

Objectives: 1. To improve knowledge of CBRNE events 2. To understand the role of antidotal therapy and decontamination in CBRNE emergencies 3. To practice resuscitation in simulated CBRNE cases

Curricular Design: This module was developed by content expert teams in conjunction with a disaster management educational programmer to teach CBRNE emergencies. The teams sought to improve knowledge, skills, and attitudes for six emergency topics: Personal Protective Equipment (PPE), nerve agents, botulism, airway irritants, radiation, and cyanide. The sessions utilized various teaching methods including simulation-based resuscitations, hands-on practical training, case-based presentations, and table-top discussions. This was taught over a 2.5-hour session at a single accredited EM Post Graduate Year (PGY) 1-3 Residency Program to EM residents.

Impact: There were 36 learners given 14 objective content questions pre- and post-curriculum implementation. We received 35 responses to the pre-test and 22 responses to the post-test. The average score on the pre-test was 43% and 77.6% on the post-test (34.6% improvement). There were significant improvements in scores overall with a mean difference of 4.9 (95%CI 3.7-6.0) ($p < 0.001$). See table 1. Conclusion: Implementation of CBRNE educational curriculum significantly improved knowledge at every PGY level on CBRNE-related emergencies.

Table 1.

| | Pre-test | Post-Test | Confidence interval | Mean difference |
|------|----------|-----------|---------------------|-----------------|
| PGY1 | 32.7% | 74% | 3.6-8.1 | 5.9 |
| PGY2 | 47.5% | 77.6% | 2.9-5.9 | 4.4 |
| PGY3 | 46.7% | 81.4% | 21.5-8.7 | 4.6 |

56 Local Anesthetic Systemic Toxicity (LAST) and Fascia Iliaca Compartment Block (FICB) Simulation: A Pilot Study

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Introduction/Background: Regional anesthesia, including fascia iliaca compartment blocks (FICB), are increasingly falling into the scope of Emergency Medicine (EM) given the increasing training and proficiency with ultrasound-guided procedures. Though rare, local anesthetic systemic toxicity (LAST) is estimated to occur in 0.03% of peripheral nerve blocks, with a different ACLS algorithm in the event of cardiac arrest. We present a novel curriculum for a combined simulation and procedural simulation for LAST and FICB.

Objectives: Recognize clinical signs and symptoms of LAST. Develop an appropriate treatment algorithm for LAST and manage potential outcomes including cardiac arrest. Perform FICB successfully and troubleshoot complications. Determine proper lidocaine dosing to prevent LAST.

Curricular Design: 19 emergency medicine residents

performed two separate but contiguous simulations with one being a LAST simulation with cardiac arrest and the other a procedural simulation involving setup for and performance of a FICB. Pre and post surveys were obtained to gauge previous comfort level and expertise compared to following the simulation.

Impact/Effectiveness: Residents reported improved comfort and knowledge in recognizing and managing LAST, as well as performing FICB. Perceptions towards recognizing and treating uncommon causes of cardiac arrest, including LAST, improved following simulation (5.11 vs 6.21, $p=0.003$; 3.89 vs 6.16, $p=0.008$). While many residents felt confident in their ultrasound skills (6.77, SD 2.23), ultrasound-guided nerve blocks were rated lower with regards to knowledge and procedural techniques prior to the simulation (4.47 vs 9.25, $p < 0.001$). Comfort with performing FICB had a positive trend following the simulation (3.47 vs 8.56, $p < 0.001$). Residents perceived ultrasound-guided nerve blocks, in particular FICB, as a useful skill (9.63). Figure 1. LAST perceptions Figure 2. FICB perceptions

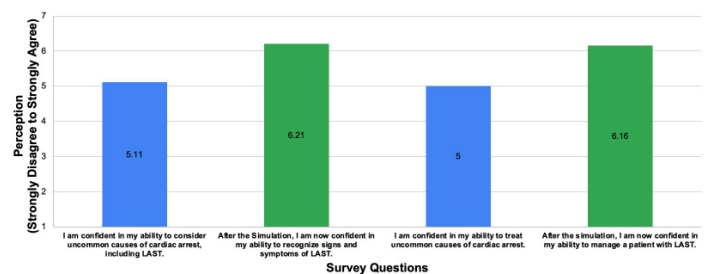


Figure 1. LAST perceptions.

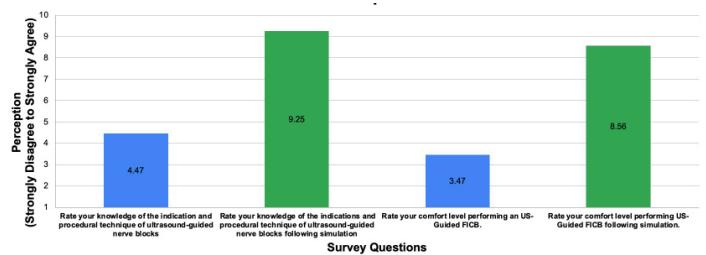


Figure 2. FICB perceptions.

