

management of burns and mass casualties to healthcare providers (and the general public) at undergraduate and postgraduate levels, the expansion of specialty burns teams, incorporation of burn injuries into triage standards, and the development of prospective, centralized burn-center databases. **Conclusion:** Vulnerability can be reduced by analyzing lessons from previous disasters. This potentially could diminish the effect disasters have on lives and local infrastructure. **Keywords:** burn; disaster; literature review; mass-casualty incident; recommendations

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### Teleconsultation for Deployed Healthcare Professionals in Current Combat and Disaster Operations

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**Background:** In April 2004, the United States Army approved the use of the Army Knowledge Online (AKO) email system as a teleconsultation service for remote consultations from healthcare providers in combat to medical subspecialists in the US. The success of the system resulted in its expansion to include 12 additional clinical specialty services including teletrauma (trauma-burn) consultation. The goal of the program is to provide a mechanism for enhanced diagnosis of remote trauma cases, resulting in an improved evacuation system.

**Methods:** Consults are generated using AKO routed through a contact group composed of volunteer on-call consultants. The project manager receives and monitors all teleconsultations to ensure Health Insurance Portability and Accountability and Accountability Act of 1996 (HIPAA) compliance and the recommendations of the consultants are transmitted within a mandated, 24-hour time period. A trauma “clinical champion” is responsible for recruiting consultants to answer the consultations.

**Results:** Over 2,050 consults were performed, with an average reply time of five hours from receipt of the teleconsultation until a recommendation is sent to the referring physician. Trauma-burn had 48 consultations since its inception, resulting in the prevention of three evacuations. A total of 51 known evacuations were prevented from use of the program, while 50 known evacuations have resulted following receipt of the consultants’ recommendation.

**Conclusion:** The teleconsultation program has proven to be a valuable resource for physicians deployed in austere and remote locations. Furthermore, use of such a system for austere physicians may prevent unnecessary evacuations and/or result in appropriate evacuations when patients are underdiagnosed.

**Keywords:** combat; consultation; evacuation; teleconsultation

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### Session 2

*Chairs: TBA*

### Successful Transtracheal Lung Ventilation using a Venturi Pump: A Combined In-Vitro and In-Vivo Study

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Lung ventilation through a thin, transtracheal cannula may be attempted in patients with laryngeal stenosis or in “cannot intubate cannot ventilate” situations. It may be impossible to achieve adequate ventilation if the lungs are emptying spontaneously through the thin transtracheal cannula that imposes high resistance to airflow, resulting in dangerous hyperinflation.

A Venturi pump that may be used as a bi-directional valve that, if supplied with a pressurized gas source, could provide active inflation and deflation of the lungs was constructed.

The capacity of such a device was tested in-vitro using mechanical lungs in combination with two different cannula sizes and various gas flows. The device was tested on five pigs using a transtracheal 16 G cannula with different predefined inspiratory/expiratory times and gas flow modes.

In the mechanical lungs, the device permitted remarkably higher minute volumes compared to spontaneous lung emptying. Used in-vivo, the arterial oxygen and carbon dioxide partial pressures increased initially to remain then stable over one hour (PaO<sub>2</sub> 470.886.8; PaCO<sub>2</sub> 63.07.2 mm Hg). The peak inspiratory pressures measured in the trachea remained below 10 cm H<sub>2</sub>O and did not substantially influence central venous and pulmonary artery pressures. Mean arterial pressure and cardiac output were unaffected by the Venturi ventilation.

The present study demonstrated in vitro and in vivo in adult pigs, that satisfactory lung ventilation can be assured with transtracheal ventilation through a 16 G cannula for a prolonged period of time if combined with a bi-directional Venturi pump.

**Keywords:** in-vitro; in-vivo; transtracheal lung ventilation; Venturi pump

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### Emergency Service Evacuation Plans in Unusual Situations

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Emergency services perform health services in a fast, unlimited, and intensive way in ordinary circumstances. This tempo increases in unusual situations. The number of the victims waiting for care, the seriousness of their medical problems, their method of presenting to emergency services, and timing cause stress on the quality of the emergency health services.

