35 An Experiential Learning Curriculum to Enhance Emergency Medicine Residents' Situational Awareness of Patient Safety Hazards

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Learning Objective: 1. Assess EM residents satisfaction with a patient safety simulation and debriefing 2. Assess EM residents ability to identify hazards and solutions in a simulated patient safety room.

Background: Situational awareness (SA) is essential to patient safety in emergency medicine (EM). SA has 3 ascending levels and is impacted by environment and workload.(Fig.1) Little is known about how EM residents' SA evolves during training, limiting development of curricula, though simulation may be a promising approach.

Objectives: Our objective was to evaluate EM residents' SA of hazards in a simulation and assess satisfaction with the exercise and debriefing. We hypothesized senior residents would identify more hazards.

Methods: A cross-sectional observational study was conducted over 3 months with a convenience sample of residents at 2 university-affiliated 3-year EM programs. A simulation scenario was designed, incorporating common safety hazards.(Fig. 2) After reviewing a mock handoff and chart, participants spent 10 minutes in a simulated room documenting hazards and solutions. An interruption and new task were introduced midway to replicate the ED environment and workload. Hazards, solutions, and core SA concepts were discussed during the debriefing. Descriptive statistics were used for hazards and survey responses. A Spearman-Rho coefficient was calculated to assess the correlation between PGY and hazards identified.

Results: 46/91 residents participated in the simulation. Mean hazards identified were 6.12/13(47.1%): Level 1:3.8/6(63.3%), Level 2:1.84/4(46.0%), Level 3:1.13/3(37.7%). There was no correlation between PGY and hazards identified (all hazards: r=0.136,p=0.3655; Level 3: r=-.039,p=0.796). 97.8% and 96.7% reported satisfaction with the exercise and debriefing, respectively. 100% agreed the exercise improved knowledge of ED safety hazards.

Conclusions: Residents identified <50% of hazards; higher level hazards were less frequently identified for all PGYs. This suggests a need for longitudinal SA and patient safety education. Educators should consider incorporating elements of workplace complexity for patient safety education.

Figure 1. Endsley's levels of SA.

Level 1 SA: Perception of elements in environment
Perceiving status, attributes, and dynamics of relevant elements in the environment

Level 2 SA: Comprehension of current situation
Synthesizing disjointed level 1 elements from multiple sources to understand the significance of those elements in light of pertinent operator goals, to form patterns that contribute to a holistic picture of the environment

Level 3 SA: Projection of future status
Projecting future action of environmental elements through knowledge of the status and dynamics of the elements and comprehension of the situation (i.e. Level 1 and 2 SA)

Endsley MR. Toward a theory of situation awareness in dynamic systems. Human Factors. 1995 Mar;37(1):32-64.

Figure 2. List of hazards and potential solutions.

Hazard	Level of SA
Lowered bed rail	1
Patient not wearing non-skid/non-slip hospital-issue socks	1
Foley catheter not placed to gravity	1
Exposed sharps in room	1
Patient lacking identification band	1
Unlabeled medication infusion via IV line	1
Discrepancy between patient's allergy band and recorded allergies (allergy band in place despite none listed in chart)	2
Cannula is in the nose but not connected to anything (on home oxygen)	2
Patient is a fall risk and not wearing fall bracelet	2
Patient is on contact isolation for suspected C. difficile but no PPE present (also no PPE present for providers)	2
No bag valve mask in patient room (patient at risk for respiratory compromise)	3
Handoff states "labs normal" but abnormal lab in the chart	3
Food in room (patient is npo pending a CT a/p)	3

36 Assessment of Emergency Medicine Residents' Situational Awareness and Perception of Patient Safety Culture in the Emergency Department

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Learning Objective: 1. Assess the baseline comfort for EM residents identifying and rectifying patient safety hazards 2. Assess the EM residents baseline ED safety climate.

Background: Situational awareness (SA) is crucial in emergency medicine (EM) and to patient safety. SA refers to perceptions and understanding of the environment. Little is known about EM trainees' SA and perception of Emergency Department (ED) safety climate.

Objectives: Our objective was to evaluate EM residents' perception of ED safety climate and their self-reported SA; we hypothesized that both would be low.

Methods: A cross-sectional observational study was conducted over 3 months at 2 university-affiliated 3-year EM