

**Conclusions:** The program was based on and added to the existing psychiatric and psychological emergency service for victims of multiple fatality incidents, which was necessary and useful to lowering stress levels in victims suffering from ASR. Post-analysis recommends adding an emergency telephone line for the staff and to offer PFA to all services in the hospital. A follow-up, evaluating the mental state of the patients to see if this program was successful is recommended.

**Keywords:** acute stress reaction; civilian; hospital; psychological first aid; war

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### New Concepts in Terrorism and Non-Conventional Global Threats: Ethics and Terror Medicine

*Dr. A. Rossodivita,<sup>1</sup> Prof. A. Trufanov<sup>2</sup>*

1. San Raffaele Hospital and Scientific Foundation, IRCCS, University of Medicine "Life and Health", Milan, Italy
2. Irkutsk State Technical University, Irkutsk, Russia

**Introduction:** After the 11 September 2001 attacks, it became clear that all countries could experience a mass-casualty incident (MCI) caused by the use of non-conventional weapons. Repeated terrorist attacks worldwide, and the global threat of a possible non-conventional chemical, biological, radiological, or nuclear explosive attack (CBRNE) now are considered worldwide problems. The size of attack, the setting, the sophisticated level of planning and organization, and the method employed were completely unprecedented. The risk of a possible CBRNE attack such as the risk of an attack using weapons of mass destruction (WMDs) is increasing. Public institutions such as government facilities, hospitals, universities, schools, or public gathering places may be targeted by terrorists using WMDs. All government and public institutions must be prepared to prevent or respond to such attacks. The health system plays a crucial role when reacting to terrorism. Appropriate, alternative actions for the response to these threats require planning with consideration of the level of risk and the local reality.

**Methods:** The authors analyzed and compared different forms of terrorism and non-conventional threats, with a specific analysis of the new form of international terrorism, in particular in the last decade. The study and application of laws and regulations based on protecting the population and with the respect to civil liberties, suggesting new concepts in terrorism and non-conventional threats, and terror medicine will be discussed.

**Results:** The knowledge of new terrorism concepts could help the international community improve responses and planning, teaching and drills, and improve preparedness in terror medicine. In addition, inter- and multi-level and interconnected cooperation at the national and international levels are emphasized.

**Keywords:** global; non-conventional weapon; terrorism; threat

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### Fire Victims: A Useful Model of Multiple Injuries in Training for War or Terrorist Casualties

*Colonel Francis Levy, MD, PhD*

Chief Medical Officer, Service Départemental d'Incendie et de Secours 7, Colmar, France

A civilian fire victim is potentially hurt by three types of injuries: (1) disorders from explosion, falls, defenestration, etc.; (2) heat trauma from burns; and/or (3) toxic aggression from smoke inhalation and soot contamination. In large fires, there also is a probability of a greater number of victims requiring an incident command system, triage, or the evacuation of a population (especially in forest fires). The treatment of fire victims needs prehospital triage, decontamination, antidotes particularly for cyanide, and a heavy need for of transportation including oxygen stocks. Hospitals require intensive care units, burn center beds, and in the case of multiple victims, international cooperation. These fire situations can be used as a model for chemical, biological, radiological, and nuclear terrorist attacks because they also combine all the different threats and the same problems.

This presentation will demonstrate, with different examples, how the management of civil fire victims can be used as a lesson for war or terrorist attacks involving explosion, air toxins, and multiple traumas.

**Keywords:** burn patient; chemical, biological, radiological, and nuclear; fire victims; management

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### Comparison of Injuries due to Terrorism and War

*Dena H. Jaffe,<sup>1</sup> Kobi Peleg<sup>1,2</sup>*

1. National Center for Trauma and Emergency Medicine Research, The Gertner Institute for Epidemiology and Health Policy Research, Tel-Hashomer, Israel
2. Department of Disaster Medicine, School of Public Health, Tel-Aviv University, Tel-Aviv, Israel

**Introduction:** Injuries due to terrorism and war are not necessarily comparable, especially among civilians and military personnel. The authors sought evidence-based data for use in identifying gaps and establishing protocol for the management of injuries according to conflict type and population group.

**Methods:** A retrospective study was performed using hospitalization data from the Israel National Trauma Registry (November 2000–December 2006).

**Results:** Terrorism and war accounted for trauma hospitalizations among 1,784 civilians and 802 military personnel. Most civilians (93%) were injured in acts of terrorism and transferred to trauma centers by land. Critical injuries and injuries to multiple body regions were more likely in terrorism than war. In contrast, military personnel were injured in both acts of terrorism and war and brought to trauma centers by land and air. Among military personnel war injuries tended to be less severe than those due to terrorism. Rates of first admission to orthopedic surgery were greater for all casualties except for civilians injured by acts of terrorism who were equally likely to be admitted to the intensive care unit. The rate of  $\geq 1$  surgical procedure within 12 hours of admission was higher among victims of terrorism than war casualties. In-hospital mortality was higher

among terrorism (7%) than war (2%) casualties, particularly among civilians.