Upon the suspicion that an nuclear, biological, chemical agent was found in one of the cargo packages at Ankara

Esenboga Airport on 10 February 2005, 43 workers were contaminated. These workers were transferred to SSK Diskapi Hospital Emergency service. During the management of the event, SSK Diskapi Hospital was quarantined and the entrance and exit of the other patients was stopped. The patients whose tests and treatments were continuing, and who also were kept under observation in SSK Diskapi Hospital Emergency service, were referred to the emergency services of the other hospitals by the Ankara 112 Emergency Health Services ambulance teams, due to the concern that they would not be able to receive sufficient care during the quarantine. As was the case during Esenboga Event, in unusual conditions, there is a necessity for “Unusual Situation Support Protocols” among the emergency services servicing within the same garrison/metropol. Provincial Inter-Emergency Services Coordination Commissions (ASKOM), to which the emergency services within the same responsibility area are affiliated should establish these protocols for their cooperation in unusual situations.

**Keywords:** emergency; emergency medical services; evacuation; hospital; planning

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### Triage is Broken

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At the Medical Readiness Conference, Former Air Force Surgeon General PK Carlton declared, “Triage is broken”. Triage is an effective protocol to organize the chaos of a disaster, but has little to no scientifically valid impact on the medical aspects situation: maximizing the patient’s survival! With over 35 years of expertise, including developing the Revised Trauma Score, the Injury Severity Score, and the Trauma Injury Severity Score, Dr. Bill Sacco now has introduced an evidence-based triage method which maximizes life saving and is used everyday on every trauma call. This presentation will demonstrate the research, evaluation, operational aspects, and life-saving capabilities of evidence-based triage.

At the end of this presentation the participants will be able to:

1. contrast current triage practices with the Sacco Triage Methodology (STM);
2. identify failures in commonly used triage practices relative to patient survivability;
3. describe why the “moving patients” versus maximizing survival approach to triage is ineffective; and
4. demonstrate the proper method of assessing for all patients of a mass-casualty incident or disaster

**Keywords:** disaster; evidence-based triage; life saving; survival; triage

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### International Life-Saving Federation: Position Statement—Aquatic Disasters

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The International Life Saving Federation (ILS) is the world authority on the reduction of drownings and aquatic injuries, and uses traditional methods such as education, prevention, and rescue training to prevent such injuries. There are 66 full member countries and even more associate and corresponding member countries participating in the Federation.

Throughout history, many tragic aquatic disasters have occurred. They include floods, cyclones, typhoons, hurricanes, shipwrecks, aircraft crashes, oil rig disasters, and tsunamis. The largest global aquatic disaster of the past century is the December 2004 Indian Ocean Tsunami, when an estimated 280,000 people lost their lives. There is a role for the ILS member organizations to reduce morbidity and mortality in international aquatic disasters.

International tragedy can be lessened by international effort. That international effort may include: (1) assisting in planning and implementing preventative and rescue strategies; (2) health management; and (3) post-event debriefing. The ILS has helpful recommendations to assist government planners as well as lifesaving and disaster managers to reduce the morbidity and mortality from aquatic events. These recommendations are in the areas of prevention, rescue, health management, and debriefing education.

**Keywords:** aquatic event; disaster; education; international collaboration; International Life Saving Federation

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### Poster Presentations—Theme 8: Life-Threatening Situations in Daily Emergencies and Disasters

#### (119) Air in the Carotid Canal as a Predictor of Distal Internal Carotid Artery Laceration 10

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The medical care of a patient, 25 years of age, with blunt trauma-induced bilateral, distal segment internal carotid artery (ICA) lacerations, resulting in a left-sided direct carotid-cavernous sinus fistula (CCF), and presenting with massive oronasal bleeding is described. Computerized tomography images showed free air in both carotid canals. The combination of severe oronasal bleeding, with air in the carotid canal should alert the treating physician to the presence of a distal internal carotid artery laceration.

**Keywords:** carotid canal; computerized tomography; distal internal carotid artery laceration; trauma

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