

other EMS services) and vertically (with hospitals and with the coordinating center). Magen David Adom protocols offer effective solutions, that have been used in Israel in drills and in real-life events. Emergency services should examine the adaptability of lessons learned and solutions offered by other countries.

**Keywords:** comparison; emergency medical services; Israel; M-11; Madrid; Magen David Adom

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### Comparison of Medical Consequences of Two Recent Armed Conflicts Involving Israeli Soldiers

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Israel

**Introduction:** The Second Lebanon War lasted 33 days, during which Israeli Defense Forces (IDF) troops were in southern Lebanon while the Israeli homefront absorbed a large number of missiles. Military activities resulted in 848 soldiers injured, 119 fatally.

Two years later, a confrontation of similar duration in southern Israel lasted a but resulted in fewer casualties and fatalities. The type and characteristics of these injuries will be described.

**Methods:** Data regarding all soldiers hospitalized or killed as a result of the war were collected and analyzed. Soldiers treated then discharged in the emergency department, and those with non-physical symptoms were excluded.

**Results:** In the first conflict, all but two injured victims were males. The mean age was 24.1 ±5.3 years. The majority (689; 81.2%) of the casualties were hospitalized, however 63% suffered only minor injuries (ISS = 1–8). Sixty-three percent of injuries were penetrating. The most frequent mechanism of injury was fragments, both among fatalities and among casualties. Gunshot wounds were four times more frequent among fatalities than among survivors, and burns were six times more prevalent. A total of 67% of the injuries occurred during the day. The average number of body regions injured was two. Most injuries were to the limbs; 23% of the patients suffered injuries in the chest, and 21% to the head. Nine percent of the injuries were to the eye region. Among soldiers who were killed, there was a higher prevalence of head, chest, and combined head and chest injuries. These results will be compared with the more recent conflict outcomes in Israeli Soldiers.

**Conclusions:** War casualties often sustain multiple penetrating injuries. The consequences for soldiers in combat zones of two subsequent armed conflicts of similar durations may be quite different.

**Keywords:** armed conflict; comparison; Israeli Defense Forces; medical

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### Disaster Planning and Analysis: An Evaluation of Emergency and Disaster Preparedness Education

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**Introduction:** Disaster preparedness necessitates a global, multidisciplinary approach. University programs are in a

unique position to systematically educate students about the scientific and applied aspects of disaster preparedness. This report focuses on one aspect of a university program aimed at integrating a specialization on disaster preparedness and response. The research will demonstrate how this can be facilitated by strategically equipping students with the applied skills and academic base necessary to serve as agents of emergency management planning at the global, national, regional, and local levels. It will focus on the theoretical and empirical foundations of planning preparedness, response, and recovery efforts.

**Methods:** The methodology will include a critical analysis of research-based planning models for aid in disaster preparedness and management.

**Results:** As part of a university program, the research will demonstrate the importance of emergency and disaster preparedness and management planning for first-responders and offer solutions to maximize their response capabilities through the use of methods and techniques that will help manage the stressors associated with disaster response.

**Conclusions:** This research effort will: (1) identify theoretical and empirical public and private sector planning models and integrate and apply them to key infrastructures, mitigation, preparedness, response, and recovery planning efforts; (2) critically examine issues and potential problems and solutions in planning and preparing emergency and public safety plans within a research-based framework; (3) analyze the potential ramifications of emergency and public safety operations on both the public and public safety workers; and (4) critically analyze concepts of current planning models and strategies to the planning and preparing process.

**Keywords:** disaster planning; disaster preparedness; education; research; students

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### Emergency Preparedness in Ecuador

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In the past 25 years, Ecuador and the Andean countries have been affected by major disasters. The study “Socioeconomic Impact Assessment and Environmental Disaster”, by the Economic Commission for Latin America and the Caribbean in 2003, found that approximately 33% of direct and indirect losses in the region were caused by natural hazards.

In the case of Ecuador, the study of the Corporación Andina de Fomento (CAF) “The Lessons of El Niño 97–98—Ecuador”, determined that El Niño caused an estimated \$280,000,000 in damage, nearly 15% of the 1997 gross national product.

In Ecuador, there have been no studies to determine causality between disasters and economic growth. However, when analyzing economic behavior during the last 25 years, there is an overlap between the occurrence of a major disaster (El Niño 1983, Earthquake 1987, El Niño 1997–1998) and the fall of the gross national product is apparent.

Ecuador is ranked fifth in the global disaster “hot spots”, and is subject to geological hazards (e.g., earthquakes and volcanic eruptions), hydrometeorological hazards (e.g., floods, windstorms, droughts, landslides and tsunamis.)

