42 Choose Your Own Adventure (CYOA): A Medical Education Innovation for Virtual Interactive Teaching

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Learning Objectives: Design an innovation feasibility project modeled after the Choose Your Own Adventure book series that involved an interactive curriculum to teach pediatric emergency medicine (PEM) topics in a virtual setting using gamification for group learning.

Introduction/Background: Gamification is gaining popularity in medical education and the pandemic necessitates novel virtual didactic methods. Virtual group learning with serious games fosters a sense of accomplishment, reinforces core knowledge, and builds teamwork via healthy competition.

Curricular Design: A novel, virtual interactive teaching tool, modeled after the popular Choose Your Own Adventure (CYOA) book series, was developed by PEM physicians. PEM topics with recent evidence-based updates were chosen: neonatal resuscitation, hematologic/oncologic emergencies, and pediatric trauma. For each topic, an hour-long CYOA module was designed on Google Forms. Various Pediatrics, Family Practice, and Emergency Medicine (EM) residents, PEM fellows, and EM and PEM attendings participated. Small groups were created via break out rooms mixing different training levels. The CYOA format began with a case vignette, then allowed teams to progress through medical management by choosing next steps in assessment and treatment of several patients. With each successful outcome, teams obtained a code of letters/numbers that, when unscrambled, yielded the answer to a final question. The winning team completed the adventure and submitted the final answer in the shortest time. Afterwards, each team summarized key learning points with the entire group, guided by the faculty facilitator(s).

Impact/Effectiveness: Anonymous pre- and post-session evaluations focused on learners' confidence in identifying and managing PEM emergencies, as well as performing pertinent procedures. The same five questions were presented before and after each CYOA activity using a five-point Likert scale. Neonatal resuscitation showed statistically significant improvement in confidence, as did performance of pediatric trauma procedures and identifying/managing tumor lysis syndrome. Qualitative feedback was positive. Areas for improvement included involving more trainees and developing other CYOA topics.

Figure 1. Average Likert Scales for comfort with neonatal resuscitation (majority resident evaluations.

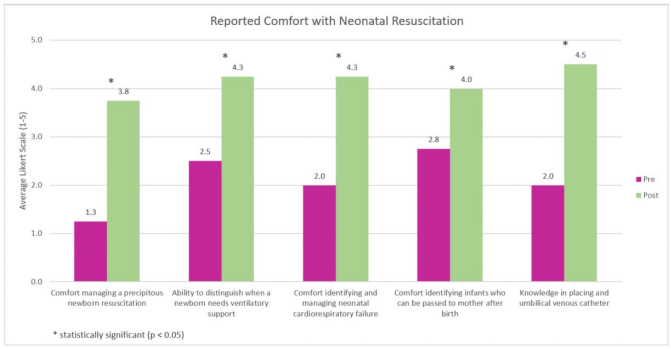
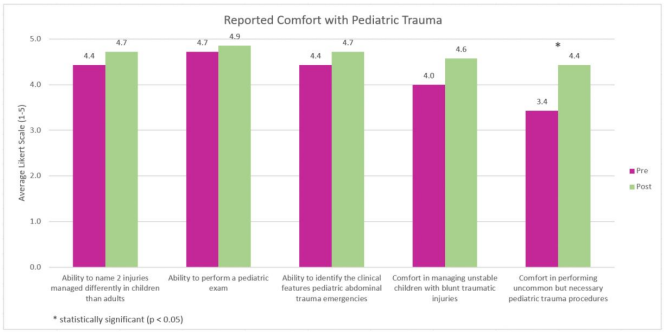


Figure 2. Average Likert Scales for comfort with pediatric trauma emergencies (majority fellow or attending evaluations.



43 Establishing Interest in the Development of a Novel Telehealth Curriculum for Emergency Medicine Resident Physicians

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Learning Objectives: To assess EM resident enthusiasm for a telehealth curriculum and to develop a series of telehealth training modules for EM resident physicians.

Introduction/Background: According to the American College of Emergency Physicians (ACEP), emergency telehealth is a core domain of emergency medicine (EM) and is inclusive of remotely providing acute medical care. In 2016, the American Medical Association Council on Medical Education released a report advocating for the implementation of formalized telehealth training into graduate medical education accreditation requirements. There was rapid growth in telehealth during the COVID-19 pandemic: An industry analysis showed overall telehealth

utilization grew 38 times from February 2020 to February 2021. Despite this, training in telehealth for residents remains substandard, with experts calling for formal curricula. To our knowledge there is no standardized graduate medical education curriculum for telehealth.

