

Characteristics of Non-Trauma Scene Calls for Air Medical Transport

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CCT CORE Group

The Critical Care Transport Collaborative Outcomes Research Effort (CCT CORE) is a multicenter research group, assembled to advance the science of air and ground CCT. The group is led by an open-membership Steering Committee and is led by the CORE PI, Stephen Thomas, MD, MPH



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Background

Air medical transport is a crucial component of medical care in a tiered response system. Air medical response provides a link that can ensure that patients receive critically important and timely initial care and transport to the most appropriate destination.

A considerable effort has been made to study multiple aspects of air medical transport for victims of major trauma.[1] [2-3] Published research exists to describe the speed, safety, crew configuration, destination, use of medications and medical procedures during air transport.[4-7] [8] [9-10] These efforts have helped to define the care of the trauma victim during transport, and to identify further research designed to improve the care and outcome for this population. However, traumatic injury is only one of several other conditions that may benefit from the availability of air medical transport.

The American College of Emergency Physicians policy “The Appropriate Utilization of Air Medical Transport”[11] cites situations for which the use of air medical helicopter transport is considered to be appropriate. These include:

- 1. Patient has a significant potential to require high level life support available from an air medical helicopter, which is not available by ground transport.*
- 2. Patient has a significant potential to require a time-critical intervention and an air medical helicopter will deliver the patient to an appropriate facility faster than ground transport.*
- 3. Patient is located in a geographically isolated area which would make ground transport impossible or greatly delayed.*
- 4. Local EMS resources are exceeded.*

While the victim of trauma may frequently meet these conditions, there is also a widely heterogeneous population of non-trauma patients that may benefit from air medical transport. This includes individuals with conditions such as stroke,[6, 12-13] cardiac emergencies,[2, 14-16] burns,[17-18] poisoning,[19] obstetric and neonatal emergencies,[5, 7, 20-22] time critical interfacility transfers[23] and divers. [24] Little information exists to characterize the use of AMT for these types of patients.

The question of the benefits of air medical benefit to non-trauma conditions remains controversial. Little is known about which non-trauma conditions are likely to benefit from air medical transport. There is a need for updated estimates of the volume and type of these non-trauma transports. Current information about the volume and types of conditions will be helpful to inform future research into more specific use of air medical transport for these conditions.

In an editorial[25] appearing in *Chest*, the journal of the American College of Chest Physicians, it was observed that “In many communities, emergency air medical systems have become an integral part of the practice of cardiology and critical care medicine.” The authors state that “We firmly believe that air medical transport is a safe means for transport of cardiac patients and should be considered for patients who require transfer to more specialized centers for additional diagnostic and therapeutic interventions.” Reports outlining extension of percutaneous coronary intervention to community hospitals include incorporation of HEMS into systems planning, as a necessary back-up in cases where urgent CABG is required.[26] It’s increasingly well known that time savings – in the manner that may be achieved by judicious HEMS use – can be helpful: each 30 minutes’ additional ischemia time increases mortality by 8-10%.[27] Additionally, recent work (presented in 2008 in abstract form at the American College of Cardiology) from the TRANSFER-AMI group suggests that expedited transfer for mechanical intervention after community hospital lysis is associated with a 50% reduction in the 30-day composite endpoint (death, reinfarction, recurrent ischemia/reinfarction, CHF, or shock). It seems likely HEMS will be a valuable option for at least some patients receiving this combined-therapy approach.

Similar to the situation with integration of air medical transport into cardiac care systems is the rapidly solidifying role for air transport in stroke care. A Resource Document for a position statement of the National Association of EMS Physicians recommends air transport of stroke patients if the closest fibrinolytic-capable facility is more than an hour away by ground.[28] The American Stroke Association Task Force on Development of Stroke Systems[29] identified HEMS as an important part of stroke systems. The report states “Air transport should be considered to shorten the time to treatment, if appropriate.” Authors writing about the utility of HEMS in stroke (and also cardiac) care systems generally refer to the ability, addressed in detail later in this discussion and bolstered by logistics studies, of air medical transport to “extend the reach” of tertiary care centers providing time-critical care.[30-31] A potential role for time-critical transport in improving stroke outcomes is suggested by the pooled analysis revealing a stepwise outcomes improvement associated with each 90-minute improvement in lysis time (to 270 minutes).[32]

Purpose

The purpose of this study is to characterize the number and type on non-trauma air medical transports originating in the out of hospital setting. We wish to include a variety of air medical transport services from around the country and will retrospectively collect two years of data to describe the current population of non-trauma air medical transports.

Methods

This is a two year retrospective review of Air Medical Transport (AMT) records, collected from a variety of air medical services across the United States. Data will be collected for all non-trauma related flights requested during the period from January 1, 2008 through December 31,

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2011. The total number of records that are expected to be reviewed by participating air medical transport services is 1,000.

Inclusion and Exclusion Criteria

All non-traumatic transports completed by the air medical transport service during the period from January 1, 2008 through December 31, 2010.

Source of Data: Helicopter EMS records

Data Elements to be collected and reported using Excel data collection workbook provided

Data	Type of variable
Descriptive Data about the Transport Service	
Name of transport service	text
Population served	##
Area served	Sq miles
Type of Aircraft	text
Total Number of Flight Requests Between Oct. 31, 2008 and Nov 1, 2010 (including trauma)	##
Total Number of Completed Flights between 1/9/2009 and 1/10/2011 1, 2010 (including trauma)	##
Total Number of Scene Flights between 1/9/2009 and 1/10/2011 (including trauma)	##
Individual Flight Data	
Year of non-trauma scene flight request	Year
Was this non-trauma scene flight completed	Y/N
Indication for transport	text
Loaded Miles	##
Patient Level Variables	
Age	##
Gender	M/F
Glasgow Coma Scale Score	##

Coordination of multi-site data

Sites will collect the data as described in the data collection tool, enter the data into the Excel Workbook provided and will submit it to the PI when complete for analysis.

Analysis

Descriptive statistics will be used to characterize the population of non trauma patients transported by air medical transport.

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