

Title:

Disaster Preparedness in the Emergency Department With the Use of Insitu Simulation

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Session Title:

Disaster Preparedness Simulation

Slot:

E 12: Sunday, 29 October 2017: 4:15 PM-5:00 PM

Scheduled Time:

4:15 PM

Keywords:

Disaster Preparedness, Emergency Department and Health Care Providers and Insitu Simulation

References:

Ruesseler M., Weinlich M., Muller M. P., Byhahn C., Marzi I., Walcher F. (2012). Simulation training improves ability to manage medical emergencies. *Postgraduate Medical Journal*, 88, 312–316. <http://dx.doi.org/10.1136/pgmj-2009-074518rep>

Nicksa G. A., Anderson C., Fidler R., Stewart L. (2015). Innovative approach using interprofessional simulation to educate surgical residents in technical and nontechnical skills in high-risk clinical scenarios. *JAMA*, 150(3), 201–207. doi:10.1D01/jamasurg.2014.2235

Scott L. A., Swartzentruber D. A., Davis C. A., Maddux P. T., Schnellman J., Wahlquist A. E. (2013). Competency in chaos: Lifesaving performance of care providers utilizing a competency-based, multi-actor emergency preparedness training curriculum. *Prehospital and Disaster Medicine*, 28(4), 322–333. <http://dx.doi.org/10.1017/S1049023x13000368>

Abstract Summary:

Disasters have monumental effects on populations across the globe. The need for disaster preparedness is often negatively reflected and identifies vulnerabilities in infrastructures and healthcare organizations when disasters strike and is no longer a possibility but rather a reality we face and must prepare for in today's society.

Learning Activity:

LEARNING OBJECTIVES	EXPANDED CONTENT OUTLINE
The learner will be able to identify pros and cons of insitu simulation use in the emergency department.	Pros- The ability to identify vulnerabilities in the healthcare organization and infrastructure following an insitu simulation drill and the need for corrective actions to be implemented for such vulnerabilities. The ability to identify whether there is a deficit in knowledge, skills, communication, or a combination of any of the aforementioned to focus on areas in need. Cons- Cost, timing, and extensive planning are needed to perform an insitu simulation in

	designated areas in the healthcare organization.
The learner will be able to summarize three areas assessed during the disaster preparedness drill and will discover valid and reliable tools utilized in those assessments areas.	Three areas assessed during the disaster preparedness drill include: knowledge, skills, and communication. The Johns Hopkins Disaster Tool has been found to have a high degree of internal reliability and suggests the constructs to be valid. The FEMA Orientation to Hazardous Materials for Medical Personnel Self Study Guide IS 346 was found to have face validity following piloting at three healthcare organizations across the U.S. in both major metropolitan and rural areas.

Abstract Text:

Aims/Objectives: The project examined whether insitu simulation would increase emergency healthcare providers' knowledge of how to perform during a disaster, improve competency in skills related to those actions, and improve communication regarding the special circumstances inherent to a disaster in the ED. Outcome measures of interest included changes in providers' knowledge, skill levels, and communication following on-site disaster preparedness training with the use of simulation.

Background: High influxes of patients during disasters have led to increased incidence of medical errors in EDs ultimately leading to poor patient outcomes. Nearly 30% of errors committed in the EDs are due to deficiencies in knowledge and skills, and between 60%-70% of errors occur due in part from communication breakdowns.

Research Methods: Trained observers recorded results from observation of the drill on a validated observation tool. Pretest-posttest questionnaires were used to determine changes in providers' knowledge, skills, and communication across three time points: 1 month presimulation, 1 week postsimulation, and a retention measure at 4 months postsimulation. Sample: n= 55 ED providers. Setting: Academic Level 1 Trauma Center and designated Homeland Security Radiological Site in upper Midwest region of the U.S.

Instrument Reliability and Validity: Johns Hopkins Disaster Tool (JHDT) measured changes in providers' knowledge, skills, and communications demonstrated during a disaster simulation by two independent observers at designated areas during the insitu simulation. The JHDT has been found to have a high degree of internal reliability suggesting the constructs to be valid. The knowledge-based pretest/posttest was adapted from the FEMA Orientation to Hazardous Materials for Medical Personnel Self Study Guide IS 346 and contained 29 items on pretest and 30 items on posttest and retention surveys and was found to have face validity after being piloted at three hospitals across the U.S.

Research Findings: One-way ANOVA comparing the average percent of items correct for these three domains at three different time points was not found to be significant. Skill scores of providers did not significantly change from pre to postsimulation; communication significantly increased from post to retention; knowledge improved across all time points. Post hoc comparisons revealed significant differences between post and retention for communication. Kappa values of observers were moderate for the treatment and triage zones and fair for the decontamination zone.

Implications or Significance of Findings: Insitu simulation markedly improved knowledge and significantly increased communication amongst emergency healthcare providers during a disaster drill. Future

research is needed to develop quantifiable benchmarks for emergency healthcare providers' knowledge, skills, and communication during disaster preparedness drills.