Utilization of Helicopter EMS

Disclosures

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Objectives

- Discuss the Evidence for Utilizing HEMS
- Describe the Utilization as it pertains to HEMS and its relationship to safety
- Review current guidelines for utilization of HEMS
- Discuss current efforts to improve utilization and how future changes in health care may impact HEMS Utilization
What is the Benefit of HEMS?

PEC 1998 - Trend to benefit

J of Trauma 2006 - No benefit for the majority of patients.

CIEM 2007 - One life saved for every 15 patients flown with ISS>12

PEC 2010 - One life saved for every 18 patients flown among all comers

Benefit of HEMS in Trauma

J of Trauma 2010 - HEMS increased the odds of survival OR 1.33

JAMA 2012 - HEMS associated with increased survival if ISS>15

Benefit of HEMS on Medical Scene Runs

SAEM 2012 - Reduction in DTB times averaging 48 minutes in rural and suburban settings

AIEM 2015 - Subsets of patients get to the hospital faster making them eligible for intervention
Benefits of HEMS

- Speed
  - Ground is typically faster if less than 45 miles
  - Must account for traffic, terrain, and weather
- Level of Care
  - Prehospital critical care services
  - Greater scope of practice, equipment, and training
- Oversight
  - Online access to experts and receiving physicians

But First, . . .

In your region:

- Do guidelines exist?
- Are they uniform throughout your response area?
- Are they followed?

Why is utilization a high profile issue?

1. Perceived risk
Why high profile?
Perceived Risk

- Media attention to crashes
  - National media coverage
  - Local media frenzy
  - First question after a crash

Unacceptable Risk: The Troubling Medical Helicopter Safety Record

Medical helicopters are supposed to save lives. Too often, they put both flight crew and patients in danger instead. Here, in this Popular Mechanics special report, we investigate the crashes and statistics that make medical helicopter an unacceptable risk.

Why high profile?
Perceived Risk

- Actual vs. perceived risk
NTSB Recommendations to FICEMS

Recommendations:

1. Perceived risk
2. Money
Why high profile?
Money

Cost to patient
- U.S. per capita personal income 2010: $40,584
  (U.S. Dept. of Commerce, Bureau of Economic Analysis)
- Imagine an instant $20,000 helicopter bill
  - You were strapped to a board
  - You had no part in the decision
  - You were home 2 days later
- Imagine a $58,000 bill!

Why high profile?
Money

Cost to patient
Revenue dollars - Where are they going?
- Stock Market
- European models

Why is utilization a high profile issue?

1. Perceived risk
2. Money
3. Inconsistency
Why high profile? Inconsistency

- Regional variation in availability
- Regional variation in clinical application
Previously Published Guidelines

- 1990: AAMS – Appropriate Use of Emergency Air Medical Services, *Journal of Air Medical Transport*.

“AAMS believes that air medical transport should be used when its inherent advantages over land-based transport enhance patient care”

Previously Published Guidelines

- 1990: AAMS

“Medical Direction is preeminent in defining which patients will benefit from air medical transport. This may be accomplished on-line or through protocols and standing orders.”

Position paper did not suggest when to use air over ground.
Previously Published Guidelines

- 1990: AAMS
- 1992: NAEMSP
  
  "Dispatch guidelines– not utilization".
  Did not suggest when to use air over ground.

- 1990: AAMS
  
  "Use air when significantly faster than ground."

- 1990: AAMS
- 2001: AMPA – Medical Condition List and Appropriate Use of Air Medical Transport, *PEC.*
  
  "Unconscious, fainting, syncope“- appropriate for flight
Previously Published Guidelines

- 1990: AAMS
- 2002: AMPA
- 2003: NAEMSP - Guidelines for Air Medical Dispatch, PEC.
  Combined and updated the 1992 and 1994 positions. No specific direction on air vs. ground.

Previously Published Guidelines

- 1990: AAMS
- 2002: AMPA
- 2003: NAEMSP - Guidelines for Air Medical Dispatch, PEC.

