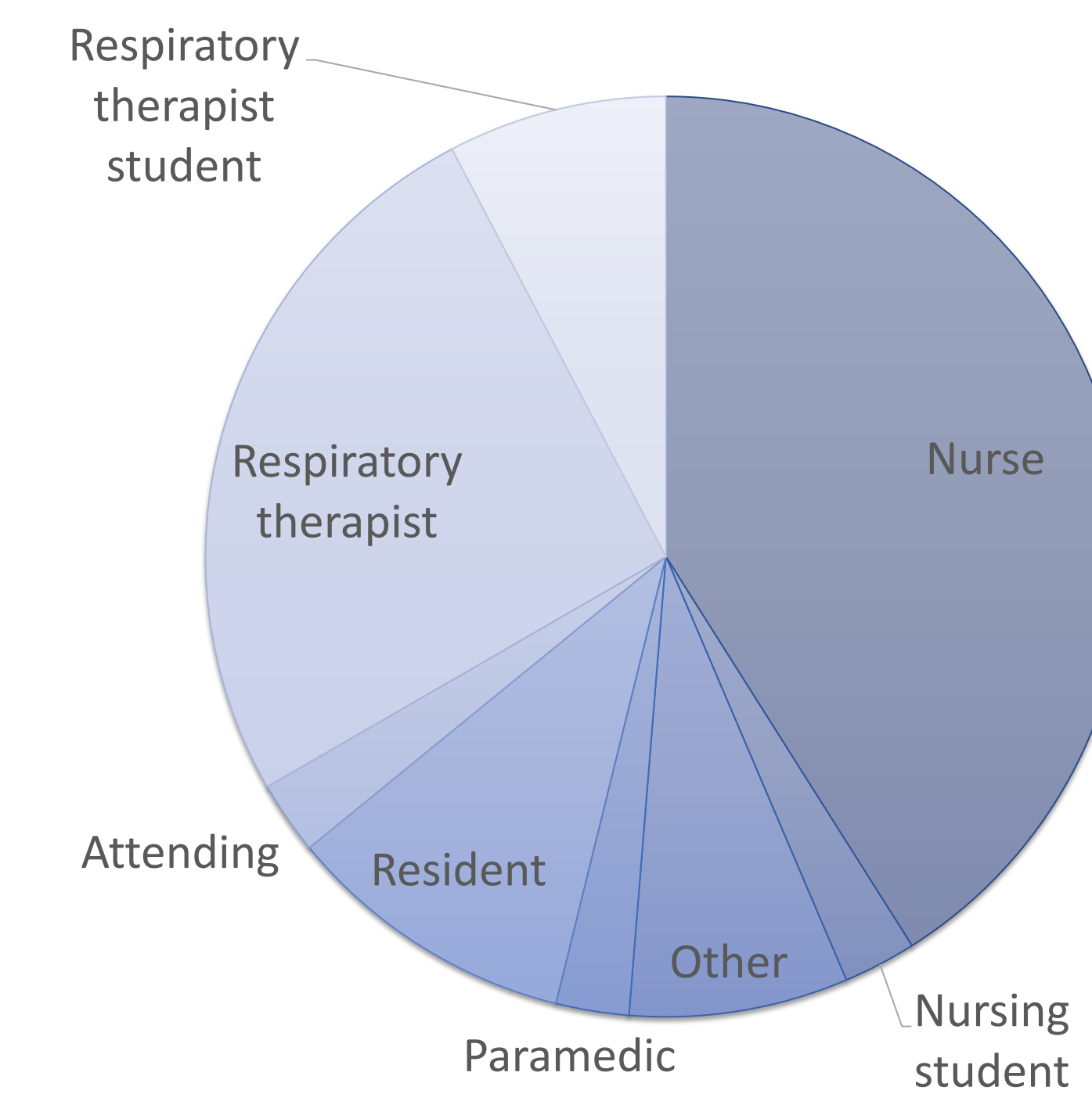


Figure 3: Questionnaire responders by designation.

