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Virtual Simulation's Application to Assess Emergency Medicine Learners in the Post-COVID Setting: A Literature Review

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programs. A convenience sample of residents completed the validated self-reported Situational Awareness Rating Technique (SART) measure after the resuscitation of an ED or simulated patient. The safety climate portion of the Safety Attitudes Questionnaire and a survey assessing comfort with identifying and rectifying hazards in the ED were completed Descriptive statistics were used for SART, safety climate, and comfort. A Spearman-Rho correlation coefficient was calculated to assess the correlation between PGY and SA, PGY and comfort, and the correlation between comfort and SA.

Results: 51/91 residents completed a SART for a total of 62 SARTs; 10 residents completed more than one SART. The mean SART score was 13.4 (max 21). 64/91 residents completed the safety climate scale; 57.8% of participants identified a positive safety climate. 46.0% and 41.3% reported being somewhat or very comfortable identifying and rectifying hazards, respectively. There was no correlation between PGY and SA (r=0.163,p=0.25). There was a correlation between PGY and comfort with identifying (r=0.252,p=0.046) and rectifying hazards (r=0.252,p=0.046).

Conclusions: Less than 50% of residents reported comfort with identifying and rectifying hazards and only a slight majority reported a positive ED safety climate. Comfort modestly improved throughout residency, while SA did not. This data suggests a need for longitudinal patient safety curriculum.
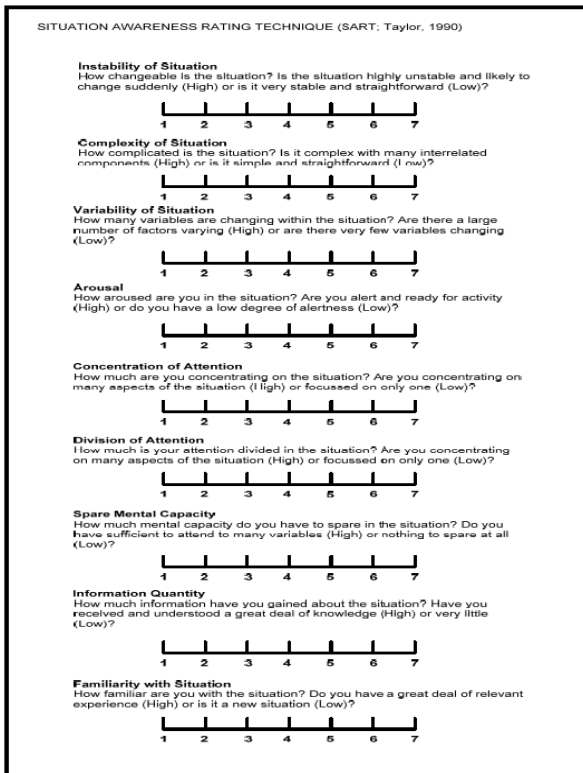
Figure 1.

Figure 2.

Safety Culture Subscale of Safety Attitudes Questionnaire (SAQ)
Positive Climate: Score of 75% or higher

37 Virtual Simulation's Application to Assess Emergency Medicine Learners in the Post-COVID Setting: A Literature Review

Patrick Zeniecki, Xiao Chi Zhang, Jared Kilpatrick

Learning Objective: This review aims to provide a brief history of virtual simulation and how it is currently being applied as a clinical assessment tool in emergency medicine (EM) training.

Background: Simulation has played a vital role in training generations of medical professionals. In response to the COVID pandemic, virtual simulation (VS) has provided educational advantages to traditional in-person simulation. However, there is no current literature review on VS's medical education application in the post-COVID pandemic setting.

Objective: This review aims to provide a brief history of VS and how it is currently being applied as a clinical assessment tool in emergency medicine (EM) training.

Method: We conducted an electronic database search of SCOPUS in November 2021 using the following terms: "virtual simulation," "simulation history," "virtual reality," "online simulation," "augmented reality," "serious game," "computer-based simulation," "simulation," "health care," "emergency medicine," "education," and "assessment." Returned articles were filtered based on the following: English language, their relevance/inclusion of a VS method, and EM learners as the population under investigation.

Results: 1,104 articles were identified, of which 19 addressed VS's use in assessing EM education (1 article in

the post-COVID setting). Historically, VS was used to assess emergency responders' preparedness to major casualty events due to its ability to generate fictitious environments. In 2021, VS was deemed a feasible assessment tool of healthcare students' clinical competency. More specifically, VS has been shown to be a feasible alternative to traditional oral examination for assessing both EM residents and pediatric EM resuscitation respectively.