Benefits of National Utilization Guidelines

- Minimize non-beneficial transports
- Optimize availability
- Minimize unnecessary exposure to risk of flight
- Minimize unnecessary flight time
- Facilitate definition of appropriate transport
- Facilitate timely reimbursement
Challenges to oversight of utilization guidelines

1. Requestors vary in training, experience, and motives
2. Necessity of threshold call volume to sustain programs
3. Areas with overabundance of air medical assets
4. Fear of discouraging future requests for service
5. No nationally accepted standards for utilization

Utilization Guidelines: The Maryland Experience

- I’m not here to tell you how to organize your system.
- Some things I say may apply to your situation and some things may not.
- Take what you think might be good and leave what you think would be bad!
“Golden Hour”

- Trauma can be treated
- Bleeding must be stopped
- Circulation must be restored

R Adams Cowley, MD
1917-1991

“Golden Hour”

- People don’t have to die of ‘internal injuries’
- Local hospitals should be bypassed

Maryland Helicopter Basing
Maryland State Police

- Based to cover the entire State population
- Goal of maximum 25 minute response
- Receiving center determined by patient’s needs
- Patients are not billed

Maryland Trauma Centers

Maryland EMS System

- 48 Hospitals
  - 9 Adult Trauma Centers
  - 2 Pediatric Trauma Centers
  - 2 Burn Centers
  - 1 Head and Spinal Cord Center
  - 1 Hand Injury Center
  - 1 Eye Injury Center
  - 1 Hyperbaric Center
  - Stroke Centers
  - Cardiac Interventional Centers
  - Neonatal Centers
  - Perinatal Centers
Statewide EMS Medical Protocols

- Guides patient care
- Guides patient destination

Viewable at: www.miemss.org

Total Medevac Transports

Number of Medevac Patients per Fiscal Year

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Total Patients in Trauma Centers
Scene v. Transfer

Number of Patients Treated at Trauma Centers by Calendar Year:
Source: Maryland State Trauma Registry

Transports by Patient Category

Weekly Summary Beginning 9/28/08 through 8/28/10

Category A & B
Category C & D
No Category

Total Patients Level I - III Trauma Centers

Number of Patients Treated at Regional Trauma Centers by Fiscal Year:
Source: Maryland State Trauma Registry
% Discharged w/in 24 Hours
Air v. Ground

Percent of Patients Transferred

% Discharged w/in 24 Hours
Air v. Ground

Source: Maryland State Trauma Registry
Mortality
Scene v. Transfer

Mortality Rate by Calendar Year
Patients Either Brought Directly from the Scene or Transferred from a Community Emergency Department to a Trauma Center
Source: Maryland State Trauma Registry

W Score
Air v. Ground

W Score by Calendar Year
Patients Brought by Air or Ground Directly to a Trauma Center
Source: Maryland State Trauma Registry

HEMS Utilization Database
Local Reviews

HEMS utilization based on local reviews.
2009

- NTSB Public Hearings on HEMS
- AMPA- Task force on HEMS Guidelines, San Jose
- ACEP- EMS Committee/Air Medical Section-draft resolution to FICEMS, Boston
- NAEMSP- revision of Dispatch Guidelines

Phoenix, January 2010

- Joint meeting
  - Unified Physician voice
  - Separate the issues of safety and utilization
  - Assemble available evidence

Goals

- Develop a Joint Position Statement
- Write an accompanying White Paper
- Develop national guidelines with regional implementation
- Identify and promote a research strategy
- Create a HEMS agenda for the future
Appropriate and Safe Utilization of Helicopter Emergency Medical Services

A Joint Position Statement

of the Air Medical Physician Association (AMPA), the American College of Emergency Physicians (ACEP), the National Association of EMS Physicians (NAEMSP), and the American Academy of Emergency Medicine (AAEM)

We believe:

That patients benefit from the appropriate utilization of Helicopter Emergency Medical Services (HEMS).

That EMS and regional healthcare systems must have and follow guidelines for HEMS utilization to facilitate proper patient selection and ensure clinical benefit. Clinical benefit may be provided by:

• Meaningfully shortening the time to delivery of definitive care to patients with time-sensitive medical conditions;
• Providing necessary specialized medical expertise or equipment to patients before and/or during transport;
• Providing transport to patients otherwise inaccessible by other means of transport.

That the decision to utilize HEMS is a medical decision, separate from the aviation determination whether a transport can safely be completed.

We further believe that:

• Physicians with specialized training and experience in EMS and air medical transport must be integral to HEMS utilization decisions, including guideline development and HEMS quality improvement activity.

• Federal Aviation Administration approved Safety Management Systems must be developed, adopted, and adhered to by all air medical operators when making decisions to accept and continue each and every HEMS transport.

We further believe that:

• National guidelines for appropriate utilization of HEMS must be developed. These guidelines should be national in scope yet allow for local, regional, and state implementation.

• The need for a National HEMS Agenda for the Future should be developed to address HEMS utilization and availability, and to identify and support a national strategy for ongoing, evidence-based refinement of utilization guidelines.

Current Efforts

- ACEP
  - EMS Committee
  - Air Medical Section
- NAEMSP
  - Air Medical Services Committee
- AMPA Board
- AAEM
  - EMS Committee

- White Paper in progress
- CDC HEMS Guidelines Project