

**Conclusion:** The Pre-ACLS training course is a valuable teaching design to strengthen the ACLS concept and skills.  
**Keywords:** advanced cardiac life support; education; pre-ACLS course; training

#### P-18

##### Accelerated Clearance of Carbon Monoxide by Normocapnic Hyperpnea in Human Subjects

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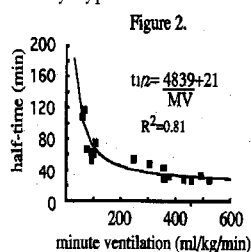
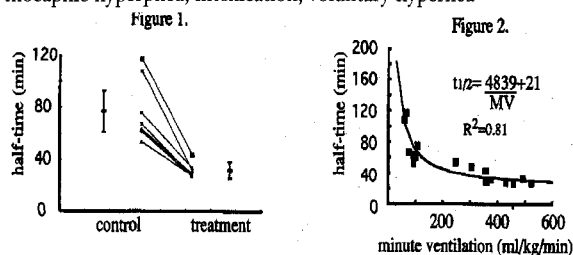
**Background:** The rate of carbon monoxide (CO) elimination is increased by CO<sub>2</sub>-stimulated ventilation in CO poisoned, unconscious dogs. However, most conscious humans are unlikely to tolerate prolonged breathing of 5–10% CO<sub>2</sub>. We proposed to determine: 1) the effect on the half-time of carboxyhemoglobin (COHb) elimination (T<sub>1/2</sub>) of a voluntary increase in ventilation of approximately 5 times from resting levels with F<sub>I</sub>O<sub>2</sub> = 100%; 2) whether this level of hyperpnea is sustainable long enough to provide therapeutic benefit when the PCO<sub>2</sub> is maintained at control levels; and 3) the effect of minute ventilation on the half time of elimination of carboxyhemoglobin.

**Methods:** After obtaining institutional board approval, seven normal male volunteers were exposed to CO until their venous [COHb] reached 10%. They then breathed 100% O<sub>2</sub> at resting ventilation or approximately 5 times the resting level of ventilation (~96% O<sub>2</sub>, balance CO<sub>2</sub>) for 1.5 h on separate days. A non-rebreathing circuit (*Eur. Respir. J.* 1998;12(3):698.) was used to prevent changes in P<sub>ET</sub>CO<sub>2</sub> during hyperpnea. The T<sub>1/2</sub> was calculated from plots of [HbCO] versus time.

**Results:** 1) The T<sub>1/2</sub> significantly fell from 78 minutes at resting ventilation to 31 minutes with hyperpnea (*p* < 0.01) (Figure 1); 2) All subjects sustained the hyperpnea without difficulty; and 3) There was a hyperbolic relation between minute ventilation (normalized for body weight and a [Hb] of 15 g/L) and the T<sub>1/2</sub> (Figure 2). P<sub>ET</sub>CO<sub>2</sub> during hyperpnea did not differ from that during resting ventilation.

**Conclusion:** Sustainable hyperpnea can markedly reduce the T<sub>1/2</sub>. There is a marked effect on T<sub>1/2</sub> of small increments of minute ventilation (effort) from resting ventilation. We suggest that normocarbic hyperpnea may provide an effective inexpensive pre- and in-hospital treatment option for acute CO poisoning.

**Keywords:** carbon monoxide; clearance; half-life; hyperpnea; normocapnic hyperpnea; intoxication; voluntary hyperpnea



#### P-19

##### Emergency Nursing Care in Penetrating Cardiac Injury

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**Introduction:** Penetrating cardiac injuries result in a high mortality emergency, even for those patients who reach a hospital with vital signs present. Successful emergency management requires teamwork involving Emergency Physicians, Surgeons, and Emergency Nurses.

**Case report:** A 36-year-old male sustained self-inflicted stab injuries over the left precordial and left neck regions. Penetrating injuries were identified medial to left nipple and a deep laceration over left neck were noted. Massive hemorrhage was present on arrival by ambulance at the Emergency Department. After emergency management that included primary resuscitation and surgical intervention, he was diagnosed as: 1) penetrating cardiac injury with left ventricle rupture and cardiac tamponade; and 2) penetrating lung injury to the left upper lobe with a left side hemothorax. He was discharged without significant complications after successful primary management.

**Discussion:** From the viewpoint of nursing care, the provision of care by specialized emergency nurses shortens the resuscitation time, and increases the performance of teamwork. We will identify various nursing strategies for the patient with penetrating cardiac injuries, and will discuss the roles of the specialized emergency nurses in dealing with trauma cases.

