What the Trauma Community Can Do to Improve Aviation Safety of Air Ambulances

Robert L. Sumwalt
NTSB Board Member
November 12, 2010
Would you be willing to prescribe a medication when the side effects or contraindications of that medication were unknown?
Would you be willing to use an air ambulance when information about that operator’s pilot training, aircraft equipment, or operations were unknown?
Three main points

• The current Helicopter EMS (HEMS) accident record is unacceptable.

• Not all air ambulance operators are created equally from a safety perspective.

• As consumers of air ambulance transport, you can “up the ante” on how they operate.
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6 years - 85 accidents; 77 fatalities

- 2003 - 19 accidents; 7 fatalities
- 2004 - 13 accidents; 18 fatalities
- 2005 - 15 accidents; 11 fatalities
- 2006 - 13 accidents; 5 fatalities
- 2007 - 12 accidents; 7 fatalities
- 2008 - 13 accidents; 29 fatalities

49 weeks without a fatal HEMS accident UNTIL ...
September 25, 2009
3 Fatalities
<table>
<thead>
<tr>
<th>Date</th>
<th>Location</th>
<th>Fatalities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sep 22, 2009</td>
<td>Page AZ</td>
<td>none</td>
</tr>
<tr>
<td>Sep 24, 2009</td>
<td>Tucson AZ</td>
<td>none</td>
</tr>
<tr>
<td>Sep 25, 2009</td>
<td>Georgetown SC</td>
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<tr>
<td>Oct 22, 2009</td>
<td>Blythe CA</td>
<td>none</td>
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<tr>
<td>Nov 14, 2009</td>
<td>Doyle CA</td>
<td>3</td>
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<tr>
<td>Dec 25, 2009</td>
<td>Decatur TX</td>
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<tr>
<td>Jan 17, 2010</td>
<td>Reno NV</td>
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<td>Feb 5, 2010</td>
<td>El Paso, TX</td>
<td>3</td>
</tr>
<tr>
<td>Feb 11, 2010</td>
<td>Cheverly MD</td>
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</tr>
<tr>
<td>Mar 25, 2010</td>
<td>Brownsville TN</td>
<td>3</td>
</tr>
<tr>
<td>Jun 2, 2010</td>
<td>Midlothian TX</td>
<td>2</td>
</tr>
<tr>
<td>Jul 22, 2010</td>
<td>Kingfisher OK</td>
<td>2</td>
</tr>
<tr>
<td>Jul 28, 2010</td>
<td>Tucson AZ</td>
<td>3</td>
</tr>
<tr>
<td>Aug 31, 2010</td>
<td>Scotland AR</td>
<td>3</td>
</tr>
</tbody>
</table>
Recent HEMS accidents

• Have gotten the attention of U.S. Congress, GAO, FAA, industry, media, public and NTSB
• 21 NTSB safety recommendations emerged
  – Pilot training
  – Aircraft equipment
  – Airspace infrastructure
  – CMS reimbursement
  – HEMS utilization criteria
Pilot training

- FAA should develop criteria for, and require, scenario-based training.
  - Training should include simulator and flight training devices.
  - Training should ensure instrument flying proficiency
    - training for inadvertent flight into clouds and/or low visibility.
How are pilots that fly to/from your trauma center trained?
Aircraft equipment

FAA should:

• Require Helicopter Terrain Alerting and Warning Systems (H-TAWS).

• Require use of night vision imaging systems by pilots.

• Require an autopilot if a second pilot is not available.
Are helicopters that use your trauma center equipped with:

H-ТАAWS
NVIS
Autopilots or two pilots
Three main points

• The current Helicopter EMS (HEMS) accident record is unacceptable.

• Not all air ambulance operators are created equally from a safety perspective.

• As consumers of air ambulance transport, you can “up the ante” on how they operate.
Levels of Performance

• **World class**
  - Top 3 - 5 percent of the industry
  - Organization thrives in seeking to be the very best

• **Best practices**
  - Adopts and implements standards, procedures, equipment, and training above and beyond regulatory requirements

• **Basic regulatory compliance**
  - Meets spirit of regulations, but no higher

• **Sub-standard performance**
  - Non-adherence to regulations, cutting corners are the norm

Adopted from Pete Agur
Not all operations are the same ...

