

# Addendum

to

**“An Opportunity to Improve”**

(Originally published January 13, 2009)

Clarification and Rebuttal statements from the  
**National EMS Pilots Association**

provided to the NTSB for consideration  
regarding the Hearing on HEMS Safety  
held in February 2009



# HEMS Part 135 vs. Air Carrier Part 121

## DISCUSSION

On day three of the hearings during panel seven's testimony on flight operations there were several references made to the differences between operations conducted by air carriers under part 121 and helicopter EMS operations conducted under part 135. While NEMSPA recognizes these differences it should be noted that there is a considerable disparity in how these two distinctly different operations conduct business on a day to day basis.

Air carriers operating under part 121 regulations generally fly well defined standardized routes. In a short period of time these pilots can become familiar with the majority of the routes and airports they will operate in. Flying into and out of a select few airports is a completely different environment than the typical HEMS pilot is required to operate in. This is truly an "apples and oranges" comparison. All things being considered, a pilot flying under part 121 is working in a preplanned, predictable environment. Conversely, for a part 135 HEMS pilot, given the multitude of outlying hospital facilities, in some cases 150-200 different locations, it becomes quite challenging to achieve this same level of comfort and familiarity. This does not take into account the fact that many HEMS operations work off site at scene locations with no infrastructure whatsoever, something that a part 121 operation would never do or be asked to do.

When a part 121 pilot lands at his destination he or she knows that those individuals who are at that facility participating in the transport have been trained and tested to a high standard on a regular basis. A part 135 HEMS pilot can never assume that anyone at his destination, be it a hospital or a scene, has ever been formally trained or knows even the most basic rudimentary safety precautions that should be taken.

The majority of part 135 HEMS pilots have on average 7 to 10 minutes from the time of notification of a flight request to liftoff. In this time they are required to plan their route of flight, evaluate current and forecast weather, calculate weight and balance and determine all pertinent obstacles and hazards. The current infrastructure afforded the part 135 HEMS pilot for performing these tasks, accomplished in just a few minute, is glaringly inferior to that which is afforded to the part 121 air carrier pilot.

Much was discussed regarding "infrastructure" as it pertains to both part 121 air carrier operations and part 135 HEMS operations. It should be noted that all part 121 air carrier operations are conducted to locations that are required by law to meet a specific standard of compliance and safety set forth by the federal government and must be inspected at least on an annual basis. Conversely part 135 HEMS operations are routinely conducted to locations that either have never been inspected or have not been re-inspected for 20-30 years. Approaches used by part 121 air carriers into airports must meet strict guidelines as to obstacle clearance and are routinely checked

on a regular basis to insure safe operations can be maintained. Part 135 HEMS operations have no requirement for this same level of inspection or safety. Pilots conducting part 135 HEMS operations in essence are conducting their own flight check while performing patient transports, day or night.

As stated above part 121 air carriers operate from and to known locations that are well documented and are routinely maintained in databases that pilots use for navigation and information. This level of accuracy is again due to the funding and resources that have been afforded the part 121 air carrier industry. Recently, according to officials in the Illinois D.O.T., an air medical helicopter transporting a patient from Iowa to Illinois landed at a hospital helipad that had been closed for some time. Given that the pilot had never been to this location before he relied on the data base on private use airports and heliports in his global positioning system, a Garmin 496. This database of information is based on the current data on file with the government pertaining to private use helipads and airports, which hospital helipads generally fall under. Upon arrival and landing at the location specified by the GPS data base the pilot was informed by security guards that the helipad in question had been removed and relocated several years prior to the incident. This glaring lack of accuracy does not exist within the part 121 air carrier industry. At the current time there are no accurate records within any government agency pertaining to landing locations that the part 135 HEMS industry can rely on for accuracy and safety in navigation and operations.

