IMPROVING OVERTRIAGE OF AEROMEDICAL TRANSPORT: A REGIONAL PROCESS IMPROVEMENT INITIATIVE

Toan Huynh, MD • Greg Fleming, RCP, EMT-P • Charlotte M. Thomas, RN, MSN • Michael H. Thomason, MD • Ronald F. Sing, DO • David G. Jacobs, MD

F.H. Sammy Ross Jr. Trauma Center • Carolinas Medical Center • Charlotte, North Carolina

Carolinas Medical Center

Carolinas Medical Center

INTRODUCTION

- Aeromedical transport (AMT) provides effective means of rescuing critically injured patients to definitive care
- In patients suffering severe traumatic brain injury, AMT confers better outcomes than ground transport
- AMT for combat casualties has gained wide acceptance
- Excessive use of AMT for scene rescue in urban setting has been reported
- Accurate triage criteria are lacking, no appropriate threshold for activation

AIM

To examine the effect of implementing a Trauma Advisory Committee (TAC) process improvement initiative focused on reducing AMT overtriage rates

HYPOTHESIS

A team of outreach coordinators focusing on overtriage and resource utilization issues may lead to a more efficient use of AMT services

METHODS

- TAC outreach coordinators implemented a process improvement (PI) initiative focused on overtriage issues and resource utilization
  - Regular communication and visits to EMS agencies in 15 counties
  - Unblinded disclosure of patient outcomes
  - Quarterly PI meetings

METHODS

- Overtriage was defined as patients who were airlifted and later discharged from the emergency department
- Data were collected prospectively from January 2007 to December 2009
- Patients were grouped into those who were injured in counties belonging to TAC, versus counties outside TAC's jurisdiction.
- Overtriage rates between 2 groups were compared

RESULTS

- During the 3-year study period, there were 2139 patients airlifted from the 15 surrounding counties
- Demographic variables (e.g. age, ISS and GCS) did not differ between the two groups (Table)
- After implementation, overtriage rates from counties within TAC's oversight declined compared to non-TAC counties (Figure)
- The reduction in overtriage continued over time

CONCLUSIONS

- By way of a regional trauma PI system, implementation of an initiative focused on AMT overtriage was associated with a more efficient use of AMT
- The reduction may be attributable to increased awareness of overtriage issues and inherent risks to transport crews
- This effort may represent an effective means to achieve efficiency, credibility and safety to our patients and the medical crews

Table. Patient Demographics

	2007		2008		2009	
	TAC	Non-TAC	TAC	Non-TAC	TAC	Non-TAC
n	367	385	325	385	301	376
Age (yr)	36 ± 2	38 ± 3	39 ± 4	37 ± 3	41 ± 4	37 ± 6
GCS	14.6 ± 0.3	14.1 ± 0.2	14.4 ± 0.2	14.1 ± 0.2	14.6 ± 0.5	14.6 ± 0.3
ISS	5.6 ± 1.8	4.2 ± 1.4	7.5 ± 2.5	6.3 ± 2.1	8.6 ± 2.5	7.2 ± 2.6

Data are mean ± SE

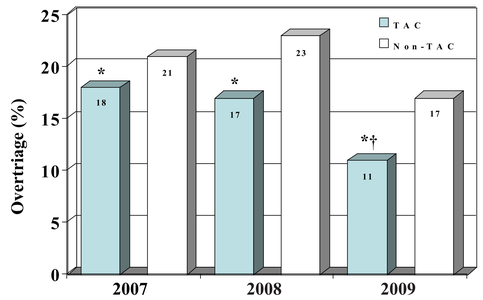

Figure. Aeromedical Transport Overtriage. * p<0.05 vs. Non-TAC, p<0.05 vs. previous year, Mann-Whiney Rank Sum test.

DISCUSSION

- Targeted regional effort to reduce unnecessary AMT activation
- Improve inter-facility communication through regional Trauma Advisory Committee
- Real time feedbacks to referring EMS agencies and hospitals
- Establish guidelines for effective use of AMT
- Identify modifiable factors leading to AMT overtriage

REFERENCES

- Davis DP, Peay J, Serrano JA, et al. The Impact of Aeromedical Response to Patients with Moderate to Severe Traumatic Brain Injury. Ann Emerg Med. 2005;46:115-122.
- McVey J, Petrie DA, Tallon JM. Air vs. Ground Transport of the Major Trauma Patient: a Natural Experiment. Prehosp Emerg Care. 2010;14(4):45-50.
- Larson JT, Dietrich AM, Abdessalam SF, Werman HA. Effective Use of the Air Ambulance for Pediatric Trauma. J Trauma. 2004;56:89-93.