

critical whether or not mental health services are popular in normal times.

We have provided mental health services during the reconstruction phase of the 1995 Great Hanshin-Awaji Earthquake in Japan. Our target populations have been the survivors living in temporary housing, who have experienced serious damage, and have been left behind by the reconstruction process. In the presentation, we report on the activities and the tasks for the future.

Keywords: assistance, psychiatric; disaster; labels, psychiatric; loss; mental health; reconstruction; strategies; trauma

Air Ambulance

Chair: *Abu Hassan Asaari Abdul, Akitsugu Kobama*

Tuesday, 11 May, 10:30–12:00 hours

General Session–IX

G-42

First Steps of Air Rescue: The History of Air Rescue

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In our presentation, we will discuss the first medical-evacuation actions. Although the air rescue has not too long of a history, it has tradition from the USA to Australia.

We will present the activities of General Stratemeyer in Burma, the role of the Air Rescue Service in the Korean and Vietnam War, the origin of the Australian Royal Flying Doctor Service, and of course, in some words the Hungarian Emergency Service.

Keywords: air-medical; air rescue; history; Hungary; rescue; war

G-43

Analysis of Emergency Aeromedical Transport in Taipei—VGH

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Introduction: This study took place in the Veterans General Hospital in Taipei, Taiwan (VGH-Taipei), a 2,800-bed, university-affiliated, tertiary-care center. Daily Emergency Services of the hospital serve 250 patients. There are two helicopter pads, and Emergency Aeromedical Services are used in the management of critically ill patients. Since 1990, Taipei-VGH has served patients nationwide with Emergency Aeromedical transport. Despite the high costs associated with the provision of this service, the medical effectiveness of the service has not been studied extensively. Emergency Air Services may increase the survival rate in selected groups, such as for those with severe traumatic injuries, obstetrical, and pediatric patients. This study evaluated which groups of patients benefit the most from helicopter evacuation.

Methods: The helicopter program is based at the Taipei-Veterans General Hospital in the northern Taipei area. Since 1990, there have been approximately 220 case reports of helicopter evacuation from rural and town areas. Each case report was analyzed by age, gender, diagnosis, saved time, and estimated benefit.

Results: Of the 220 patients in the analysis, 80% were men. The median age was 50 years. In 98% of the cases, the request for helicopter assistance came from the police, and in 2% the call for assistance came from lay people. Their practitioner treated most patients before the helicopter had arrived. The most common diagnosis for the aeromedical patients was traffic injury. In older patients, cerebrovascular accidents and coronary artery disease dominated, but diagnoses varied for obstetric and pediatric patients.

Conclusion: The Emergency Aeromedical Transport is beneficial for traumatically injured patients, but the use of helicopters should be targeted to obstetric and pediatric patients.

Keywords: aeromedical transport; costs; effectiveness; evacuation; helicopters; obstetrics; pediatric; transport; trauma

G-44

Norwegian Air Ambulance: A Concept for Integrated Helicopter Emergency Medical Systems (HEMS)

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Norway is a scarcely populated country. Health services are Government funded, and the aim is equal access to advanced medical aid for everyone.

The air ambulance services in their present form were introduced in 1978, and the Government took responsibility for a nation-wide air ambulance system in 1988. The Norwegian Air Ambulance (NLA) has been a major actor in the provision of these services since the beginning. The NLA's concept is to bring the hospital to the patient, in order to introduce advanced medical treatment at the scene. The helicopter operation is not a goal in itself, but a mere tool to bring competent medical aid to a sick or injured patient as soon as possible. If indicated, it then may be used to transport the patient to the appropriate level hospital. The reason for this philosophy is the vast amount of data supporting that the time period from injury to advanced (often anaesthesiological) treatment is a crucial determinant of prognosis. Examples are early intubation and controlled ventilation for head injuries, thrombolytic therapy for cardiac coronary artery thrombosis, and defibrillation for victims of cardiac arrest. The decision to "scoop and run" or to "stay and play" is made by the crew. Key factors in the decision process are the nature of the injury, the distance to the hospital, weather conditions, and others.

The NLA's operations are integrated:

- *Internally* — within the crew: consisting of one pilot, one anaesthetist, and one HEMS crew member (assisting the pilot during flight, the doctor on scene,

as well as performing light rescue operations). All crew members have one common goal, but contribute differently in achieving this. This demands knowledge and support of each other's tasks, Crew Resource Management-training, and more.

