

**Results:** A total of 117 staff participated in the drill. The median notification score was 6.5 (IQR = 3.5–9.0). The effectiveness and timeliness of the mass-notification system tied for the best notification categories by the staff while 39% felt the quality of the email message only rated a “1”. Radio communication received only moderate scores.

**Conclusions:** Mass notification of personnel with one-touch notification permits the maximum staff response to a MCI. Pilot tests should be performed to determine if staff comprehends the message.

Reliable back-up communication systems should be readily available and tested during drills. Marginal scores for these systems suggest hospital personnel inexperience that would be improved with additional drills.

**Keywords:** communication; drill; mass-casualty incident; notification

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### Live Victim Volunteers Enhance Performance Improvement in Mass-Casualty Incident Drills: Listen to the Patient!

*E.E. Moore; J.L. Kashuk; C. Colwell; C. Barnett;*

*C.C. Burlew; J.L. Johnson; W.L. Biff; A. Brody, A. Sabel*

Denver Health Medical Center and University of Colorado Health Sciences Center, Denver, Colorado USA

**Background:** Despite growing regulatory requirements for the implementation of a hospital-wide mass-casualty incident (MCI) plan, most trauma centers lack an in-hospital protocol, and little data are available to guide the development of drills. This plan is tailored after the Israeli approach. The purpose of this study was to determine whether live volunteer victims, in lieu of dolls, would provide important data and improve drills.

**Methods:** Live victim volunteers and hospital staff completed post-exercise questionnaires that evaluated the Regional, Level-1 Trauma Center's most recent MCI drill using Likert-scaled items from 1–10 (worst to best). Participants were instructed to answer any of the 26 items that applied to their experience during the drill. Responses to each question were compared using the median, interquartile range, and Mann-Whitney *U*-test. Statistical significance was set at  $p < 0.05$ .

**Results:** Twenty-nine live victim volunteers and 117 staff members participated. In 81% of responses, LVV ratings were higher than those of the hospital staff; in particular, security was valued significantly higher. Of note, digital camera profiling in admissions was rated the highest.

**Conclusions:** These results emphasize that while more difficult to coordinate logistically, the use of live victim volunteers provide important insights into MCI drill conduct for performance improvement. For hospital wide drills, live victim volunteers should be used instead of manikins.

**Keywords:** drill; live victim volunteer; mass-casualty incident; performance; victim; volunteer

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### Medical Simulation as a Training Tool for the Emergency Department Reinforcing Medical Staff in Mass-Casualty Events

*G. Hyams;<sup>1</sup> L. Orits;<sup>2</sup> H. Baruch;<sup>3</sup> M. Michaelson;<sup>1</sup> M. Barzelay;<sup>1</sup> S. Kradshtein;<sup>1</sup> E. Tal Or<sup>1</sup>*

1. Trauma Unit, Rambam Health Care Campus, Haifa, Israel

2. Nursing Administration, Rambam Health Care Campus, Haifa, Israel

3. Emergency Department, Rambam Health Care Campus, Haifa, Israel

**Introduction:** A mass-casualty event (MCE) is defined as a situation with more casualties than the system can manage, demanding more medical professionals than available. As a solution, the emergency department (ED) recruits staff from the surgical division and the intensive care unit (ICU). In order to train this staff a training program based on simulation was developed and executed.

**Methods:** An instructional program was developed for the medical staff. The program includes lectures about MCEs with computerized drills, followed by videotaped simulation scenarios of injured people (adult and child). The training is provided to a group of 12 nurses and five physicians assembled in the ED. The training begins with a short lecture about mass-casualty trauma life support and team work, followed by simulations, using the same space and equipment that would be used in a real event. The simulation occurs in a noisy environment with an increased presence of medical staff. At the end of the simulation, the participants review the film and debrief it.

**Results:** During the last four years, 191 nurses and 61 physicians were trained. The trainees reported that the goals achieved (4.76 out of 5), the scenarios were appropriate and reflected real scenarios of trauma (4.53). The simulations added new knowledge (4.16) and contributed to better performance (4.16). The combination between the theoretical and practical knowledge contributed to their confidence.

**Conclusions:** During the 2<sup>nd</sup> Lebanon War, the trainees had the opportunity to use this knowledge in real-time events. It is highly recommended to train teams in the environment and with the equipments and records that will be used in a real MCE. The simulations mimic the real situation as much as possible. An important aspect of each simulation is the videotaping and the debriefing. The trainees appreciated this plan that enhanced their skills, knowledge, abilities, and appointed role. Training by simulations provides a good method in light of a limited budget and shortage of personnel. In times of a limited budget, the training should be goal-focused and short in duration.

**Keywords:** emergency department; mass-casualty incident; medical; staff; simulation; training

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