Objective: To assess EM resident enthusiasm for a telehealth curriculum and to develop a series of telehealth training modules for EM resident physicians.

Curricular Design: We distributed a ten question survey to 44 EM residents to gauge their interest in pursuing telehealth education. We developed a series of 30 minute modules focused on different aspects of telehealth delivery targeted to an audience of EM residents. We created four key telehealth learning modules to train EM residents: Historical Socioeconomic Relevance, The Virtual Patient Encounter, The Telehealth Physical Exam, and Documentation Medicolegal Implications.

Impact/Effectiveness: The vast majority of survey respondents feel that telehealth education is probably or definitely important, and would pursue education in telehealth. Future directions include soliciting feedback from residents who complete the curriculum and learning assessment. As telehealth continues its rapid growth beyond a protracted pandemic it is critical that we educate and equip the next generation of emergency physicians to harness the skills to provide emergency telehealth services to their patients.

44 OMG it's an OMI: Utilizing Retrieval Practice to Teach Occlusive MI EKGs

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Learning Objectives: Residents will be able to: 1. Recognize challenging territorial distributions of acute STEMIs. 2. Identify classic ischemic EKG syndromes: Wellen's and de Winter's T waves. 3. Apply modified Sgarbossa criteria to identify ischemia in the setting of conduction abnormalities.

Introduction/Background: As some emergency medicine experts advocate for a shift away from STEMI-NSTEMI to that of occlusive MI (OMI) - non-occlusive MI (nOMI), there is a need to enhance residents' education of high risk ischemic EKGs within this new paradigm. We developed an EKG curriculum leveraging retrieval practice to improve EM residents' diagnostic skills for recognition of ischemic STEMI and non-STEMI EKGs that can represent acute MI necessitating emergent catheterization.

Curricular Design: The curriculum was initially implemented over a one week period in July 2020 for PGY-2 EM residents and repeated for the next class in July 2021. The curriculum consisted of three didactic sessions addressing: 1) OMI pathophysiology and STEMI, 2) Differentiation of STEMI from non-ischemic STE, and 3) OMI patterns not meeting traditional STEMI criteria. Each session was separated by at least 1-2 days. Before the start of each session, a 10 question formative EKG quiz was administered representing topics from the previous session and answers were subsequently reviewed. A baseline EKG quiz was obtained at the beginning of the course and once again after the final session as a summative assessment, and residents were also surveyed about their attitudes and experiences.

Impact/Effectiveness: We provide an easily implementable curriculum to introduce residents to these topics. Following our first two years, satisfaction surveys demonstrate that all residents find the curriculum useful and the majority have increased confidence in approaching these EKG patterns. Although we did not appreciate improvement in pre and post summative assessments, future directions include earlier implementation of this curriculum in our program with further spaced retrieval practice to achieve superior retention and educational effectiveness.

45 Online simulation effectively teaches introductory disaster triage skills to medical students

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Learning Objectives: To use online simulation to teach disaster triage skills to medical students.

Background: Practicing disaster triage teaches skills of rapid patient evaluation. Triage simulation (with structured debriefing) results in improved accuracy in pediatric residents and improved confidence in medical students. Screen-based simulation of disaster triage improved triage accuracy in prehospital providers, and virtual reality (VR) simulation improved medical student triage skills. Few studies have evaluated online simulation to teach disaster triage skills to medical students.

Design: In May 2021, 15 final-year medical students engaged with online simulation to practice triaging respiratory disease outbreak patients. Students submitted personal reflections and participated in a faculty-led debrief. In October 2021, 9 additional students participated.

Outcomes: 14/15 students completed an anonymous post-course survey. Students found the exercise "very" or "extremely" helpful for learning, on a 5-point Likert scale, with a mean of 4.4 (SD+/- 0.8). Students rated their pre-exercise competency as "beginner" or "proficient" on a 4-point rubric (mean of 1.5). Most students rated their post-exercise competency as "proficient" (mean 2.8). Average increase in self-reported competency was 1.3 points, yielding a large effect size (Cohen's d). 8/9 October students rated the simulation a 4.6 on a 5-point Likert scale (5 = extremely helpful for learning).