Conclusion: VS has been shown to be as effective as traditional simulation methods in assessing EM learners. As the COVID pandemic continues, VS has and will continue to serve as an educational substitute to in-person simulation. We believe the use of VS will continue to grow as viable, standardized, and cost-effective means of assessing EM students' knowledge and clinical competency.

38 Just In Time Learning: EM Resident Search Strategies in Preparation for Performing a Simulated Dental Block

Yuliya Pecheny, Amy Skeel, Linda Spillane, Julie Kittel-Mosley, Ryan Bodkin, Courtney Marie Cora Jones

Learning Objective: To describe on-line resources and strategy used by EM residents prior to performing a simulated dental nerve block including search terms, sources, and time.

Background: EM physicians are called to perform infrequently done procedures, often using on-line resources to prepare.

Objectives: To describe on-line resources used by EM residents prior to performing a simulated nerve block.

Methods: Prospective, observational study of EM residents during a simulation workshop. Subjects were provided a visual prompt of an abscess and given 15 minutes to use on-line resources, then demonstrated the dental nerve block on a skull model. Video screen shots were recorded and data collected including search time, strategy, type and number of resources used. Subjects were observed performing the block and given credit if performed correctly. Residents answered a survey about previous experience, preferred resources and confidence in performing the procedure.

Results: 26 residents participated. The median search time was 4 minutes, 5 seconds. 57.7 % of subjects used a general search term as opposed to a specific procedure. Sites included You-Tube 69%, Google Images 53.8%, WikiEM 42%, EMRA 15%, and UpToDate 11.5%. 61.5% used 2 links. 50% used a combination of written and video material whereas 23% used video material alone. 81.8% performed the block correctly. Survey results: 42% of residents reported having done a dental block on a patient with 3.8% reporting previous training. 50% reviewed both written and video sources with 76% of respondents finding video sources more

helpful. 96.2% residents felt they had adequate time to review the procedure. Confidence in ability to perform the procedure after review varied: 3.8% very confident; 46% confident; 23% neutral and 27% somewhat confident.

Conclusions: YouTube was the most frequently used resource in researching how to perform a dental nerve block. The majority of residents applied previous experience and just in time learning to correctly identify injection landmarks on a simulated model. Having a centralized video bank may decrease prep time for infrequently performed procedure.

39 Team and Leadership Performance: An Exploratory Mixed-Methods Analysis Using Interprofessional In Situ Simulation

Ashley Rider, Sarah Williams, Vivien Jones, Daniel Rebagliati, Kimberly Schertzer, Mike Gisondi, Stefanie Sebok-Syer

Learning Objective: To assess leader and team performance during interprofessional in situ simulation and identify characteristics of effective teams.

Background: Patient care in the emergency department (ED) is dependent on highly effective interprofessional teams.

Objectives: To assess leader and team performance during interprofessional in situ simulation and identify characteristics of effective teams.

Methods: This mixed-methods study employed case study methodology. Eligible nurses, technicians, pharmacists, and PGY 2-4 emergency medicine residents at a tertiary academic ED participated in a 10-minute in situ simulation of a critically ill patient. Participants self-rated team performance using the Team Performance Observation Tool (TPOT) 2.0. Two raters independently reviewed simulation videos and rated performance using the TPOT 2.0, Team Emergency Assessment Measure (TEAM), and Ottawa Crisis Resource Management Global Rating Scale (Ottawa GRS). Following the simulations we conducted semi-structured interviews. Transcripts were coded by two coders and underwent thematic analysis.

Results: 23 simulations took place between January-April 2021. Two raters' scores were on the high end of the scales for the TPOT 2.0 (R1 4.90,SD=0.17;R2 4.53,SD=0.27), TEAM (R1 3.89,SD=0.19;R2 3.58,SD=0.39), and Ottawa GRS (R1 6.6,SD=.56;R2 6.2,SD=.54). Team leader attributes including year in residency, age, and gender did not correlate with performance scores. We identified 6 themes: leadership tone, interdependent energy, strategic staffing, optimal communication, simulation empowering team performance, and team entrustment. Participants acknowledged the effectiveness of in situ simulation in promoting entrustment in the clinical setting.

Conclusions: The TPOT and TEAM were not