Timed simulation exercises in a newly constructed perioperative complex to facilitate staff orientation and efficient route planning

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Introduction

- The opening of a new inpatient facility presents healthcare staff and administrators with potential logistical and safety challenges.
- At BIDMC, construction of the Klarman Building is completed, and the new facility will be operational from April 2023.
- The new complex interfaces with existing ORs in the Rosenberg Building including a PACU that will remain operational.
- Using simulation in newly constructed healthcare facilities has been described but not in relation to safe and efficient navigation.

Objectives

- To conduct orientation sessions to promote safe and efficient navigation for staff transporting patients and equipment.
- To identify potential latent threats, including inefficient or convoluted routes and to facilitate the provision of temporary or permanent signage to mitigate these risks.

Methods

- The anesthesia Quality, Safety, and Innovation team organized and led two orientation/simulation exercises.
- These exercises were formally scheduled as part of departmental education (sign-up or ad hoc) to aid maximal attendance.
- On day 1, staff were given a group tour of the new OR floor before undertaking a simulation exercise in small teams of 2-4 people.
- Each team self-navigated a stretcher from a pre-operative holding bay, to an OR and then to a designated PACU bay.
- On day 2, providers were given the same tour and the same simulation exercises, with the added benefit of floor signage.
- One person on each team scanned a QR code at various points along their simulated journey, timings were recorded to capture: a) leaving the pre-op area, b) arriving at the designated OR, c) leaving the designated OR and d) arriving at the PACU bay.
- A group of 4 facilitators conducted real-time observations at key locations: beginning, end, all junctions.

RESULTS

- ~75 anesthesia providers participated, 33 virtual patients were transported, with a total of 60 min exercises/day over 2 days.
- Times on day 1 (self-directed) versus day 2 (with direction) were compared: reduced start-finish times with additional floor signage.
- Comparison of specific routes, showed that 5 of 7 were navigated quicker on day 2, (Fig 4).
- Mean values for start to finish times were as follows: 6 min, 59 sec (d1: self-directed) versus 5 min, 37 sec (d2: with direction).
- The mean time to reach the designated OR was 4 min, 10 sec on day 1 versus 2 min, 54 sec on day 2.
- Insights include the identification of bottle neck areas, routes where two stretchers can/cannot comfortably pass, where to allow bi-directional flow, and the possible benefit of a one-way system.

CONCLUSIONS

- Timed simulation exercises are a low cost and efficient method of familiarizing large groups of providers with new facilities.
- This study has provided valuable insights regarding efficient and safe route planning as well as patient flow and experience.
- Exercises of this type could be run on a periodic basis to facilitate the orientation of new staff, visitors and iterative improvements.

REFERENCES