

Reasons for secondary transfer of patients attended by a helicopter emergency medical service – a 1-year retrospective review using hospital episode statistics

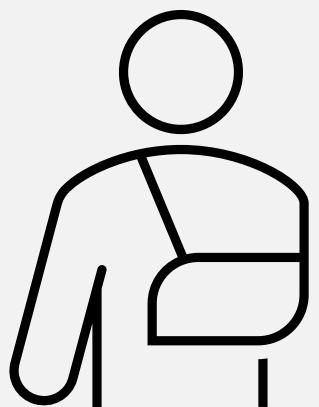
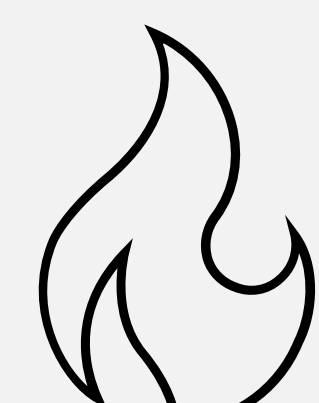

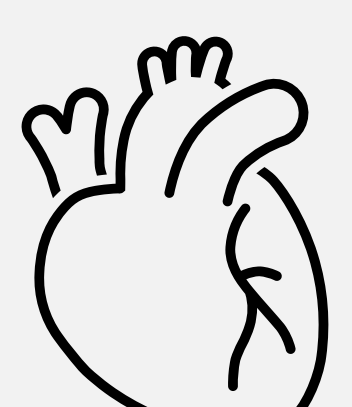
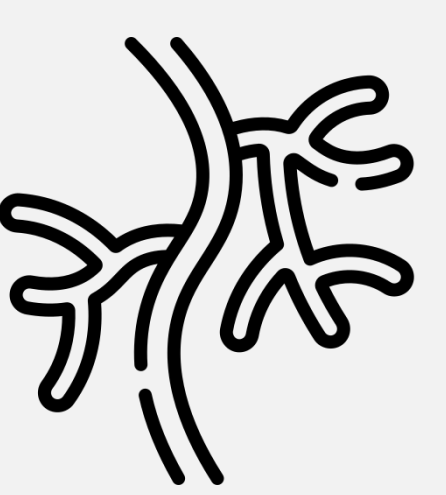
Fraser Buckley¹, Shadman Aziz², Zachary Starr², Ed Barnard^{2,3}, Rob Major², Kate Lachowycz²

1. University of Nottingham Medical School, Nottingham, UK
 2. Department of Research, Audit, Innovation, and Development (RAID), East Anglian Air Ambulance, Helimed House, Norwich Airport, Norwich, UK
 3. Academic Department of Military Emergency Medicine, Royal Centre for Defence Medicine (Research & Clinical Innovation), Birmingham, UK

Background

Secondary transfer of critically unwell patients can be associated with delays to intervention, resulting in increased risk of morbidity and mortality. This study exploited the Emergency Care Data Set (ECDS) and Hospital Episode Statistics (HES) to describe the proportion of patients treated by East Anglian Air Ambulance (EAAA) transferred within 24-hours of Emergency Department (ED) arrival; and to identify the reasons behind this.

Patients treated by East Anglian Air Ambulance (EAAA) transferred within 24-hours of Emergency Department (ED) attendance (n=30), 1st April 2021 – 31st March 2022, organised by theme

Aetiology	Reason for secondary transfer	Reason not directly transferred
Trauma 	Further injuries revealed requiring MTC input For orthopaedic surgery Recognised as major trauma positive but intentionally stabilised at nearest ED For cardiothoracic surgery	Did not meet trauma triage tool criteria prehospital Patient physiology unstable Mis-triaged as major trauma negative Patient physiology unstable
Burns 	For specialist burns care	Did not require direct transfer prehospital Not accepted for direct transfer by burns centre Patient physiology unstable
Neuro 	For neurosurgery For mechanical thrombectomy	Taken to nearest ED for diagnosis before anticipated secondary transfer Initially taken to neurosurgical centre but later transferred to mechanical thrombectomy centre
Cardiac Arrest 	For coronary angiography	Did not meet criteria for direct transfer to PCI centre Could not contact PCI centre
Vascular 	For vascular surgery	Taken to nearest ED for diagnosis before anticipated secondary transfer

Exact numbers not shown due to disclosure control defined by NHS England
 MTC – Major Trauma Centre; ED – Emergency Department; PCI – Primary Coronary Intervention

Methods

Pseudonymised ECDS and HES data (1st April 2021 – 31st March 2022) were linked to EAAA patient records (HEMSbase 3.0, MedicOne Systems Ltd, UK). Patients attended by EAAA who were transferred to a second hospital facility within 24-hours of ED arrival were included. Data were extracted on the reason against direct transfer and rationale behind secondary transfer.

This was a service evaluation study, using pseudonymised linked data obtained from NHS England with approval from the Health Research Authority's Confidentiality Advisory Group (21/CAG/0094).

Results

During the study period 1244 EAAA patients had an ED attendance in ECDS, of which 30 (2.4%) had a secondary transfer from ED within 24-hours. The largest proportion were trauma patients, often not meeting Major Trauma Triage Tool criteria prehospital, but transferred following identification of complete injury burden in an ED. Some cardiac arrests could not be taken directly to a cardiac centre but were then transferred for coronary angiography. Neurosurgical patients were conveyed to an ED for diagnosis before an anticipated transfer.

Conclusion

Early secondary transfer from ED is infrequent in patients attended by EAAA. These data identify factors influencing hospital disposition, limitations of trauma triage tools, and how system improvement could reduce treatment delays in neurological and cardiac arrest patient groups.

Contact
 fraserbuckley@hotmail.com

