



NTSB National Transportation Safety Board

Current Issues with Air Medical Transportation:

EMS Helicopter Safety

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NTSB Board Member
May 4, 2011

What is the NTSB?

- Independent Federal Agency, charged by Congress to:
 - Investigate transportation accidents
 - Determine their probable cause
 - Issue safety recommendations to prevent similar accidents
 - Conduct safety studies



NTSB has long-standing interest in Helicopter EMS (HEMS) Safety

- Investigated 230 HEMS crashes since 1983
 - Special in-depth safety research project in 1988
 - Special investigative project in 2006
 - Added HEMS Safety to NTSB's Most Wanted List in October 2008
 - Four day hearing in February 2009
- Issued over 50 HEMS-related recommendations to government and industry between 1988 – 2009



Would you be willing to administer 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?

- Helicopter EMS (HEMS) safely transports nearly 400,000 patients each year in U.S.
- HEMS performs a vital function of providing critical care



- Many of the HEMS operators have implemented safety best practices for pilot training, aircraft equipment, and operations
- However, some have not



Three main points

- The current 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 ...

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September 25, 2009
3 Fatalities



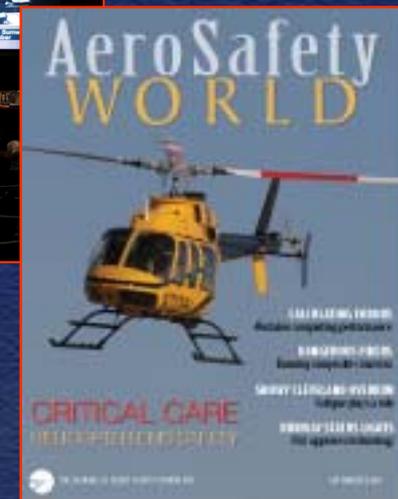
US HEMS accidents, Sep 1, 2009–Aug 31, 2010

Date	Location	Fatalities
Sep 22, 2009	Page AZ	none
Sep 24, 2009	Tucson AZ	none
Sep 25, 2009	Georgetown SC	3
Oct 22, 2009	Blythe CA	none
Nov 14, 2009	Doyle CA	3
Dec 25, 2009	Decatur TX	none
Jan 17, 2010	Reno NV	none
Feb 5, 2010	El Paso, TX	3
Feb 11, 2010	Cheverly MD	none
Mar 25, 2010	Brownsville TN	3
Jun 2, 2010	Midlothian TX	2
Jul 22, 2010	Kingfisher OK	2
Jul 28, 2010	Tucson AZ	3
Aug 31, 2010	Scotland AR	3

22
fatalities

Recent HEMS accidents

- Have gotten the attention of U.S. Congress, GAO, FAA, industry, media, public and NTSB



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 PB88-917001

NATIONAL TRANSPORTATION SAFETY BOARD

 WASHINGTON, D.C. 20594

SAFETY STUDY

 COMMERCIAL EMERGENCY MEDICAL SERVICE HELICOPTER OPERATIONS

 NTSB/SS-88/01

 UNITED STATES GOVERNMENT

 REPRODUCED BY

 U.S. DEPARTMENT OF COMMERCE

 NATIONAL TECHNICAL INFORMATION SERVICE

 SPRINGFIELD, VA 22161



NTSB MOST WANTED LIST

 Transportation Safety Improvements

2010 - 2011

Critical changes needed to reduce transportation accidents and save lives

Special Investigation Report on Emergency Medical Services Operations



Aviation Special Investigation Report

 NTSB/SIR-06/01

 PB2006-917001

 Notation 4402E


 National Transportation Safety Board

 Washington, D.C.

NTSB Public Hearing on HEMS



Feb 3-6, 2009

- 21 NTSB safety recommendations emerged
 - Pilot training
 - Aircraft equipment
 - Airspace infrastructure
 - CMS reimbursement
 - HEMS utilization criteria

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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 you
utilize trained?

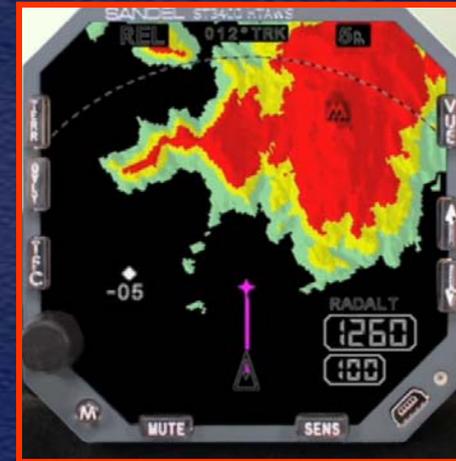
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Aircraft equipment

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 you use
equipped with:

H-TAWS

NVIS

Autopilots or two pilots

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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 quality, 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

Not All Operations are the Same ...