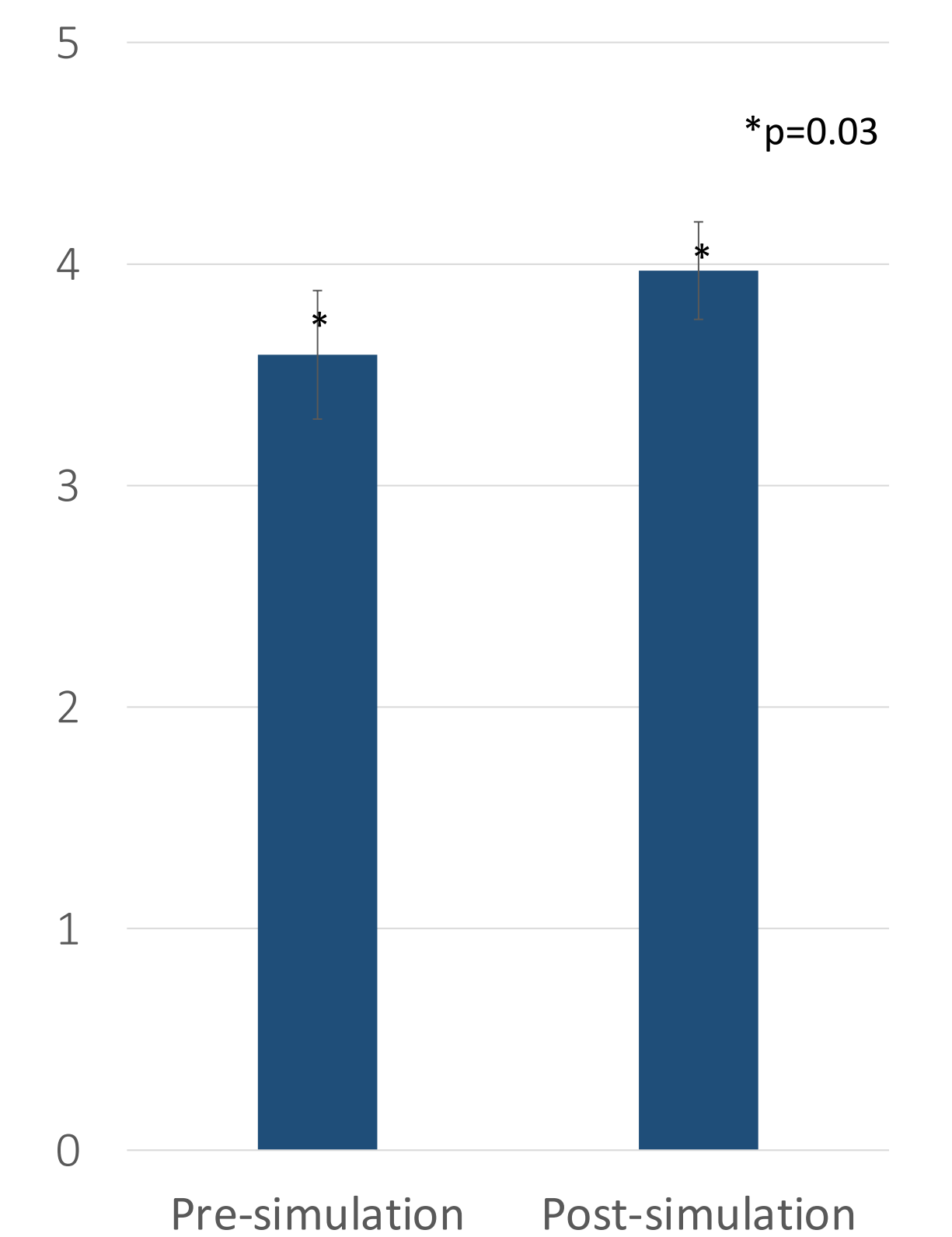


Figure 4: Pre- and post-simulation self-reported comfort with identification and management of cases, out of 5.

- 38% of questionnaire responders reported increases in comfort following simulation when compared to prior.
- Using the 5-point scale, the average reported score for comfort pre-simulation was 3.59 (95% CI 3.30–3.88), and the average post-simulation score was 3.97 (95% CI 3.76–4.19, p=0.03).

Conclusions

- We have demonstrated that weekly interprofessional *in situ* simulation improves self-reported provider comfort with identification and management of high-acuity, low-frequency events.
- Based on our results, weekly simulation is a feasible interprofessional education initiative in a high-volume ED.
- This supports the implementation of this simulation design to improve staff confidence and has implications for its potential role in improving team dynamics and patient safety.
- Future work will analyze the discovery of latent variables through simulation debriefing.