The National Government decided to strengthen the Government Risk Management as an opportunity for change. This is a new approach promoted to raise the risk management policy through measures such as promoting the incorporation of cross-risk management from a prospective approach and building a culture of prevention at all levels of society and the state.

The new institutional framework for managing risks in Ecuador has been demonstrated in three decisions and actions:

1. Support provided during the earthquake that hit Ecuador during the winter of 2008;
2. Creation of the Technical Secretariat of Risk Management;
3. Incorporation of the Risk Management as part of the development.

The mission and vision of the Technical Secretariat of Risk Management is based on participation of all citizens, including the less advantaged players, and promotes values that point to a greater solidarity among people.

**Keywords:** dissater; Ecuador; preparedness

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### Trauma, Thermal Burn, and Radiation Casualty Distributions following Nuclear Mass-Casualty Distributions in a Nuclear War between Israel and Iran in 2010–2020

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**Introduction:** The proliferation of nuclear technology in the politically volatile Middle East greatly increases the likelihood of a catastrophic nuclear war. It is widely accepted that Israel has nuclear weapons, and that Iran has enriched enough nuclear material to build one. The medical consequences of a nuclear exchange between Iran and Israel in the 2010–2020 window is envisioned, with specific numbers and distributions of casualties in urban environments.

**Methods:** Model estimates of nuclear war casualties were calculated using LANDSCAN 2007 population data, Defense Threat Reduction Agency (DTRA) Hazard Prediction and Assessment Capability (HPAC) for radiation, and customized GIS models for blast and thermal fluence casualties for four Israeli and 34 Iranian cities.

**Results:** Nuclear weapon detonations in the densely populated cities of Iran and Israel will result in staggering numbers of dead, dying, and seriously injured people, limited medical response for survivors, and the collapse of essential services. The larger yields and accuracy of Israeli nuclear weapons will result in greater casualty outcomes in Iran than corresponding Iranian attacks on Israel, where at least a million casualties could result. A nuclear attack on Iran could result in more than 15 million dead, with millions more injured with untreated trauma, thermal burn, radiation, and combination injuries. Health management for thermal burn and radiation patients is the most challenging, given the resources needed to treat thermal burns, and the lack of familiarity with the treatment of radiation victims.

**Conclusions:** The harsh reality of the enormous consequences for Iran and Israel will encompass unprecedented

millions of dead and suffering injured without adequate medical and social care, a broad base of lingering mental health issues in survivors, a devastating loss of infrastructure, and long-term disruption of essential social activity. Any rational analysis of such a nuclear war reveals the utterly unacceptable outcomes for either nation.

**Keywords:** casualty; Iran; Israel; mass casualty; nuclear; nuclear war; radiation; thermal burn; trauma

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### It's Not a Question of If but When and How Bad: Stage 6, Pandemic H5N1: Increased and Sustained Transmission in the General Population—A Clear and Present Danger

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The global healthcare community is unprepared for the inevitable pandemic caused by infectious agents such as the H5N1 virus. Unified Incident Command Systems and surge capacity triage algorithms fail to focus on ventilator allocation and rationing that will occur during such an event. Triage supervisors will decide who receives aggressive assessments and treatment.

In an effort to formulate an effective triage system for a pandemic event, actively networking with federal, state, community, and global disaster response specialists, reviewing evidence-based data on mass-casualty incidents, and attending international conferences on disaster medicine will be essential. Triage systems should incorporate existing and modified triage algorithms and operational plans.

Multiple disaster triage algorithms require significant modifications and must be standardized to address mass-casualty incidents due to avian influenza. Existing Unified Incident Command Systems remain dangerously flawed and unable to provide the required disciplined and unified command necessary to address or support effective ventilator triage.

Many patients, including children, may require ventilatory support within 48 hours of this event. This will require the restructuring of existing triage algorithms to include a primary focus on ventilator rationing, rapid and determined quality-of-life assessments, and extensive and sophisticated triage training.

**Keywords:** health care; mass-casualty incident; pandemic; population; triage

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### The Reality of Ambulances in a Developing Country

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**Introduction:** As the population enlarges, the number of disasters and emergencies also rises. Cities should be prepared with equipment and personnel. This study intended to verify and identify the preparedness of ambulance services to improve immediate medical attention during an emergency.

**Methods:** This was a qualitative and quantitative study that consisted of observations of the ambulances' activities of the different hospitals in the city. The quantity and classification of the ambulances also were recorded.