

department staff. This study will assess whether the intervention generated an improvement in disaster preparedness in either or both groups.

Keywords: Australia; disaster; emergency medical services; exercise; hospital; mock; preparedness

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Development and Implementation of a Simulation Exercise for the Special Unit for Disaster Medicine in Collaboration with the “Hellenic Volunteer Rescue Team” Non-Governmental Organization

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The objective of organizing such an exercise for the first time is to test the effectiveness of working together with non-governmental organizations (NGOs) on search and rescue operations in case of mass-casualty incidents due to natural disasters, transportation crashes, and terrorist attacks. The scenario of the exercise involved disruption of the Corynth Isthm Bridge because of an earthquake and the subsequent rescue of the victims.

The Hellenic NGO team was responsible for search and rescue while the Special Unit for Disaster Medicine had the responsibility of triaging, treating, and transporting the victims to the hospital. There were no informational meetings to prepared each team arranged prior to the exercise.

To respond to the needs of the exercise, the NGOs participated with 30 people, 20 of whom had special training in rescue. They set up the necessary equipment for rope transportation over the Isthm. The Special Unit for Disaster Medicine participated with one team of 12 paramedics and one medical doctor, two rescue vehicles, and one mobile coordination center. On arrival at the disaster site, the title of incident commander was assigned, and team officers organized and started the triage and treatment process. The head of the medical services and one paramedic were assigned as observers. Nine victims were rescued, triaged, treated, and transported to the hospital in the first 30 minutes.

In conclusion, it was found that NGOs trained in search and rescue and the Special Unit team can collaborate to respond to mass casualties, and provide the best results. However, it is better if previously common exercises are effectuated to know each other and know about each other's work.

Keywords: communication; exercise; Greece; non-governmental organizations (NGOs); search and rescue; Special Unit for Disaster Medicine

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Use of Simulations in Prehospital Trauma Education of Paramedics: Development of an Educational Model

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Introduction: A literature review suggests that simulation training improves pre-clinical and possibly actual clinical performance in a range of health disciplines, and therefore, could be expected reasonably to do the same for paramedics. A project was undertaken, based on the observations of the Consultative Committee on Road Traffic Fatalities in Victoria over a 5-year period, that identified consistent management, diagnostic, and technique errors in prehospital trauma care associated with adverse outcomes.

Objectives: The study aimed to answer the question: “Do clinical simulations using a Human Patient Simulator in the education of paramedics in trauma care reduce error rates in pre-clinical performance?” In addition, the study examined the educational methods underpinning the conduct of clinical simulations.

Methods: The research design was a randomised, controlled study using a pre/post-test design. The participants were student Ambulance and Intensive Care Paramedics (n = 120) at three different phases of training. Ethics approval was obtained.

Results: Significant improvement in post-test performance was demonstrated by students undertaking simulation-based learning as compared to students undertaking case-study based learning ($p = 0.008$). A sub-group analysis demonstrated that the most significant difference between control and study groups was evident in novice paramedics ($p = 0.014$). This difference diminished in the more experienced student ambulance paramedic group ($p = 0.059$) and was not evident in the student intensive care paramedic group ($p = 0.767$). The method adopted for the conduct of simulations was further developed, identifying a third level to incorporate the impact of situational elements on learning.

Discussion: Several issues can be considered with respect to the results of this project. Firstly, it is suggested that the use of simulations is beneficial in prehospital trauma paramedic training. Consideration also should be given to the use of simulation in other health disciplines. Secondly, these results have provided new evidence to question some of the general assumptions concerning the conduct of clinical simulations at the Monash University Centre for Ambulance and Paramedic Studies (MUCAPS), which were the basis of the methods adopted for this project.

Conclusions: Results suggest that the use of clinical simulations is beneficial as a learning tool, with significant improvement in study group post-test scores when compared to control group post-test scores. These benefits, in terms of improved performance, were of particular significance in the novice group. Benefit also was demonstrated when mean gains were compared between control and study groups; however, these did not show a significant difference. These findings have implications for the development of future paramedic education programs. A new

model for the conduct of clinical simulations has emerged, recognizing the higher cognitive processes involved in problem-solving and decision-making when influenced by contextual distracters and change in patient condition. More detailed studies need to be undertaken to explore this model and how it may influence future education and training initiatives.

