

### Use of Wireless Telemedicine on Pre-flight Screening of Patients For Air-Medical Repatriation: A Two-Year Result

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**Introduction:** Emergency air-medical services (EAMS) in Taiwan have been under a great demand in recent years. Due to geographic limitations and the unequal development of medical manpower and facilities between Taiwan and its surrounding islands, there has been a rapid growth of medical repatriations to Taiwan. The lack of a pre-flight screening system resulted in the rapid increase of unnecessary flights, which caused increased government expenditure.

**Objectives:** To examine the effectiveness of wireless video-telemedicine for the pre-flight screening of patients requested for air medical repatriations.

**Methods:** Medical records of patients transported from remote islands to Taiwan from November 1999 to September 2002 were collected retrospectively. Also, medical records of patients who were screened pre-flight by physicians based at the National Aeromedical Consultation Center (NACC) using a video web-camera for wireless consultation were collected prospectively. The study period was 01 October 2002–30 August 2004. Patients not meeting the criteria for transport had to remain on the island and were monitored constantly for any change in condition. All data, including patient characteristics, disease classification, and average number of flights per month were entered into a database for statistical analysis, and the two stages were compared for differences.

**Results:** A total of 1,996 repatriations were included in the study. Patient demographic information was homogenous regarding mean age, gender ratio, and disease classification. During Stage 1, a total of 1,477 flights were dispatched (average 37.87 flights/month). Compared with the 519 island repatriations requested in Stage 2. Under pre-flight screening in Stage 2, only 420 flights were activated (18.2 flights/month) which was significantly different than Stage 1. The majority of patients were transported to tertiary medical centers (74.0%, n = 384), or district teaching hospitals (22.2%, n = 115). The percentage of in-flight escort doctors and nurses rose from 15.1% to 51.6%. There were 66 patients (12.7%) who did not meet the criteria for transport, resulting in an approval rate of 86.5%. These 66 patients had to remain on the islands or take regular commercial flights to Taiwan. None of these patients developed medical complications.

**Conclusion:** Wireless video telemedicine can be a useful tool for pre-flight screening. Under wireless web-camera for preflight screening, physicians at the NACC can get a real-time picture of the patient's condition, reducing the frequency of unnecessary transports, and enhancing the quality of emergency transport. These results also have led to reduced government expenditure on unnecessary flights, therefore contributing to the best use of EAMS in Taiwan.

**Keywords:** emergency air medical services (EAMS); repatriation; screening; transport; video telemedicine; wireless  
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### Theme 5: Resuscitation and Emergency Cardiac Care

*Chairs: David Zideman; Douglas Chamberlain*

#### Out-of-Hospital Cardiac Arrests in Akureyri, Iceland during 2000–2004

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**Objective:** To describe in the Utstein style the outcome of out-of-hospital cardiac arrests in the rural town of Akureyri (population 17,000) in northern Iceland, during a period of four years (2000–2004).

**Methods:** All consecutive cases with cardiac arrest between 2000 and 2004, in which the emergency medical service (EMS) system responded and attempted resuscitation were reported. Ambulance crews collected the data in accordance with guidelines and data from the emergency department's resuscitation charts. Data then was analyzed in accordance with the Utstein style.

**Results:** Data collection will go on until the end of 2005, so the final results are not complete. Due to the small population and low numbers of cardiac arrest, the results will be presented using descriptive statistics. During the four-year period, out-of-hospital cardiac arrest was confirmed in 33 patients. The mean value of the ages of the patients was 65.5 years (26–92 years). Cardiopulmonary resuscitation (CPR) was attempted in 28 patients. Cardiac arrest of presumed cardiac etiology (26) was witnessed by a bystander in 12 (46%) cases, unwitnessed in 11 (42%), and witnessed by a crewmember in three cases. The median interval between a call for the ambulance and the arrival of the ambulance was four minutes (1–14 min). The median interval spent at the scene was 15 minutes (6–27 min). Lay-bystander basic life support was performed in 8 (35%) cases of both witnessed and non-witnessed arrest. In the group of bystander-witnessed, cardiac arrest, ventricular fibrillation (VF) was documented in 10 patients. Of the 26 patients with cardiac etiology, return of spontaneous circulation (ROSC) was achieved in 13 patients (50%) and 11 of them were admitted to the intensive care unit (ICU). No one died within the first 24 hours, six (23%) were discharged alive, and five of them were still living one year later. The most important characteristics associated with survival were VF as initial rhythm and witnessed arrest.

**Conclusion:** The outcome of out-of-hospital resuscitation in the town of Akureyri is satisfactory. The data suggest that improvements in bystander CPR might further improve survival.

**Keywords:** assessment; cardiac arrest; cardiopulmonary resuscitation (CPR); Iceland; outcome; out-of-hospital; return of spontaneous circulation

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