

subjects were analyzed with paired tests. The statistical level of significance was set at 0.05.

Results: Pre- and post-intervention differences for the five sections of the TPQ, which consists of team structure, communication, leadership, situation monitoring, and mutual support were 3.1 to 4.2, 3.0 to 4.2, 3.3 to 4.3, 3.1 to 4.1, and 3.2 to 4.1, respectively. Pre- and post-intervention differences for the same five sections of the TPOT were 1.8 to 4.2, 1.4 to 3.9, 1.6 to 4.3, 1.3 to 3.6, and 1.4 to 3.8, respectively. All results were statistically significant.

Conclusion: This table-top team training program positively affected perception toward teamwork and their ability to recognize the presence and quality of team skills in disaster events.

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Burn Disaster Planning and Simulation Event in Quebec, Canada

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Study/Objective: The goal of this presentation is to discuss the making of a Burn Disaster Plan at the *Centre Hospitalier Universitaire de Montréal* (CHUM), a university environment that is not part of a trauma center, as well as describe the participation of the Montreal Burn Unit in a major live simulation event.

Background: Several burn disasters have occurred in the province of Quebec (Canada) in the last couple of years. These events have triggered a reflection on disaster preparedness among medical and other allied healthcare personnel at the Montreal Burn Unit.

Methods: The Montreal Burn Unit disaster plan required two-years of committee meetings and was designed around checklists for all involved personnel. On October 9, 2014, the Montreal health agency coordinated a major “Code Orange” drill to test the responsiveness of the health network to a simulated plane crash. In doing so, it evaluated the efficacy of the Montreal Burn Unit to receive disaster victims. This event was analyzed on site by personnel from Académie CHUM with expertise in simulation exercises.

Results: Participants were evaluated using direct observation, online survey, as well as debriefing sessions. The evaluation report from Académie CHUM revealed that the simulation exercise was greatly appreciated by all personnel involved. It helped validate the Montreal Burn Unit Disaster Plan including 1) pre-triage of burn victims in the emergency department, and 2) the designation of a triage physician-leader. Several areas for improvement were identified including 1) patient tracing, and 2) operating room availability.

Conclusion: Disaster planning and participation in a large scale, live disaster simulation exercise are demanding. For the CHUM, this investment brought priceless benefits: although not measured, the teams seemed strengthened and the coordination between departments and the culture of continuous improvement and learning appeared reinforced. Simulation of

disaster events will continue within the framework of the transformation process towards our new mega hospital NCHUM in 2017–18.

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Implementing Best Practice to Critical Patients from Disaster Events Through Simulation-Based Learning Program

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Study/Objective: To develop a standardized High-Fidelity Medical Simulation (HFMS) training curriculum focusing on specific assessment and treatment of disaster-related severe injuries presenting to the emergency department.

Background: Evidence suggests that most prehospital and hospital providers are inadequately prepared to manage a multiple-casualty incident. For hospital health care providers, it is critical for them to develop competency in managing patients injured from disaster events. Unfortunately, some of these patients could be really critical, and understanding the pathophysiology of the injury progress is important for good quality care for the patients. Although existing disaster training systems emphasize non-technical skills, there has not yet been an in-depth analysis in identifying the competency of clinical skills for disaster personnel. HFMS is being used in rare but critical clinical events to enhance the competencies of health care providers.

Methods: The educational intervention consisted of a half-day workshop (lecture-HFMS-debriefing) for selected 24 emergency residents (six teams). The objective of the scenario was to develop performance competency in managing critically injured patients in a disaster events, specifically, blast, radiation, and crush injuries. A checklist was developed to assess the performances of the participants. All pre-to-post differences within subjects were analyzed with paired t tests. The statistical level of significance was set at 0.05.

Results: The content validity index of performance checklist was 0.9. Pre- and post-intervention differences (percentage) for the six team performances were 67.7 to 84.6, 58.1 to 80.8, 51.6 to 84.6, 61.3 to 80.8, 51.6 to 65.4, 61.3 to 76.9, respectively. All results were statistically significant.

