

Background:

Helicopter emergency medical services (HEMS) are popular rescue systems despite inconsistent evidence in the scientific literature to support their use for primary interventions, as well as for inter-facility transfer (IFT). There is little research about IFT by HEMS, hence questions remain about the appropriateness of this method of transport.

The aim of this study was to describe a case-mix of operational and medical characteristics for IFT activity of a sole HEMS base, and identify indicators of over-triage.

Methods :

This is a retrospective study on HEMS IFT over 36 months, from January 1st 2013 to December 31st 2015. Medical and operational data from the database of the Emergency Department of Lausanne University Hospital, which provides the emergency physicians for this helicopter base, were reviewed. It included distance and time of flight transport, type of care during flight, outcome at 48h, and estimated distance of transport if conducted by ground.

HEMS are staffed with a paramedic and an emergency physician. Ground ambulances are staffed with at least one paramedic; they are autonomous for intravenous access, cardiopulmonary resuscitation procedures, defibrillation and some emergency medication administration. They are not allowed to manage upper airway disposals or continuous drug infusions (vasopressors, anaesthesia and sedation).

Results & discussion:

There were 2194 HEMS missions including 979 IFT (44.6%). Most transfers involved adults (> 17 years old; 799 patients, 81.6%). Trauma patients represent 5% of the case-mix. Forty patients (4.1%) were classified as having benefitted from resuscitation or life-saving measures performed in flight, 615 (62.8%) from emergency treatment (medications) and 324 (33.1%) from simple clinical examination. 425 patients (43.4%) were still hospitalized in ICU after 48 hours. The median distance by air between hospitals was 35.4 km. The estimated median distance by road was 47.7 km. The median duration time from origin to destination by air was 12 min.

HEMS should be used for IFT if medical competences needed exceed ground ambulances available or if speed is needed and the estimated time from call to arrival at the destination is faster with a helicopter. In the setting described, the hospital physicians in charge of the patient performs this triage, but they are often not aware of paramedic competences and do not have the information on GA availability. Ideally, a dispatch centre should decide whether to allow HEMS transfers or not based on the need of HEMS for primary missions, the patient's condition, the suspected pathology and time gained by using HEMS for IFT. This would require advanced medical competences within the dispatch centre; it may also allow the treatment to be simplified wherever possible, to enable the ground ambulance to take care of the patient.



Conclusion :

This case-mix of IFTs by HEMS presents a high severity. There are however many signs in favour of over-triage. Patient condition and ongoing treatment, geography, and medical competences available aboard ground ambulances are necessary information to help choosing whether HEMS is the most appropriate mean of transport to perform the transfer. The whole time necessary to mobilize the helicopter (from the alarm to the final destination) should be considered and not only time of patient transport. Experienced emergency physicians from the prehospital setting should decide when to use HEMS for transfer rather than the physicians in charge of the patient.