- *Externally* — into the total chain of survival (early alarms, public first-aid competence, ambulance services, and definitive hospital treatment). HEMS systems are valueless if the other links of the chain are not strong enough to match that level.

Various HEMS bases experience different patterns regarding activity rate, patient severity, primary vs. secondary transports, and more. This illustrates variations within the country's population pattern. The HEMS services should be tailored to the specific conditions and needs within any society.

Keywords: ambulances, air; anaesthesiology; chain of defibrillation; defibrillation; emergency medical services (EMS); first aid; helicopter; intubation; Norway; Norwegian Air Ambulance Services; thrombolytic therapy; ventilation

G-45

Feasibility of Implementing Helicopter Emergency Medical Systems — Example from Egypt

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The Norwegian Air Ambulance Ltd (NLA) has provided air-ambulance services nation-wide in Norway for 21 years. We regularly are approached by requests to assist in establishing similar services. Together with Egyptian personnel, we conducted a feasibility study in Egypt. This study provides a good example to show that while it might look attractive and "high fashion" to use helicopters to retrieve patients, implementation of HEMS will not be successful if the following criteria are not fulfilled:

- 1) **There must be a documented need for the service:**
 - a) *Population pattern* — Egypt has 60 million inhabitants, 54% of which live in rural areas, with long evacuation distances. In urban areas, evacuation time is long due to extremely heavy traffic;
 - b) *Traffic accidents* — Since 1992, Egypt has had the world's highest rate of road accident fatalities. For example, early competent treatment after head injuries improves survival, regardless of other efforts;
 - c) *Tourist industry* — One of Egypt's major income sources is the tourist industry. Diving is an important tourist activity, connected to time-crucial medical emergencies. Top level medical care for tourists is important;
 - d) *Oil industry* — This industry is a high-risk activity for those involved, often in remote areas; and
 - e) *General disaster alertness.*
- 2) **There must be an infrastructure in the chain of survival into which the HEMS services can be integrated:**

Good care of emergency patients when provided early and correctly will save lives. But, one single action is seldom

life-saving by itself. A HEMS-system *per se* is useless if other parts of the chain of survival are not functioning.

- a) *Early activation of the Emergency Medical Services (alarm system)* — One alarm number, 1-2-3, operative in many governorates, is planned to be used nation-wide. A nation wide system for wireless communication for medical emergencies is being implemented. A dispatch system for ambulances is in place;
 - b) *Early basic life-support (the public)* — The first-aid skills of the Egyptian public must be increased;
 - c) *Early professional assistance (ambulance)* — In Egypt there are 1,500 ambulances nation-wide today, with uniform equipment and training. An upgrading of the system is planned. Rescue work is done by the Civil Defence;
 - d) *Early advanced medical treatment (emergency doctor; vehicle/helicopter)* — When introducing HEMS, additional training of doctors will be necessary, but there is already a recruiting ground, just as there is for pilots; and
 - e) *Early definitive treatment (hospital)* — There are hospitals that meet the requirements to match the level of HEMS-transport close to planned base locations.
- 3) **There must be political willingness and support backed up by a financial capability to sustain the system:**
 - a) *Egyptian side* — The signals from political and other authorities in Egypt have been uniform. This project is given high priority, not only to the Minister of Health and Population; and
 - b) *European side* — The NLA will assist Egyptian authorities to implement HEMS services. Other support is needed.

Conclusion: The project is feasible, provided that: 1) The project is given full political support; 2) Necessary financial guarantees are given; 3) The already planned improvements of the chain of survival are implemented; and 4) After implementation, there should be concrete plans to sustain the service.

Keywords: accidents, alarm systems; ambulances; basic life support; traffic; definitive care; emergency medical services; Egypt; feasibility; finances; helicopters; infrastructure; Norwegian Air Ambulance; politics; tourists

G-46

Helicopter use Transit Care of the Critically Ill: Ten Year Experience from Whangarei, New Zealand

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Introduction: New Zealand is a thinly populated country of only 3.4 million people living in an area the size of Japan. Three out of four New Zealanders live in the North Island. Northland is the northernmost province of