endangered species. The value of certain research may offset the expense and ethical issues of using primates, but seldom is their use of sufficient value for teaching common procedures to justify the use of a primate for such purpooses.

Deceased Human Models: Human cadavers are the most realistic. Humans, live or dead, must be treated with dignity and respect. They, or their kin, have the right to determine what can be done to them. Donated cadavers pose only financial and didactic issues. Cadavers are cold, may be preserved, do not bleed, and their tissues are stiff. The newly dead are more like a living patient, but may not have given consent prior to their death. Is it ethical to continue a futile "code" a little longer to practice "running a code"? Is there really no chance that the person might revive? Is it ethical to continue long enough to let one more person perform some procedure? Does the invasiveness of the procedure matter? Is there a difference between practicing CPR, intubation, venipuncture, pericardiocentesis, or open-chest cardiac massage? Alternatively, is it ethical not to practice at every opportunity so that when the skill is needed, it is ready?

Live Human Models: The use of live humans raises additional issues of consent and coercion. The less invasive the procedure, the less concern regarding the coerciveness of consent. Patients who are used for training purposes should be so informed. Many of the same principles should guide recruiting volunteer human models as guide the human research subject. The volunteer may altruistically wish to aid in medical education and perhaps wishes for some personal gain, but should not stand to gain anything of sufficient value so as to be an unfair or coercive inducement.

Keywords: animals; coersion; education models; emergency medicine; ethical issues; ethics; learning; models; skills; teaching models; volunteers

G-88
Management of Mass Casualties from Traffic Accidents in the City

Hong-Qi Zhang, MD; Yu-Zhen Zhang
Disaster Medicine Editorial Committee, Shanghai, Peoples Republic of China

China has only 2.2% of the total numbers of motor driven vehicles in the world, but the number of automobile accidents is 9.0% of the total automobile accidents in the world. Currently, the annual number of deaths from traffic accidents in China approximates 86,000 persons. Shanghai is one of the biggest cities in the world. It contains a population of 13,000,000. Statistics from the past five years indicate that the traffic accidents exceed the past records by 60,000 cases with an average of two persons killed daily. The Shanghai First Aid Central Station (SFACS) is composed of 173 ambulances and 517 specialists. Altogether, 110,889 persons requiring first-aid were transported by SFACS in 1998. The number of persons wounded by traffic accidents and disaster was 26,681 persons with 318 persons found dead before hospitalization.

All patients who have sustained severe injuries due to trauma should be transported to an identified hospital in Shanghai. Every central hospital in Shanghai is setting up a Resuscitation Department so as to receive massive numbers of critically wounded casualties in accordance with the condition of the disaster. The function of a Resuscitation Department is to sort out all the critically wounded from ordinary ones and provide resuscitation and render all supportive treatments concerned. Their function include:

1) Cardiopulmonary resuscitation;
2) Immediate treatment of life-threatening respiratory failure, organ injures, and the loss of blood; and
3) Initial management of fractures and injuries from these disasters with transportation to the Orthopedic Department.

Keywords: cardiopulmonary resuscitation; emergency medical services; hospitals; injuries; mass casualties; resuscitation; resuscitation department; Shanghai; traffic accidents; trauma

G-89
Evaluation of Emergency Medical Services Systems (EMSS) for Burn Patients in Osaka Prefecture

Hiroaki Ujino; K. Akizuki; Y. Sakate; T. Ihara; T. Miyaichi; T. Kim; H. Rinka; M. Kan; T. Shigemoto; T. Yoshimura; A. Kaji; K. Tsukioka; T. Ukai
Emergency and Critical Care Medical Center, Osaka City General Hospital, Osaka City, Osaka, Japan

Introduction: The population of Osaka Prefecture is 8,730,000, which is the second biggest in Japan. Based on the Emergency Medical Service System (EMSS), Osaka Prefecture is covered by 33 fire departments, and has 17 tertiary emergency medical care facilities that always are available for acute life-threatening diseases and injuries including burns. This study examined the efficacy of the EMSS in the care of burn victims.

Methods: The efficacy of EMSS for burn patients was studied in 1996, using a questionnaire sent to the 33 fire departments and 17 tertiary emergency hospitals.

Results: The replies from the fire departments indicate that 1,103 burn patients were transported to hospitals by ambulance in 1996: there were 71 patients with severe burn injury of more than 30% of their body surface. For every 1,000 population, 1.26 burn victims were transported by ambulance in a year, and 0.8 victims per 100,000 persons had severe burns in Osaka Prefecture.

Of the severely injured 71 patients, 48 (67.6%) were admitted to the tertiary emergency hospitals. And 91.4% of the patients whose burn area did not exceed 30% were carried to the primary or secondary hospitals. When an ambulance crew noticed that the patients might have an inhalation injury, they were transported mainly to the tertiary emergency hospitals, as were the severe cases.

