



**NTSB** National Transportation Safety Board

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# **EMS Helicopter Safety: Viewpoint from U.S. NTSB**

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NTSB Board Member  
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- HEMS safely transports nearly 400,000 patients each year in U.S.
- HEMS performs a vital function of providing critical care



# However:

- Current HEMS accident record is alarming and it is unacceptable



- Improvements must be made

# Last 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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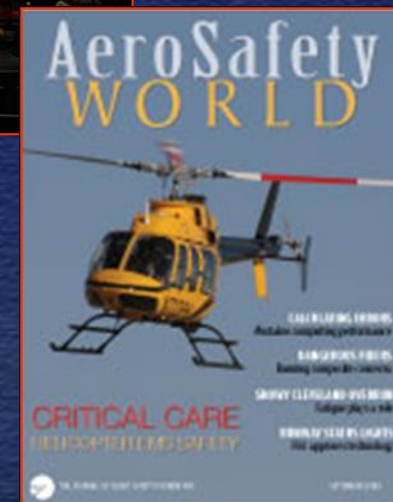
# September 25, 2009

## 3 Fatalities



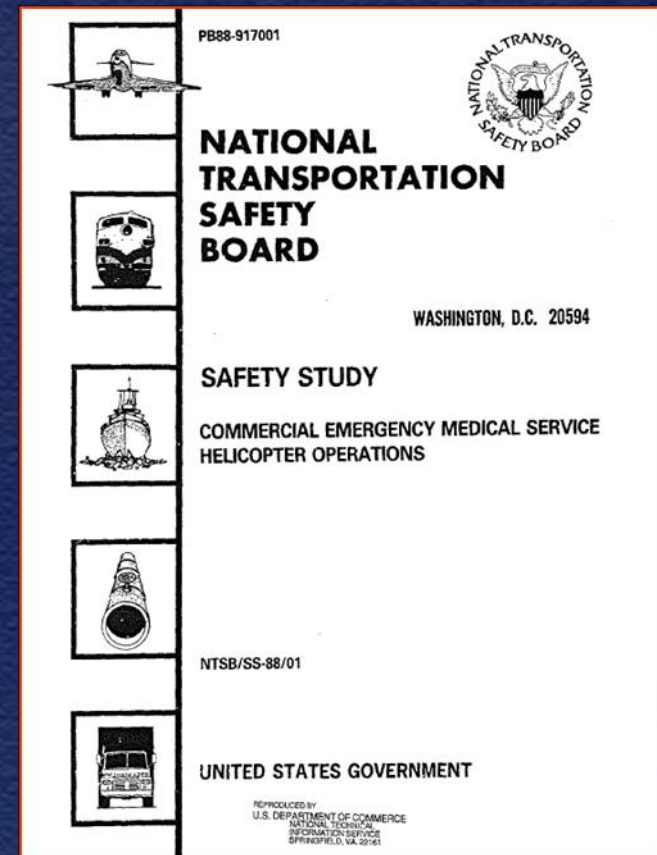
# Recent HEMS accidents

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



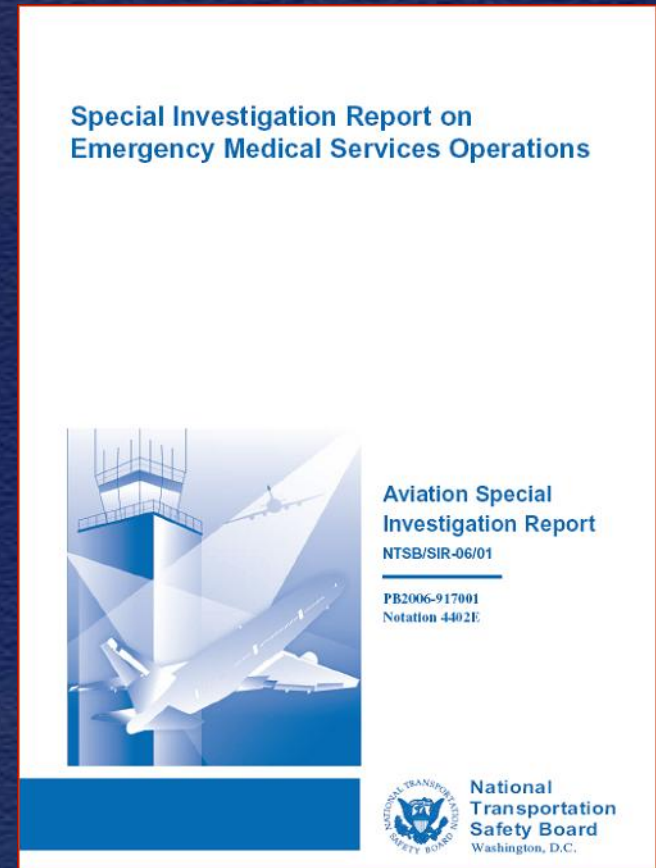
# NTSB has longstanding concern of HEMS Safety