Conclusion: HFMS training program focusing on critically injured disaster victims positively affected performances of the participants.

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Evaluating, Learning and Simulation Exercise for Efficacy, A Course on Advanced Prehospital Trauma Care

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Study/Objective: In this study, we aimed to design a questionnaire battery for course and simulation exercise evaluation, and pilot-test the battery by evaluating a course on Advanced Prehospital Trauma Care (APTC).

Background: Many course evaluations suffer from simplistic metrics, such as whether the course participants “enjoyed” the course. In contrast, the current study sought to measure (self-estimated) pre- and post-course knowledge, relevant to specific learning objectives, as well as questions pertaining to specific factors of the simulation exercises used in the course (eg, fidelity/realism, learning objective fit, transferability of tools/procedures, usefulness, among others) were selected based on simulation theory and simulation-based training literature.

Methods: Data were collected during a course on APTC. Twelve students participated. The mean professional experience was 15.5 years. The participants completed an informed consent form prior to the study. They completed a pre-course questionnaire, a post-course questionnaire, and a course evaluation form.

Results: The mean self-estimated improvement in theoretical knowledge pertaining to the course objectives was 8.23 on a 0 to 10 scale, and 8.25 for practical skills. Greatest improvement was in advanced airway management, physiological reactions to hypothermia, pneumothorax interventions, special considerations for patients injured by explosives (eg, blast injuries and burns), and medical decision making during an active shooter scenario. The evaluation of the simulation exercises received high marks (mean rating 4.53 [3.92–4.92] out of 5.0) on all aspects. The participants rated the overall course quality at 4.67 (on a 0 to 5 scale), with the simulations, practical exercises, and the structure of moving from theory to practice being mentioned as particularly positive.

Conclusion: Overall, the results showed that the APTC course received high marks on almost all measured factors. Further validation of the questionnaires is needed before general implementation of the battery can be recommended. Such implementation would benefit diverse course development and quality assurance.

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An Electronic Competency-Based Evaluation Tool for Assessing Humanitarian Competencies in a Simulated Exercise

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Study/Objective: To present a novel, competency-based evaluation tool designed for rapid, electronic, offline use in a field-based simulation exercise.

Background: A growing number of humanitarian training programs are using simulation exercises in an effort to train and prepare humanitarians for work in the field. However, few field training exercises include methods and tools designed to assess the essential humanitarian competencies that participants must demonstrate in the SimEx and the field.

Methods: During a three-day humanitarian simulation event, participants in teams of eight to ten were individually evaluated at multiple injects by trained evaluators. Participants were assessed on five competencies and a global rating scale. Participants evaluated both themselves and their team members using the same tool at the end of the SimEx.

Results: All participants (63) were evaluated. A total of 1,008 individual evaluations were completed. There were 90 (9%) missing evaluations. All 63 participants also evaluated themselves and each of their teammates using the same tool. Self-evaluation scores were significantly lower than peer-evaluations, which were significantly lower than evaluators' assessments. Participants with a medical degree, and those with humanitarian work experience of one month or more, scored significantly higher on all competencies assessed by evaluators compared to other participants. Participants with prior humanitarian experience scored higher on competencies regarding operating safely and working effectively as a team member.

Conclusion: This study presents a novel electronic evaluation tool to assess individual performance in five of six globally recognized humanitarian competency domains in a 3-day humanitarian SimEx. When combined with testing knowledge-based competencies, this presents an approach to a comprehensive competency-based assessment that provides an objective measurement of competency. There is an opportunity to advance the use of this tool in future humanitarian training exercises, and potentially in real time, in the field. This could impact the efficiency and effectiveness of humanitarian operations.

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A Social Network Analysis of the Emergency Medical Command During a Live CBRNE Exercise

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Study/Objective: During major incidents, it is crucial that all actors in the emergency medical command have correct and