

ning, curriculum development, and faculty training. The session should be of interest to emergency and disaster educators, healthcare professionals, policy-makers, and researchers.

Keywords: Canada; course; disaster management; education; healthcare; professionals

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Effectiveness of Simulation-Based Training on the disastermed.ca Emergency Department Simulator in Addition to Problem-Based Learning for Medical Student Training in Disaster Medicine

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Introduction: Disaster medicine is an increasingly important part of medicine. Training in the practical aspects of disaster medicine often is impossible, and simulation may offer an educational opportunity superior to traditional didactic methods.

Methods: Twenty-two medical students at the Università degli studi del Piemonte Orientale were block-randomized into two groups of 11 students stratified by year of education. All participants received an eight-hour course of lectures and problem-based learning in disaster medicine. The intervention group received additional disaster medicine training on the disastermed.ca patient simulator, while the control group spent equal time on the simulator in a non-disaster setting. The ability of the two groups to manage a simulated disaster was compared.

Results: Students in the intervention group were able to triage their patients more quickly than the control group (mean difference = 43 seconds, 95% CI 0.34–1.09 minutes, $p < 0.0003$). Patients in the intervention group also were assessed more quickly (mean difference = 6.3 minutes, 95% CI = 0.4–12.1 minutes, $p < 0.04$). Scores of performance indicators on a standardized scale was significantly higher in the intervention group (18/18) compared to the control group (8/18; $p < 0.0004$). All students stated that they preferred the simulation-based curriculum to a lecture-based curriculum. When asked to rate the exercise overall, the median score was 8 on a 10-point modified Likert scale with no difference between the control and intervention groups.

Conclusions: Simulation of a mass-casualty incident increased the speed at which medical students were able to triage and assess simulated patients. Exposure to the disaster simulation also increased the scores on a structured command-and-control performance indicator instrument. Overall student satisfaction with the simulation-based curriculum was high, and all students felt that the simulation was a valuable learning experience.

Keywords: competency; disaster medicine; education; emergency department; medical student; simulation; training

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Enhancement of Self-Critical Learning and Coping with Stress through the Use of Serious Games

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Introduction: Disaster and emergency personnel must master a variety of medical skills and must be able to perform under various stressful circumstances. In general, medical personnel are highly educated and are expected to be self-critical individuals even under extreme circumstances. However, self-critical abilities seldom are trained or evaluated within these circumstances. The combination of training for critical tasks and coping with stress can be trained in a personalized way by using serious gaming techniques. Immersion in the real-life stressful context, by means of a game, is a strong trigger for the intrinsic motivation to learn. Serious gaming could be useful, but it is unclear in what way games should include self-critical learning and coping with stress.

Methods: Several studies on the possibilities of serious gaming for medical personnel were performed: (1) an investigation on self-directed learning in ambulance workers; (2) an adventure based learning experiment with military physician; and (3) a literature review on games and stress.

Results: The more subjects are capable of self-critical learning, the more they benefit from a game. Subjects can actively take control on what, how, and when they want to learn, which has an effect on self-efficacy and coping. Moreover, self-critical learning can be enhanced in a game, using feedback directed at the effects of stress on the critical performance of (medical) tasks.

Conclusions: The ways serious games can enhance self-critical learning and coping with stress will be elaborated upon.

Keywords: competency; education; game; learning; stress; training

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Development and Evaluation of a Graduate Certificate in Emergency Preparedness and Disaster Health as a Core Program for Health Professionals

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Introduction: The World Association for Disaster and Emergency Medicine (WADEM) Education Committee recommends that all health professionals be exposed to a core program in disaster health. This paper describes the framework, implementation, and evaluation of a Graduate Certificate in Emergency Preparedness and Disaster Health designed for health professionals.

Methods: Based on the WADEM Education Committee's framework for disaster health and the structure of the World Health Organization (WHO) Health Action in Crises Unit, a four-unit Graduate Certificate in Emergency Preparedness and Disaster Health was developed, implemented and evaluated.

Results: This Graduate Certificate evolved over three years and includes four units: (1) an introduction to emergency preparedness and disaster health; (2) emergency preparedness; (3)