

Safety study in Aeromedical Transportation

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Abstract

Background: Patient safety has been the core value of health care. Emergency air medical transport (EAMT) services have increased in Taiwan as well as in other countries recently. However, high costs of these services as well as the risk of air transportation have raised questions on the efficacy to patient safety. In this study, we evaluate the key factors for safety of patient in EAMT. Method: Medical records of patients transported from islands hospitals or clinics to Taiwan were retrospectively collected from November 2002 to October 2007. The strategies in patient safety were studied in various aspects, including:

- (1) Use of video-telemedical system and standardized screen criteria.
- (2) Pre-flight assessment and coordination of medical escorts.
- (3) Coordination between treating physician and physician in receiving hospital.
- (4) Suggestion on transfer routing.
- (5) Designation on nearest medical excellent center.
- (6) Designation on EAMT-responsible zones.
- (7) Avoidance of night flight, unless medically urgent.
- (8) Disapproval unnecessary EAMT and continuing monitoring with video-telemedicine.
- (9) Surveillance of weather condition for EAMT.
- (10) Set up standard operation protocol.

Results: A total of 1,326 transfers were included in this study, male(66%) to female (34%) M:F=2:1. Age over 65 accounts for 33% of all transferred patients. 73.38% patients were transferred to medical center. Non-trauma victim comprised 72% in total patients. The Penghu area accounts for 509 transfers which are the most frequent in all referred areas. The longest transportation distances is 307.85 kilometers per transfer and 1.99 hours per flight belongs to the Kinmen area that was taken about. There was 386 transfers (29%) in summer which was the peak season of EAMT. The night flight (6:00pm to 6:00am) took 40% of the total flights. In addition 10:00 am to 12:00pm were the busiest hours 180 transfers (13.57%) for patient transportation; 02:00 am to 04:00am were the fewest frequency, 31 transfers (2.34%) for patient transportation. The percentage of the day flight from 56.49% (2004) to 66.98% (2007). The percentage of escort in eastern area increased from 50% (2002) to 91.3% (2007). The total flights decreased from

43.18 per month (2001) to 21.74 monthly (2007). It was reduced about 49.65%. The “gate-keeper effects” of screen system is significant. The medical unnecessary EAMT, decreased from 15.56%(2002) to 4.82%(2007), demonstrated the physicians in remote islands and rural areas has been well communicated and educated in application of EAMT. The odd ratio 5.23 of age group in 25~34 years old is the highest level among traumatic EAMT patients. There was no accident event in 1,326 EAMT. This study demonstrates the intervention of strategy effectively improve safety not only in all EAMT but also in reduce of medical unnecessary EAMT. These interventions save large amount of government budget, and contribute the efficiency of EAMT, and achieves the goal of injury prevention and control.