Keywords: model; paramedics; prehospital; simulation; training; trauma

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Is Western Pomerania Ready for a Mass-Casualty Incident—An Analysis of the “Karambol 2003” Simulation

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Objective: To present the level of preparedness of rescue services for medical emergencies based on an analysis of the “Karambol 2003” mass-casualty incident (MCI) simulation.

Methods: Karambol 2003, performed on 19 November 2003, was the first MCI simulation in the vicinity of the city of Szczecin, Poland. The analysis of the simulation was based on fire service data. The regional prehospital service did not provide any documentation on the course of the MCI simulation.

Results: None of the participants respected the scene borders. Ambulance teams did not follow the procedures designed for MCIs. Victims were evacuated against the rules of triage. There was no documentation of triage, and there was a lack of secondary triage. There were not enough triage tags; colored ribbons were not clearly visible.

Too little information was available about the number of victims and the severity of injuries on scene. Victims were abandoned on stretchers without any support. Pneumatic medical tents were not used properly for protection against bad weather conditions; victims were seated in the open. Because there was no media liaison or spokesperson, journalists were entering the scene without any supervision. Transport was not coordinated; the dispatcher did not use a helicopter.

Conclusions: The MCI simulation should be repeated as soon as possible in the same location. Further mass-casualty event simulations should be prepared. Only frequent simulations will demonstrate the need for mastering skills necessary in MCI situations or catastrophes.

Keywords: Karambol 2003; mass casualty; Poland; Pomerania; preparedness; simulation

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The Toys Brigg Exercise—A German-Netherlands Model for the Teaching Theory of Mass-Casualties Exercises

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Introduction: Inappropriate communication is a common cause of miscoordination in rescue missions.

Methods: Reliable communication is needed and only can be prepared in small parts that later can be put together into a more understandable whole (such as a building or a sentence). This communication model is similar to learning a new language; only consecutive speaking and training will allow communication in complex circumstances using this new language.

Results: For example, the evacuation plan of the ARKE-Stadion in Twente NL, (60,000 spectators) during the expected World Youth Soccer Championship 2005 was examined. Multidisciplinary and operational cooperation of different services, such as ambulance services from Germany and the Netherlands, as well as police and fire services, are essential.

Conclusion: With the help of results from a standardized Toys Brigg Exercise, the principles of communication within operational groups and organizations can be prepared inexpensively and can be transferred efficiently to a mass-casualty situation caused by a mass gathering.

Keywords: communication; Germany; model; Netherlands; Toys Brigg exercise

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Free Papers Theme 23: Disaster Planning-2

Free Papers Theme 24: Sharing Our Experience

New Orleans and Hurricanes: A City in Peril

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Recent floods due to hurricanes have demonstrated the complexity of the public health impacts of flooding, including trauma, and fires, as well as chemical, sewage, and corpse contamination of air and water. Disease risk in Louisiana during hurricane floods is very high because 40% of the state is coastal, and 70% of the population resides in coastal areas. Ninety percent of this zone is near or below sea level. Densely populated areas, such as New Orleans, rank among the highest in the United States in potential societal, mortality, and economic impacts of floods.

Louisiana's outer buffer to storm surges are its coastal wetlands. Since 1930, 500,000 Hectares (Ha) have been lost, 180,000 Ha seawards of New Orleans. Present annual loss exceeds 12,000 Ha. Most of New Orleans, originally built on the wetlands, is now below sea level. As a consequence, the potential impacts of hurricanes continue to worsen. A multi-disciplinary team, combining the resources of natural scientists, social scientists, engineers, and the mental health and medical communities, is using New Orleans as a test case to develop techniques and models for dealing with public health issues associated with complex disasters, such as hurricane flooding.