HEMS Safety Record in the USA.... the FAA and the Future, Lessons to be Learned

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With Thanks to OSI-HEMS Dr. Ira Blumen
Aviation in itself is not inherently dangerous. But to an even greater degree than the sea, it is terribly unforgiving of any carelessness, incapacity or neglect.

— Captain A. G. Lamplugh, British Aviation Insurance Group, London. c. early 1930's
U.S. HEMS Accidents and Fatal Accidents 1972-2014

Total Accidents
Fatal Accidents

*Dedicated and dual-purpose through September 19, 2014

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HEMS Patients Flown

Estimated Total Patients Flown, 1980-2013: 5,800,000
HEMS Total Flight Hours

Estimated Total Flight Hours, 1980-2013: 6,900,000
Accidents and Injuries: 1972-2014

- 320 accidents
  - 310 dedicated HEMS
  - 10 dual-purpose aircraft
  - 113 (of 320) with fatalities
OSI-HEMS “Keyword”
- Human Factors: 94%
- Weather-related: 25%
- Mechanical: 24%
- CFIT: 21%
- LZ accidents (scenes): 19%
- Loss of Control: 19%
- Collision with obstacles: 17%
- IIMC: 15%

NTBS “Undetermined” – 3%
Feb 3-6 2009 Post 2008 - 8 Accidents, 29 Fatalities
Multiple segments of the industry
In Depth examination of practices, procedures, cultural concerns
Published recommendations Sept, 2009
19 Recommendations
10 recommendations to the FAA to address the issues of improved pilot training; collection and analysis of flight, weather, and safety data; flight data monitoring; development of low altitude airspace in infrastructure; and the use of dual pilots, autopilots, and NVIS

Two safety recommendations to the CMS are to evaluate the current HEMS reimbursement rate structure and its relationship to patient transport safety

Two recommendations are to FICEMS to address coordination / integration of HEMS into local and regional emergency medical systems and selection of the most appropriate emergency transportation mode for victims of trauma
Five recommendations to public operators to improve pilot training, flight data monitoring; and the use of dual pilots, autopilots and NVIS.

Built around – operations, business practices, weather, time of day, choices and pressures.
NPRM Issued Sept. 28, 2010
Final Rule Issued Feb 21, 2014 – 3.5 Years!
159 Pages
Graduated effective dates
Eventual delayed first implementation date by 1 year
No Guidelines published for CMTs
Problematic writing - circuitous
Helicopter Air Ambulance - NOT HEMS

Radio Altimeters all Helicopters*

Over Water equip; Alternate Airports Minimums*; Pilot testing whiteout, flat light, IIMC recovery.*

All Legs with Medical Personnel as Part 135 Flight*

10 Aircraft + requires Operational Control Center*

HTAWS by February 2017 (Clarity Required)*
Flight Data Monitoring Systems by February 2018*
  - NO TSO or Group to Develop
Preflight Risk Assessment, Filed, Acknowledged by OCC*
PIC Identify Terrain and Obstacles Enroute*
Safety Brief/Training for onboard Medical Personnel*
Comply with VFR weather minimums, IFR operations at airports/heliports without weather reporting, procedures for VFR approaches, & VFR flight planning.
PIC required Instrument Rating*
Risk Assessment – in use for 7+ years
NO Requirement for Autopilot devices
NO requirement for Night Vision Devices
Why OCC for 10+ - not ALL Ops?
HTAWS – predominately accomplished by industry
FDMS Nebulous – no protections for data
IFR circuitous in proscription and execution
Costs grossly underestimated
Most operators of 20+ operate OCCs – Rule added some training, and reduced shift hours to 10

OCC likely most effective oversight system

Most Operators already have NVIS – Why Not?

Many Operators exceed FAA Weather Minimums as Ops Standard

Many Operators want FDMS as apart of FOQUA – NO protections envisioned for data, thus punitive
92% of todays accidents are due to CHOICES - made by individuals and teams
NO Rule making to support Human Factors
NO Rule making to understand Fatigue
Operators estimate they have invested $500-700M
OCC Proven most effective oversight system
Most Operators (>90% Aircraft) committed to Autopilot in three years
Top rôds Reality in Culture

- Major effort in Just Culture Adoption
- Accomplishing Structural Org Changes:
  - Maintenance and Maint Control
  - Fatigue Management
- Adopting Safety Management Systems – FAA faint support
- Addressing Group Think
Groupthink — “Groupthink is a psychological phenomenon that occurs within a group of people, in which the desire for harmony or conformity in the group results in an irrational or dysfunctional decision-making outcome.”
By far the greater number of aeroplane accidents are due to precisely the same circumstances that have caused previous accidents. A distressing feature of these accidents is the evidence they afford of the unwillingness, or the inability, of many pilots to profit from the experiences and mistakes of others.