Cost: $800k - $3 million
- Single engine, VFR
- Single pilot only
- Single patient only
- Limited access to patient for medical procedures
- Limited distance without refueling
- Limited weight carriage for medical equipment, fuel

Cost: $4-6 million
- Twin engine, IFR
- 2 pilot capability
- 2 patient capability
- Autopilot
- Longer range
- Climate control
- Full access to patient
- Higher critical care capability (e.g. balloon pumps, ventilation)

Cost: $7-12 million
- Twin engine, IFR
- 2 pilot capability
- Autopilot
- 2 patients, 4 medical personnel
- Climate Control
- Greatest distance capability without refueling
- Specialty transport capability (e.g. specialized pediatric)

…but Medicare reimbursement is the same.
Not all operators are the same; Nor are all operations the same

- While carrying patients, HEMS flights must be conducted in accordance with FAA Part 135 regulations (charter flight regulations).
  - However, on flights without patients (positioning flights), they may operate under less stringent FAA Part 91.
  - Positioning flights usually carry medical personnel (i.e., your employees).

- NTSB notes that 35 of the 55 studied accidents occurred on positioning flights, under FAA Part 91.
“Public” HEMS Operations

- 40 HEMS operators are government entities
  - i.e., National Park Service,
    Maryland State Police,
    LA County Fire Department
- FAA does not oversee “public” operations
- Few FAA requirements
- Not consistent with commercial (Part 135) HEMS operations
Maryland State Police Accident

4 fatalities, 1 serious injury
To what level are helicopters using your trauma center operating?

- World class
- Best practices
- Basic regulatory compliance
- Sub-standard performance
Three main points

• The current Helicopter EMS (HEMS) accident record is unacceptable.

• Not all air ambulance operators are created equally from a safety perspective.

• As consumers of air ambulance transport, you can “up the ante” on how they operate.
What can you do?

• Take an active role in knowing who is flying patients to/from your trauma center
  – Know how their pilots are trained
    • Know if they have scenario-based simulator training
    • Know if they require instrument proficiency
  – Know if their helicopters are equipped with H-TAWS, NVIS, autopilot and/or second pilot
What can you do?

- If your trauma center has a contractual arrangement with HEMS operators, is it written into their contracts that pilots must be trained and helicopters equipped per NTSB recommendations?

What are the legal and moral obligations of simply deferring to the operator to do these things, instead of your ensuring it contractually?
High-Risk Occupations, 2007

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Fatality Rate (per 100,000 employees)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HEMS Crew (Dedicated)</td>
<td>113</td>
</tr>
<tr>
<td>Fishers and related fishing workers</td>
<td>111.8</td>
</tr>
<tr>
<td>Logging workers</td>
<td>86.4</td>
</tr>
<tr>
<td>Aircraft pilots and flight engineers</td>
<td>66.7</td>
</tr>
<tr>
<td>Structural iron and steel workers</td>
<td>45.5</td>
</tr>
<tr>
<td>Farmers and ranchers</td>
<td>38.4</td>
</tr>
<tr>
<td>Roofers</td>
<td>29.4</td>
</tr>
<tr>
<td>Electrical power-line installers/repairers</td>
<td>29.1</td>
</tr>
<tr>
<td>Coal mining</td>
<td>28.4</td>
</tr>
<tr>
<td>Driver/sales workers and truck drivers</td>
<td>26.2</td>
</tr>
<tr>
<td>Refuse and recyclable material collectors</td>
<td>22.8</td>
</tr>
<tr>
<td>Police and sheriff's patrol officers</td>
<td>21.4</td>
</tr>
</tbody>
</table>

Source: Ira Blumen, MD
September 25, 2009
What are you doing to ensure that HEMS operators using your trauma center are operating to the highest levels?