According to the replies from the questionnaire sent to the 17 tertiary emergency hospitals, 35 patients with

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severe burns can be accepted at the same time, and 74 moderately injured patients could be received in Osaka Prefecture.

Conclusion: The triage of burn patients seems to be performed satisfactorily according to EMSS in Osaka Prefecture. The capacity for severe burn patients is limited in Osaka Prefecture, so it is an urgent issue to prepare the system for mass burn casualties.

Keywords: burn centers; burn victims; capacity; casualties, mass; emergency medical services system; fire department; incidence; inhalation injury; hospitals

G-90
Emergency Medicine Models: International/ Mexico 1998

Armando Iturbe Fuentes, MD
Postgraduate in Emergency Medicine, President of the Mexican Society of Emergency Medicine

Around 1910, the first emergency room for prehospital emergency medical care was born. In Mexico City, the 1950s and 1960s, gave origin to hospitals for emergency and pediatrics emergency hospitals. In 1985, the earthquake in Mexico City resulted in the formation of postgraduate in training in Emergency Medicine with the objective of serving as the initial point of contact for the provision of emergency care to injured persons. The Mexican Society of Emergency Medicine formed in 1987, and in 1992, the Mexican Board of Emergency Medicine was born. In 1994, one year was added to the postgraduate training in Emergency Medicine, which was called Reanimatology. Between 1987 and 1996, three national congresses, three international congresses, and two Pan-American congresses were conducted in Mexico.

Emergency room: The emergency room that area within a hospitals that has the principal objective is to provide the first contact with and to provide emergency medical care to patients who immediately are in need of such services.

Organization: Leader, postgraduate student leader, and pregraduate students.

Support services: Nursery, pharmacy, laboratory, radiology, and general services are immediately available for patients in the emergency room.

Destinations: Patients in emergency room may be transferred to a critical care unit, surgery room, pathology, hospitality area, trauma-shock room, or discharged.

Characteristics of the Emergency Room: The ideal stay in the emergency room is up to six hours; a prolonged stay lasts for 12–24 hours or longer. There are many causes for a prolonged stay in the emergency room including the provision of dynamic services for patients who remain unstable, need of resolution of diagnosis using finer diagnostic studies, or persons who require swift, frequent management.

Future: Algorithms for the practice of emergency management of trauma will diffuse throughout Latin America. There will be a shock room in each hospital, a trauma team configured, efficient prehospital care, and efficient exchanges arranged with first world countries to form the Emergency rooms of the XXI Century.

Keywords: algorithms; emergency medicine; emergency room; future; hospitals; Latin America; Mexico; organization; reanimatology; support; training

Panel Discussion IV
Medical Response Against Terrorism
Wednesday, 12, May, 9:50–12:00 hours
Chair: ***Mauricio Lynn, Makoto Aono***

PN4-1
Epidemiological and Medical Aspects of Terrorism

M. Lynn, MD; U. Farkash, MD; R. Maor, MD; A Eldad, MD
Israeli Defense Forces, Medical Corps Headquarters, Israel

Fourteen suicide bombings occurred in Israel between the years 1994 and 1997. A total of 1,242 citizens were injured including 165 deaths (13.2% overall mortality). Most victims (70 %) suffered minor injuries (ISS = 0–8). Six percent were classified as moderate injuries (ISS = 9–14), and 10% were severely injured (ISS >16).

Forty percent of the victims were injured due to secondary blast. Twenty percent suffered primary blast injuries. Limbs were found to be the body area injured in 30% of the victims followed by eardrum rupture and head injury in 17% and 15%, respectively.

The scoop and run philosophy was implemented to almost all victims. In the last two bombings that occurred in Jerusalem in 1997 (a total of 410 injured), all victims with an ISS above 16 were primarily triaged to a Level I Trauma Center in <45 minutes from the explosion. Minor and moderate injuries were triaged to three other hospitals.

Mortality was compared among three types of bombings: 1) Open air; 2) Bomb inside a bus; and 3) Car bomb striking a bus. High mortality (32%) was observed when the suicide bomber was inside the bus. Open-air bombings caused the largest number of victims and 10% mortality. Most of deaths (85%) occurred at the scene. Four percent were dead on arrival (DOA) and 11% died during hospitalization.

Body identification was performed using different techniques: personal identification was used in almost half of the deaths. Other techniques included fingerprints, documents, dental identification, and DNA testing.

Several factors were found to have a major impact on prehospital management of mass-casualty situations: 1) access routes to attack site; 2) control of initial chaos; 3) extent of field medical care; 4) evacuation routes; and 5)primary distribution of victims.

Keywords: body identification; bombing, suicide; bombings; injuries, blast; mass casualties; prehospital; terrorism; trauma center; triage

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