Operating Room Safety and Simulation: Assessing Attitudes and Efficacy of a Multidisciplinary Team Training Program

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Background

Patient safety and crisis management in the operating room (OR) rely on effective collaboration among surgery, anesthesia, and nursing teams. The surgical safety checklist (SSC) provides a tool to minimize errors and promote communication. Although evidence shows SSC use reduces morbidity and mortality, adherence is imperfect. We created a simulation model to develop and refine nontechnical skills integral to maintaining patient safety in the OR.

Our hypothesis: implementing simulation-based training program for OR teams would improve OR safety culture

Methods

SIMulation for OR Safety (SIMORS)

High fidelity model
- Simulation mannequin with real time vital signs
- 3D printed bleeding model
- Real OR trays and instruments
- Phones with dedicated on-call lab, blood bank and patient family

Complete OR teams
- Surgery attending and resident
- Anesthesia attending and resident
- Surgical scrub tech
- Circulating nurse

One surgical case including incongruences and unexpected events, broken up into 3 stages.

Investigators moderated debriefing sessions at the end of each stage and at case conclusion.

Pre and post simulation surveys were administered.

Results

Participant Characterization:

Breakdown of Participant OR Roles

Anesthesia team:
- Attending: n = 22
- Resident: n = 24

Surgery team:
- Attending: n = 21
- Resident: n = 22

Nursing team:
- Nurse: n = 35
- Tech: n = 5

Perceptions Regarding the Surgical Debrief Varied Between Disciplines

There were significant differences in perceived utilization of the surgical checklist on pre-simulation survey.

Although 88% of surgeons reported performing the sign out after every operation, only 37% of anesthesiologists agreed. 70% of surgeons and nurses endorsed consistent quality sign outs, but only 53% of anesthesiologists concurred.

Communication Barriers and Potential Areas of Improvement:

Attitudes Regarding the Surgical Debrief Changed Before and After Simulation:

The vast majority of participants agreed that the SSC signout improves OR safety (99%) and improves OR team work and efficiency (98%) after the simulation experience, which is significantly different than pre-simulation survey responses (p=0.003 and p=0.002, respectively).

Communication Barriers and Potential Areas of Improvement:

Why are errors difficult to communicate?
- Want to avoid blame
- Hierarchical culture
- Perceived hostility/fear of retribution
- Believe others will not be receptive

What would you like to improve about the OR environment?
- Involving all team members
- Focusing on surgical pauses
- Employing closed loop communication
- Fostering an empowering environment

Variations in perceived SSC utilization exist between OR disciplines

Next steps:
- Long term impact of simulation experience on SSC usage
- Impact on OR errors
- New scenarios

Conclusion

Surgical scrub tech
Simulation mannequin with
for
Involving
Perceived
3
improves
Phones with dedicated on
Fostering
3D printed bleeding model
Employing
3
teams would improve OR safety culture
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