Cost: \$800k - \$3 million

- Single engine
- Single pilot only
- Limited weather capability
- Limited weight carriage for medical equipment, fuel



Cost: \$4-6 million

- Twin engine
- 2 pilot capability
- Instrument weather capability
- Autopilot
- Longer range
- Higher critical care capability (e.g. balloon pumps, ventilation)



Cost: \$7-12 million

- Twin engine, IFR
- 2 pilot capability
- Instrument weather capability
- Autopilot
- Greatest distance capability
- Specialty transport capability (specialized pediatric - ECMO)

...but Medicare reimbursement is the same.

“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



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To what level are helicopters that
you utilize operating?

World class

Best practices

Basic regulatory compliance

Sub-standard performance

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What can you do?

- Take an active role in knowing who is flying your patients
 - 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

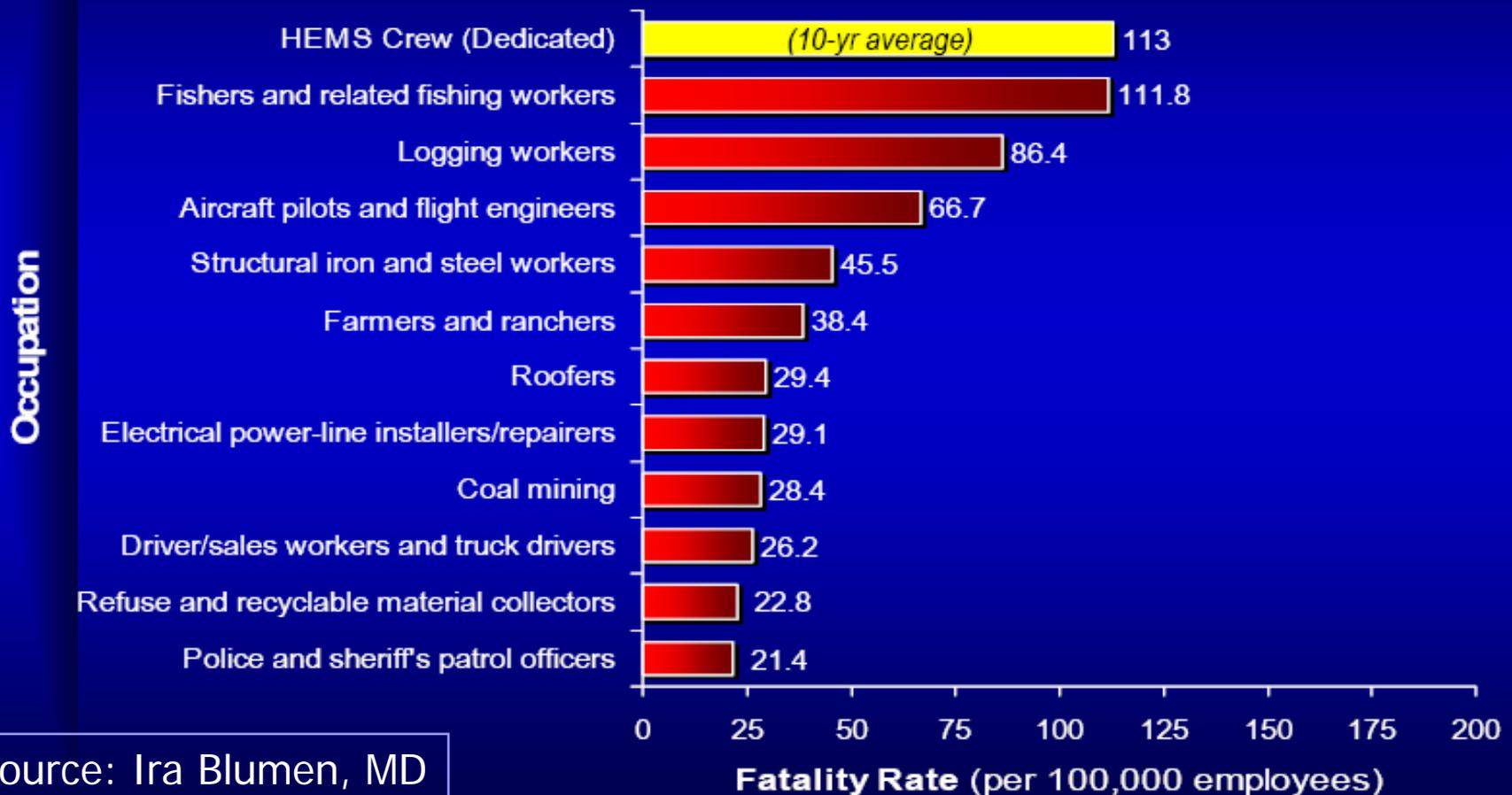
What can you do?

- If your facility 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?

Something to think about:

High-Risk Occupations, 2007



Source: Ira Blumen, MD

What are you doing to ensure that HEMS operators that you are using are operating to the highest levels?





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