Services and Transportation

Public Pressure and a Scientific Approach to Evaluate the Potential Benefits of a Full-Scale Paramedic Program

A. Lavoie;[1] F. De Champlain;[2] B. Côté;[3] R. Banken[3]
1. Hopital de l'Enfant-Jésus, Quebec City, Quebec Canada
2. McGill University Health Centre, Montreal, Quebec Canada
3. Agence d'évaluation des technologies et des modes d'intervention en santé (AETMIS), Montreal, Canada

Problem: In the province of Quebec, Canada, primary care paramedics (PCP) provide basic life support, administer a limited number of medications, and supply semi-automatic external defibrillation. The system does not provide advanced prehospital paramedical care. Following PCP union and media pressure, the health minister mandated the "Agence d'évaluation des technologies et des modes d'intervention en santé" to provide official scientific advice on the added value of introducing paramedic-administered, full advanced life support.
Methods: The effectiveness and safety of advanced emergency care was analyzed through a comprehensive scientific literature review.
Results: Examination of the scientific data on the efficacy and safety of advanced life support led to four major findings: (1) there is not enough solid evidence to support the introduction of a generalized advanced-care program; (2) preliminary data show that advanced care could be beneficial for respiratory distress and cardiac chest pain; (3) limited evidence indicates that it is neither beneficial nor detrimental for non-traumatic cardiopulmonary arrest; and (4) advanced care is associated with adverse effects in the case of endotracheal intubation in young children and in the on-scene treatment of trauma in general.
Conclusion: Despite media pressure in favour of the introduction of a full scale paramedic program, the official scientific report recommended to increase basic training of PCP and to introduce a limited number of advanced procedures. The advice was well received and is currently incorporated into an official policy by the Quebec ministry of health.
Keywords: Canada; emergency medical services; evaluation; paramedic; science
Prehosp Disast Med 2007;22(2):s30

Ergonomics of Inter-Hospital Transfers of Critically Ill Patients: A Qualitative Study Using Grounded Theory

A. Sen
Hope Hospital, Manchester, UK

Introduction: Inter-hospital transfer of critically ill patients is an integral part of healthcare systems. Ambulance services are a key element of these transfers. Within the seemingly straightforward clinical scenario exsist a variety of organizational pitfalls and equipment, health, and safety dilemmas. Most ambulance services in the UK do not have dedicated critical care transfer trolleys available to provide a smooth transfer for the patient. Current trolleys are often small for the patients and lack manoeuvrability. There are no dedicated panels to accomodate the numerous monitoring equipment, ventilators, and drug infusion devices. The resulting hazards to patients and medical personnel are manifold. Ambulance staff, doctors, and nurses would benefit from better interface design and ergonomics. In order to achieve this, multi-agency working groups with wide representation of experts in biomedical engineering are required.
Methods: A qualitative review based on interviews and observations is being conducted using a grounded theory approach to assess the present state of critical care transfer ergonomics in the pre-hospital environment, specifically refering to transfer trolleys in the UK. This review will address the problems faced by medical staff during such transfers, and the potential and prevalence of critical incidents. A set of recommendations will be constructed using information derived from the study.
Conclusions: Close cooperation with the ambulance service and equipment engineers can result in high quality, ergonomically desirable transfer systems which comply with regulations. This should reduce injury to patients, transfer teams, and ambulance staff.
Keywords: ambulance; equipment; ergonomics; grounded theory; reccommendations; transfer trolleys
Prehosp Disast Med 2007;22(2):s30

Session 3: Transportation Including Hospital EMS Operations

Chairs: Andrew Marsden; Darren Walter; D. Wulterkens

All Over the World

S. Papanikolaou;[1] D. Efthimiadis;[2] A. Mariola;[2] G. Perdikogiannis;[2] C. Kotoula;[2] A. Kiriazis;[2] M. Chael;[2] P. Bergopoulou;[2] S. Dimitropoulos;[2] S. Stergiopoulos[1]
1. Athens, Greece
2. Emergency Coordination Center (EKAB), Athens, Greece

Introduction: A retrospective, descriptive analysis was performed for all of the medical-emergency air transports carried out by the Hellenic National Emergency Medical Service (HNEMS) during 2005 (just one year later from the three fatal crashes of medical-Helicopters in the area of Greece.
Methods: All calls received by HNEMS concerning a medical-emergency air transport (medevac) and all medevac operations made by the HNEMS in 2005 were abstracted.

	Minimum	Maximum	Mean	95% CI
distance (km)	43	1,930	470	261–1,824
time of flight (min)	0	1,197	1,185	70–34,419
Total distance covered	>330,000 km (>8 time Ecuador)			

Table 1—Distance that patients fly

Results: A total of 2,339 were transferred by air-ambulance: 1,343 by the Greek Navy: 991 from mainland, and 321 from islands.

In those cases in which the patient was transfer by Navy, are gone to flight for more than 160,000 kms (>4 times Ecuador).

Conclusions: The steady improvement and expansion of the HNEMS, has been marked by the continuing rise of the number of the medevac operations, as well as the continuing improvement of the primary medical and nursing care. Air transportation of the patient is not always the best option globally speaking. The right patient, to the right medical-infrastructure, the right way, and the right time: safer, faster, proper way.

