

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 (PaO₂ 470.886.8; PaCO₂ 63.07.2 mm Hg). The peak inspiratory pressures measured in the trachea remained below 10 cm H₂O 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