- 1988 Safety Study
  - Evaluated 59 HEMS accidents
  - Issued 19 safety recommendations to FAA, 2 associations and NASA



# 2006 Special Investigation Report

- Analyzed 55 EMS Accidents
  - 14 Airplane
  - 41 Helicopter
- Determined that 29 of the 55 accidents could have been prevented
  - if corrective actions in the report had been implemented





# 2006 Safety Recommendations

- To FAA:
  - Require operations under Part 135 for all legs of EMS missions.
  - Require flight risk evaluation for all EMS missions.
  - Require EMS operators to utilize flight dispatch procedures.
  - Require that EMS operators use TAWS.





# NTSB MOST WANTED LIST

Transportation Safety  
Improvements

2009

*Critical changes needed to reduce  
transportation accidents and save lives.*

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# 3 of 4 Recommendations

## NTSB MOST WANTED LIST

### **AVIATION:** The Federal Aviation Administration should:

#### Improve Safety of Emergency Medical Services Flights

- Conduct all flights with medical personnel on board in accordance with current FAA regulations.
- Develop and implement regulations for EMS flights.
- Require EMS to use dispatch and flight-following procedures including up-to-date weather information.
- Install terrain awareness and warning systems on aircraft.

**Open - Unacceptable Response**

# NTSB Public Hearing on HEMS



Feb 3-6, 2009

- 41 witnesses representing
  - HEMS operators
  - industry associations
  - manufacturers
  - hospitals

# Comprehensive look at HEMS industry

- Looked at HEMS business models
- Examined flight operations procedures including:
  - flight planning, weather minimums, preflight risk assessment
- Discussed safety enhancing technology such as TAWS and NVIS
- Discussed training, including use of flight simulators
- Probed corporate and government oversight of HEMS operations

# 2009 Safety Recommendations

- Recommendations to the FAA:
  - Develop and require scenario-based simulator training
  - Require SMS
  - Require flight data recorder devices; establish flight data monitoring programs
  - Require HEMS operators to report flight hours flown
  - Improves use of weather data sources
  - Evaluate development of low altitude airspace in infrastructure, and implement, if feasible
  - Require use of Night Vision Imaging Systems (NVIS) equipment and training
  - Require autopilots if second pilot not available

# 2009 Safety Recommendations

- Recommendations to public operators:
  - Require scenario-based simulator training
  - Require SMS
  - Install flight data recorder devices; establish flight data monitoring programs
  - Install and require NVIS equipment and training
  - Require autopilots if second pilot not available

# 2009 Safety Recommendations

- Recommendations to Federal Interagency Committee on EMS (FICEMS)
  - Develop national guidelines for the use and availability of HEMS by regional, state, and local authorities during emergency medical response system planning.
  - Develop national guidelines for selection of the most appropriate emergency transportation mode for urgent care.



# 2009 Safety Recommendations

- Recommendations to the Centers for Medicare & Medicaid:
  - Evaluate the HEMS reimbursement rate structure to determine if reimbursement rate should differ according to level of HEMS transport safety provided,
    - Establish new rate structure, if warranted
  - Develop minimum safety accreditation standards
  - Provide Medicare reimbursement only for HEMS transportation that meets accreditation standards



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