57 “Heads Up!” Toxicology

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Background: Gamification is a popular way to increase engagement in didactics and motivation to learn. Another way to increase engagement is having learners teach topics as near-peers. This allows the learner-as-teacher to solidify their knowledge of a particular topic. Using both gamification and near-peer teaching I sought to enhance our toxicology content review through a small group activity.

Objectives: Determine the unknown toxin or toxic exposure from prompts such as toxidrome, antidote, patient presentation, or other signs or symptoms. Collaborate in a small group to teach and review toxicology topics.

Design: As part of an ongoing didactic initiative to increase interactive sessions I planned a review based on the word-guessing game “Heads Up!”. The cohort was divided into 4 groups of about 5-6 learners each. Each group had an identical deck of cards with a toxin or toxic exposure on each card. Players took turns guessing the toxin based on clues provided by the group. This educational method allows individuals to share their understanding of key clinical facts while building on others’ descriptions. The player guessing may rapidly identify the toxin based on a “buzzword” or require many clues to come to an answer. After a minute of guessing cards there was a brief group review period and then the next player would take a turn guessing. The game was played for an hour and a post-event survey was used for evaluation.

Impact: The “Heads Up!” game is easy to play with any level of learner and any topic that utilizes similar cognitive matching. The session content and delivery were found to be “very good” or “excellent” by all survey respondents (n=13). Outside of the planned objectives, faculty observed the senior residents sharing their toxicology resources, including phone applications and websites. This session was highly effective at disseminating toxicology educational tools within the residency.

58 Beyond the Flashing Lights: Incorporating EMS Education Into an Emergency Medicine Clerkship Curriculum

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Introduction: Emergency Medical Service clinicians are the primary healthcare providers for those calling 911 and around 17% of ED patients arrive at the hospital via EMS. Since 2010, EMS has been a subspecialty of EM however there is little documented about the incorporation of EMS into medical school curriculum. We created an “EMS Day” experience within our EM core clerkship to introduce medical students to the EMS system and its interaction with EM.

Educational Objectives: 1. Improve awareness by including an EMS experience in the EM core clerkship. 2. Improve understanding of patient assessment and care in the prehospital setting. 3. Perform basic prehospital skills such as Epi-Pen and naloxone administration and tourniquet application.

Curricular Design: The 4-week required EM clerkship engages students to think critically about emergency complaints, acute management, and the bridge between EM and definitive care. The clerkship gives direct exposure to emergent evaluation of patients and development of diagnostic frameworks. For EMS Day, we utilized EMS educators and

developed 6 simulations, each with an associated skill. In each simulation, one student played the patient and was treated by a fellow student as if they were the first arriving medical provider. Scenarios included chest pain on a plane, opioid overdose of a neighbor, and anaphylaxis during a sporting event. Each simulation was followed by a debrief specific to caring for a patient in the prehospital setting, teaching points on the EMS system, and students practiced prehospital skills including administering an Epi-pen and naloxone, controlling hemorrhage, and completing a head-to-toe assessment.

Impact/Effectiveness: Students were surveyed following the experience using a standard clerkship evaluation about the effectiveness, relevance, and educational value. Survey results were overwhelmingly positive (Table 1). EMS Day has been continued in the next year of the clerkship.

Table 1. EMS day survey results.

| Question | Mean (Scale 1-5) | Standard Deviation |
|--|------------------|--------------------|
| This was a positive learning experience and an effective use of my time. | 4.47 | 0.79 |
| The course content was relevant to my training level or practice. | 4.55 | 0.75 |
| The staff and instructors were helpful and responsive. | 4.75 | 0.64 |
| I learned information/skills that I would incorporate into my practice. | 4.61 | 0.65 |
| I would recommend this course to my peers. | 4.48 | 0.81 |
| The instructor was enthusiastic and engaging. | 4.95 | 0.21 |
| The instructor created a comfortable and safe learning environment. | 4.91 | 0.46 |
| The instructor was knowledgeable about the subject. | 4.97 | 0.17 |
| The instructor was overall an effective teacher. | 4.94 | 0.3 |

59 Pediatric Emergency Bootcamp Pilot: Targeted Procedural and Simulation Skills for The Developing Physician

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Introduction/Background: Medical students should have a foundational level of knowledge for managing common pediatric emergencies regardless of what specialty they pursue. Often pediatric patients are treated by providers without dedicated pediatric training who have varying levels of comfort. Simulation-based training provides an opportunity to practice initial management steps for common pediatric emergencies in realistic settings.

Educational Objectives: We developed a simulation-based pediatric EM (PEM) bootcamp for students to increase their comfort level in performing common procedures in pediatric