Chairman Sumwalt discussed simulator training and how it was a staple to the part 121 industry and its safety record and that the part 135 HEMS operators could definitely benefit from the use of simulators. NEMSPA agrees completely with this statement and believes that simulator training is essential to improving safety. But the number of simulators that part 121 operators currently have available dwarf by comparison that which the part 135 HEMS industry can currently use. Again, the difference between the two industries is significantly evident. Part 121 operations operate out of large hub systems that lend themselves very well to permanently located training areas. Part 135 HEMS operations do not operate out of one centralized location, but rather are located in often times very remote locations spread throughout the United States with limited access to training devices such as simulators. As discussed, the concept of "traveling simulators" is a possible solution to this problem, bringing the simulator to the pilots rather than requiring the pilots travel to the simulator.

Chairman Sumwalt also discussed Automated Weather Observation Systems (AWOS) and bringing more of the existing systems on line. Again we go back to the disparity in infrastructure and the disparity in funding and resources afforded part 121 versus part 135. At the present time there are hundreds of weather sites across the country that meet or exceed the requirements for inclusion in the national weather systems that are not currently being used. Because the majority of these sites are located at small general aviation airports, which do not service part 121 air carriers, there is little or no

funding or emphasis from the government on getting these sites integrated into the national weather system.

While we agree that there are many things that can be used and learned from the part 121 air carrier industry we do not feel that it can or should be a cookie cutter approach. The rapid introduction of technology into an untested environment could have catastrophic consequences. The amount of funding and resources afforded part 135 HEMS operations has been infinitesimal compared to that provided for part 121 carriers. If the Federal Government were to afford the same resources and funding to the part 135 HEMS industries infrastructure that they have historically afforded the part 121 air carrier industries they would probably see a rapid and significant improvement overall.

## IFR Accidents in HEMS

### DISCUSSION

NEMSPA feels flying IFR is a means of enhancing safety, however it should not be considered the primary or only solution to the accident trend experienced in the last couple years by the HEMS industry. During the hearing it was erroneously stated that no HEMS accidents had been recorded under IFR conditions. We offer the following four cases as examples of IFR HEMS accidents.

<b>HEMS IFR Fatal Accidents</b>					
<b>NTSB ID</b>	<b>Date</b>	<b>A/C Type</b>	<b>Location</b>	<b># of Pilots</b>	<b>Fatalities</b>
BF094FA071	04/22/1994	BH412	Bluefield, WV	2	4
NYC00FA140	06/14/1999	SK76	Jackson, KY	2	4
LAX04FA076	12/23/2003	A109A	Redlands, CA	1	3
NYC06MA005	10/17/2005	A109E	Smethport, PA	1	1

We are eager to explore any and all probable solutions to the accident rate, and consider IFR only one of many mitigation strategies. Having the capability to provide services under Instrument Flight Rules may not meet the financial capabilities of many operators, and the infrastructure is currently not in place as necessary to conduct extensive operations. Development of infrastructure would be costly and take a long period of time to accomplish. NEMSPA feels IFR may be one of many possible mitigation strategies and must fit into the business model of operators before it can be a successful strategy.

# Medical Crew Members vs. Flight Crew Members

## DISCUSSION

NEMSPA understands the relationship between the medical crew members and the flight crew members, and the interaction that is commonplace between them. While we do not object to further definition of the position and the roles they play, we feel they better fall in a non-aircrew designated position. We agree the medical crew should be utilized as much as possible consistent with the design of AMRM, and as a safety enhancement. Their roles in AMRM and safety are similar to those that sit in exit rows of airliners, and as such should not be designated as safety sensitive. The greatest problem we find with their being designated air crew fall in their inclusion in the FAA drug testing pool, which would likely overtax the system and dilute the effectiveness of the program. We feel it would be better to include them in a DOT program of medical crew members instead, should it be determined this is necessary. In addition we are not opposed to development of a medical crew rest program, but feel this should be coordinated with agencies more in line with their job description. (ASTNA for flight nurses and IAFP for flight paramedics)

## HTAWS

### DISCUSSION

NEMSPA believes the existing philosophy towards HTAWS as the "magic bullet" to cure many of HEMS current issues is premature and unfounded. While TAWS has been a proven and valuable tool for fixed wing operations, it has not been shown to be a deterrent to CFIT accidents in the rotor wing environment. As the majority of EMS helicopter flights are in VFR conditions and operate relatively in close proximity to the ground (generally less than 1,000 feet), the applicability and value of TAWS to the HEMS environment in its current configuration is still unclear. While it may be that HTAWS will be shown to be a significant aid to the HEMS pilot, NEMSPA believes that the FAA should be cautious in its timeframe of mandating such equipment for EMS operators in an untested environment. As stated in our original paper "An Opportunity to Improve", NEMSPA believes that the proven night vision goggle technology should be promoted more aggressively.