**Keywords:** cardiac injuries; chest trauma; nursing care; penetrating injuries; stabbing

#### P-20: Tug-of-War Not Only Was a Game, But a Disaster

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A mass playful contest may be a game, but also may become a disaster. We present a disaster about the tug-of-war contest causing injuries to 54 victims. On 25 October 1997, The Taipei City Government organized the tug-of-war, entitled, "Rocking the Mountain and River — Wrestling of Ten Thousand People" in Taipei. A modified tug-of-war rope system was used according to the ancient Chinese history that involved approximately 1,600 participants simultaneously in one single competition. A total of 54 people were injured after the rope snapped during an otherwise playful massive tug-of-war. There were only two physicians and two nurses on duty on the spot. Five victims were seriously injured

including two traumatic amputations of their left arm, one liver laceration with internal bleeding, one traumatic amputation of the left thumb, and one with open fracture of the first metacarpal bone and the second proximal phalanx. The injured were rushed to five nearby hospitals for emergency treatment.

Using the Potential Injury Creating Event (PICE) system, the incident is classified to be dynamic, paralytic, local, PICE stage III at the scene initially; then dynamic, disruptive, regional PICE stage I later. There have been no similar incidents reported for this sport in the past.

We conclude that this type of mass activity should be the subject of disaster preparedness and planning.

**Keywords:** injuries; mass gatherings; multicasualty incident; planning; preparedness; sports events; tug-of-war

#### P-21

##### **Legal, Diplomatic, and Geopolitical Concepts that Physicians on International Humanitarian Missions Should Know**

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**Introduction:** Over the past three decades or so, humanitarian missions have acquired a certain professionalism, benevolent service, and idealized internationalist enthusiasm that gradually is being replaced by a more structured humanitarian medicine that is better taught and coordinated with the view to preparing physicians for the diverse problems of humanitarian action.

**Objectives:** This study is part of a medical thesis (PS) that attempts to evaluate the deficiencies observed by health workers in their humanitarian missions, and to define the components of a specific training program for such personnel.

**Study:** Based on interviews with specialists of humanitarian missions (principally members of inter- and non-governmental organizations), the authors formulate the contents of a university pedagogic program that integrates three specific disciplines: 1) public international law; 2) international humanitarian law; and 3) diplomatic-geopolitical action.

The paper proposes a program with examples of its utility in the varying aspects of different missions. Such teaching also can be useful to the medical directors, mission administrators and IGO or NGO cadres in organizing their work and managing public and personal relations with their local professional and political counterparts.

**Keywords:** diplomacy; geopolitics; humanitarian medicine; Humanitarian mission; international law, training

#### P-22

##### **Disaster Preparedness: The Role of the Nurse**

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Emergency nurses play an important role in the "all hazards" approach to hospital disaster planning in the USA. Ideally, emergency nurses act administratively with physicians to coordinate, develop, and support protocols for patient and Emergency Department management.

It is necessary that every hospital develop the capacity to safely assess and treat patients exposed to hazardous materials either from industry, transportation, or from a terrorist attack. Emergency nurses are involved actively in decision-making with all aspects of disaster planning and implementation. In addition, they continue to refine and improve disaster planning based on performance drills and actual disasters. They amend policies and procedures as needed to ensure safety and standards of care. Nurses also act as liaisons into the community for the purpose of planning with officials that may be involved in actual disasters (Fire Chief, City Manager, Police and Transportation Administrators).

In this presentation, specific events will be cited to support the preparation of the Emergency Department to safely deal with hazardous materials (HAZMAT) exposures and victim management.

**Keywords:** administration; disasters; drills; emergency department; hazardous materials (HAZMAT); liaison; nurses; planning; policies; preparedness; procedures; protocols

#### P-23

##### **Northeastern North America Ice Storm Tests Disaster Medical Assistance Teams' Preparedness**

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In January 1998, a severe ice storm struck areas of northeastern United States. Several consecutive days of rain combined with ground temperatures below freezing layered thick coats of ice on trees, roads, and buildings that paralyzed many communities. The weight of the ice snapped trees, causing power outages from damaged electrical towers and power lines. Loss of power and heat in many areas brought life to a standstill during the coldest time of the year and challenged municipal resources. The ice damage closed many doctor's offices and several hospitals.

The Massachusetts Boston and Worcester-based Disaster Medical Assistance Teams (DMAT) deployed team members to northern New York State to assist with medical services. Physicians, Paramedics, Nurses, EMTs and other medical support personnel from Massachusetts used four-wheel drive vehicles to transport the