Keywords: air-medical; evacuations; Greek Ambulance Service; helicopter

Prehosp Disast Med 2007;22(2):s30

Evolving Physician-Staffed Helicopter Emergency Medical Services System (Doctor-Heli) in Japan

K.M. Mashiko;[1] Y. Hara;[2] H. Matsumoto;[2] Y. Sakamoto;[2] N. Kutsukata;[2] K. Takei;[2] Y. Tomita;[2] N. Saitoh;[2] K. Kanemaru;[2] T. Yagi;[2] T. Mine;[2] H. Hemmi;[2] W. Nishikawa;[2] N. Shinoda;[2] T. Kunimatsu[2]

1. Chiba-Hokusoh Hospital, Nippon Medical School, Chiba Prefecture, Japan
2. Japan

Although thousands of people were killed or injured in the Great Hanshin-Awaji Earthquake that occurred in 1995, only 17 patients were transported by helicopter within 72 hours from the onset. However, a huge number of helicopters flew over the disaster site. The catchphrase, "There is no effective disaster medical relief without daily Helicopter Emergency Medical Service System (HEMS)" was widely accepted and systems started 20–30 years ago in European countries. Therefore, present status and future perspectives of HEMS in Japan was evaluated by comparing the impact with that of the pioneering countries. Physician-staffed HEMS (Doctor-Heli) was started in Japan in 2001. By 2006, 11 base hospitals have committed resources to this program. In the fiscal year 2005, the total number of patients who were treated and transported by Doctor-Heli was 4,098. Chiba Doctor-Heli is the most active—2,791 patients were treated from Oct. 2001 till Sep. 2006. Trauma (49%), Cerebrovascular accidents (15%), and Cardiovascular disease (12%) occupied one fourth of total number of missions and 88% (2,458) of the patients were direct transports from the scene to the hospital compared with 11%(301) was inter-hospital transport. Of the patients 59% (16,459) were transported to base hospital and 38% (1,052) to the other hospitals.

The Emergency Medical Network of Helicopter and Hospital (HEM-Net) stressed that in order to diminish "preventable deaths", it is critical to expand the Doctor-Heli service nationwide as early as possible. Finally, it is concluded that the flight cost of Doctor-Heli should be covered by medical insurance in order to distribute the cost burden and that the law concerning Doctor-Heli System should be established quickly.

Keywords: costs; demography; doctors; helicopter EMS systems; Japan

Prehosp Disast Med 2007;22(2):s31

Comparison between Helicopter Emergency Medical Services and Ambulance Transportation to Rescue People Injured by Traffic Crashes in Japan

T. Yamaguchi;[1] K. Mashiko;[2] Y. Sakamoto;[2] M. Kami;[1] E. Kusumi;[1] M. Ohara;[3] H. Hemmi;[4] W. Nishikawa;[4] N. Shinoda;[4] T. Kunimatsu[4]

1. University of Tokyo, Tokyo, Japan
2. Nippon Medical School, Chiba, Japan
3. Kameda Medical Center, Chiba, Japan
4. HEM-Net, Tokyo, Japan

Background: The use of helicopters for the provision of emergency medical services (EMS) has become common especially in Western developed countries; however, this system has not been widely implemented in Japan. The main reason for this is financial difficulty. There have been only a few studies that have assessed which measure the cost and cost-effectiveness of helicopter EMS.

Purpose: Transportation by EMS helicopters was compared to ambulance transportation when rescuing people injured in traffic crashes in Japan.

Subject: Data from the Japan Trauma Data Bank (JTDB) were used. Seventy people, of whom 26 were transported by helicopter and 44 by ambulance to the Nippon Medical School Chiba-Hokusoh Hospital, were analyzed.

Method: Because the distributions of background factors and important prognostic factors were different between the two transportation groups, an inverse-probability-of-treatment-weighted method was used to adjust confounding factors. The endpoints were physiological severity (RTS), predicted probability of survival (TRISS), number of days in the hospital, and the cost of hospitalization.

Results: Male patients comprised 69% in the helicopter group and 75% in the ambulance group; the mean ages were 43 and 41 years for the helicopter and ambulence groups, respectively. The mean ISS scores were 20 for the helicopter group and 22 for the ambulence group. With the adjustment of several confounding factors, the average number of days in the hospital was 17 days shorter in the helicopter group ($p = 0.032$), and the cost of the hospitalization was lower in the helicopter group by about 1,100,000 yen on average ($p = 0.027$).

Conclusion: The usefulness of the helicopter EMS system is suggested.

Keywords: ambulance; cost-effectiveness; emergency medical services helicopter; traffic crashes; transportation

Prehosp Disast Med 2007;22(2):s31

Using Medical Helicopters to Evacuate Children with Severe Trauma

V.M. Rozinov;[1] G.A. Chogovadze;[1] V.G. Makhnev;[2] S.A. Fedotov;[2] V.I. Petlakh[3]

1. Institute for Pediatrics and Children's, Moscow, Russian Federation
2. Municipal Emergency Care Centre, Moscow, Russian Federation
3. Russian Federation

Timely transportation (during the so called "golden hour") to specialized hospitals is an actual problem of rendering emergency medical care to children who have been injured