# Pressure to Fly

## DISCUSSION

NEMSPA believes the “pressure to fly” problem, deemed in our original “An Opportunity to Improve” submission as the second most significant issue facing the air medical industry, was inadequately addressed during the hearing. In an informal poll (go to the NEMSPA web site), recently conducted among 257 EMS pilots supports NEMSPA’s opinion that internal and external pressures placed upon pilots and medical crewmembers can significantly impact their decisions on whether or not to accept flights. Nearly half of those responding indicate that they are pressured by medical staff, management or competitive sources to “accept or complete a flight.” A full 65% will place pressure upon themselves to do the same.

NEMSPA believes the air medical industry culture and composition of personnel, including a “flight team” consisting of medical personnel and a pilot, is very unique to professional aviation. The unusual combination of numerous factors results in some pilots accepting flights, and then continuing flight, against their better judgment. As stated in its original submission, NEMSPA believes there are two tools that can play a key role in relieving both internal and external pressure on pilots.

The first tool is a well designed risk assessment program that requires the pilot to confer with someone outside of the flight team before accepting a flight in marginal conditions. While nearly all had a risk assessment program in place, the attached survey indicates that nearly 40% of respondents believed that their program was “not very effective” at “minimizing the likelihood” of the pilot accepting a flight into marginal conditions. About one-half of those surveyed indicated that they did not need to consult with anyone outside of the flight team, regardless of the risk score obtained.

With regards to in-flight risk assessment systems, NEMSPA is a strong proponent of an EDP (Enroute Decision Point) protocol as a second tool for combating internal and external pressures. Approximately 50% of respondents to the discussed survey indicated that their program either did not have an in-flight risk assessment system, or that it was “not very effective.” Another recent survey conducted among a group of 13 pilots employed by an air medical provider with an active EDP program showed that a full 85% believed that their EDP protocol helped them make decisions on “whether or not to continue flight into marginal weather conditions.” Nearly 70% indicated that the EDP protocol was an “integral part” of their thought process in marginal weather.

In conclusion, internal and external pressures placed upon a pilot and his or her flight team is a major issue facing air medical EMS, and has not been adequately addressed. Risk assessment and EDP programs provide a method of relieving those pressures. The NEMSPA survey data, however, indicates that having programs simply in place is not sufficient. Those programs must be well designed and followed to be effective.

# Night Vision Goggles

## Discussion

NEMSPA stands by its original position concerning the use of NVG's in civil helicopter Air Medical flights (HEMS).

It was stated by one witness, that there were no fatal HEMS accidents while flying IFR. As is stated elsewhere, that is incorrect. However it is a fact that there have been no fatal HEMS accidents while operating with NVG's during the last 10 years of HEMS NVG civil operations. During 2008, a particularly poor year for HEMS, if you exclude the mid-air collision in Arizona, and an apparent mechanical failure in Indiana, all of the fatal accidents in HEMS were night CFIT, while operating unaided (without the use of NVG's).

COMPARISSON CHART		
Pilot	Conditions	Best Visual Acuity
Unaided	Night	20/200
Aided (NVG)	Night	20/25

It should be noted that the best visual acuity (20/200) that can be achieved at night unaided is considered to be legally blind in North America and most of Europe. A pilot aided with night vision goggles regardless of crew complement is better than a pilot unaided in virtually any situation.

At the current time NEMSPA is unaware of any technology that compares to the versatility and functionality of night vision goggles as they are currently being implemented within the part 135 HEMS environment. Night vision goggles are a proven and well tested technology that pilots have learned to utilize to increase safety during night operations.