**Conclusions:** The results indicate that injuries and hospital outcomes from terrorism compared with war were more severe, especially among civilians. Differences were likely the result of the unexpected nature of the attack and preparedness of the population group.

**Keywords:** injury; injury severity; terrorism; war

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### Do Modern Conflicts Create Different Medical Needs?

*Bruria Adini, PhD,<sup>1</sup> Robert Cohen, PhD,<sup>1</sup> Adi Givon, BA,<sup>1</sup> Irina Radomislensky, BA,<sup>1</sup> Michael Viner, MD,<sup>2</sup> Israeli Trauma Group; Kobi Peleg, PhD, MPH<sup>1,3</sup>*

1. Israel National Center for Trauma and Emergency Medicine, Gertner, Institute for Epidemiology and Health Policy Research
2. Clalit Health Services
3. School of Public Health, Tel-Aviv University

**Objective:** Management of combat and civilian casualties during military conflicts creates different medical needs. This study analyzed: (1) type of injuries and medical services utilized by military casualties in three conflicts; and (2) the medical needs of military and civilian casualties from the 2<sup>nd</sup> Lebanon War.

**Methods:** Military casualties from three conflicts and military and civilian casualties from the 2<sup>nd</sup> Lebanon War were analyzed. Casualties were compared in relation to type of injury, length-of-stay (LOS), and operating room utilization (ORU).

**Results:** The rate of orthopedic injuries and casualties requiring treatment in the intensive care units (ICUs) remained fairly constant. Hospital LOS for general surgery, neurosurgery, thoracic surgery, and otolaryngology patients decreased, while LOS in the ICU increased over the three conflicts. Soldiers tended to have a higher percentage of orthopedic injuries. The LOS for both populations was similar. More civilian casualties required admission to the ICU and the LOS was lower compared to soldiers. The type of injuries sustained differed significantly for the two groups ( $\chi^2 = 13.8$ ,  $df = 4$ ,  $p < 0.008$ ). Civilian ORU was higher for orthopedic and otolaryngological procedures, and the rate of general surgery ORU decreased.

**Conclusions:** The LOS possibly decreased due to improved evacuation facilities and diagnostic and therapeutic techniques. The exception was for burn casualties who, as a result of improved evacuation procedures, had an increased chance of survival.

Civilians are less protected during military conflicts, and therefore, are more susceptible to certain kind of injuries. Civilian and military medical needs differed. Civilians had a higher morbidity than soldiers, which resulted in an increased need for treatment in the ICU.

**Keywords:** civilian; conflict; injury; medical needs; military

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### Nuclear Terrorism: Appropriate Planning Saves Lives

*Irwin Redlener, MD*

Columbia University, New York City, New York USA

Timely risk communication around nuclear terrorism can save many lives in the event of an urban nuclear detonation. Yet, in the US and many other Western nations, little has been done to organize effective planning.

During the height of the Cold War between the Soviet Union and the United States (and their respective allies) the combined arsenal of nuclear weapons peaked at more than 60,000 warheads. Hovering on the brink of nuclear war for some three decades, the atomic apocalypse was averted through a combination of the precarious doctrine of “mutually assured destruction”, crisis aversion leadership, and pure luck. The accepted assumption in the disaster response community was that because destruction would be so widespread, response planning would be futile.

Fast-forward to a post-9/11 world where we have witnessed the rise of global terrorist organizations, the increasing evidence of small, independent terrorist units, the relative availability of nuclear know-how and materials, rogue states seeking nuclear weapons, and fanaticism bent on wreaking maximum destruction on perceived foes. Now, we face a new scenario where isolated, improvised nuclear devices (INDs) represent a very different kind of nuclear threat.

Unfortunately, many disaster planning officials and agencies, including those in cities most likely to be the target of nuclear terrorism, have done little to prepare. Many are stuck in the Cold War mindset of “planning futility”. Priorities are diverted to scenarios deemed “more likely or more manageable”.

In reality, however, a nuclear detonation, while devastating and deadly to many, also is survivable for the majority of a targeted city’s population provided that: (1) responders are prepared, both locally and regionally; (2) information is timely and accessible; and (3) citizens are aware of a relatively limited number of essential survival guidelines.

This presentation will outline strategies for citizen education around nuclear readiness, as well as a rationale for appropriate regional planning for IND detonations, including principles of long-term recovery and resiliency.

**Keywords:** communication; nuclear terrorism; planning; preparedness; responders

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### Prehospital Management of Emergencies and Mass-Casualty Events

#### Airmedical Evacuation during a Mass-Casualty Incident in a Remote Location

*MAJ Osbri Barel, MD,<sup>1</sup> MAJ Shachar Shapira, MD,<sup>2</sup> CPT Leon Levinson,<sup>2</sup> LTC Ronen Levite, MD,<sup>1</sup> COL Erez Barenboim, MD<sup>1</sup>*

1. Combat Rescue and Aero Medical Unit, Israeli Air Force, Israel
2. Surgeon General Office, Israeli Air Force, Israel

**Introduction:** On 16 December 2008, a tourist bus crashed near the city of Eilat, causing 53 casualties. Due to the geographical distance, airmedical evacuation was the major means of evacuation to Level-One Trauma Centers.