

CBRNE Preparedness. Metropolis the First Italian Non Conventional Biological Drill

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Study/Objective: Preparedness for terrorism and mass casualty emergencies is a continuous process of planning, training and drills, in which the success of each element is dependent of all the elements involved. In a new age of potential biological terrorism, there is an increased need for frontline clinicians, and all institutions involved in homeland security and emergencies response to work together, to increase the ability to cope with these potential threats. In 2016, Milan, Italy - the first non-conventional biological drill to test all entities involved in the response and treatment of mass casualty victims was organized.

Background: The management of Mass Casualty Incidents (MCIs), especially non-conventional, due to a possible release of Chemical, Biological or Radiological or Nuclear substances (CBRN), require that all institutions involved have the appropriate knowledge, technical and organizational skills.

Methods: The prefecture of Milan and the Afghanistan Research and Evaluation Unit (AREU), (The Regional Medical Emergency Service Company for Lombardia) decided to jointly organize a non-conventional drill. The METROPOLIS exercise was organized in order to test all the institutions involved in MCIs, both from the point of view of public safety, homeland security, and medical response. Two hospitals were involved, one as National Referral Center for Bioterrorism (for the non-conventional part of the exercise) and the another one for the treatment of conventional mass casualties.

Results: The exercise was organized with the simulation of a biological attack in a subway station and simultaneously a terrorist attack at the football stadium, with more than 100 victims and hostages. Prehospital decontamination procedures were performed and biohazard countermeasures were tested on the field and in hospital.

Conclusion: It was the first time in Italy, that a metropolitan non-conventional drill was organized, with a multitasking, multidisciplinary approach, underlining the importance to measure the performances and adequate skills of all entities involved in this exercise.

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A Hospital Mass Casualty Exercise using City Buses and a Tent as a Hybrid System for Patient Decontamination

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Study/Objective: A hospital mass-casualty simulation exercise testing the feasibility of two city buses and a tent as a hybrid system for patient decontamination.

Background: Despite being situated in a city known for its harsh winters, the Montreal General Hospital, a Level 1 Trauma Center, lacks a garage. On May 26, 2016, in its first mass-decontamination simulation exercise, city buses were tested as shelters for patients awaiting decontamination triage and for stable patients awaiting decontamination.

Methods: This multi-disciplinary simulation tested several steps of a hospital's response to an external disaster. The foregrounds of the hospital were cordoned off to create a single entry point for 30 volunteer "simulated" patients that were identified as contaminated by 21 staff wearing personal protective equipment. Non-contaminated patients were directed to a separate hospital entrance. Contaminated patients were triaged in Bus 1 to determine priority for decontamination. Bus 2 served as a holding area for stable patients awaiting decontamination. The decontamination area consisted of a tent adjacent to the emergency department (ED), with separate tracks for non-ambulatory and ambulatory male and female patients. Decontaminated patients were directed to the ED after donning clean hospital clothing.

Results: The use of buses as shelters was found to be practical as they are readily available, they are mobile units that provide protection from the elements, and have pre-arranged seating, as well as multiple entry and exit points. However, they were found to have limited capacity, and non-ambulatory patients were not easily transported inside. Furthermore, areas of improvement were identified in communication, staffing, equipment, and coordination of operations.

Conclusion: The use of city buses as triage and waiting zones prior to decontamination is a feasible option for centers without a garage and facing unpredictable weather conditions. Further simulations are required for fine-tuning and testing in real-time, unfolding of tasks, ideally during an unannounced exercise.

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Biological Nightmare, How to Respond to a Smallpox

Outbreak

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Study/Objective: To discuss the methods of detection and response, if a smallpox outbreak were to occur, due to a biological attack.

Background: With the availability of gene editing technology, even moderately trained personnel can manipulate a genome to make a virus more virulent. Combined with the possibility that strains of the smallpox virus are still available globally, since the fall of the Soviet Union, the possibility of an attack is entirely possible, and the efficacy of the response will determine if a local outbreak becomes a global pandemic.

Methods: Combining historical epidemiological data on the methods used to eliminate smallpox, such as the Ring vaccination, along with lessons learned from exercises such as