

These comments relate to the agency's proposed operations specifications revisions A021 and A050 and are submitted for inclusion in Docket Number FAA-2008-1208.

I am an attorney in private practice. For 25 years, my practice has focused on representing individuals and families of persons killed or injured in aviation crashes. A significant aspect of that practice has involved handling numerous crashes of air ambulance helicopters. Besides being a licensed attorney in Texas, I hold degrees in aerospace engineering and am a licensed professional engineer in Texas (inactive status).

In 2001, I published an article entitled "Air Ambulance Operations: Enhancing Public Safety or Causing Unnecessary Tragedy". A copy of that article will be submitted in conjunction with my comments.

My comments are based upon my professional experience, both as an attorney and an engineer as well as the significant anecdotal experience I have accumulated investigating and prosecuting numerous air ambulance crashes for patients, passengers and their families. The vast majority of my case experience with helicopter air ambulances has involved fatal crashes.

#### Regulatory Framework and Industry Practices

The Federal Aviation Regulations are essentially an amalgam of minimum standards which apply to a wide range of domestic aviation activities. In the specific context of helicopter air ambulance operation, the agency has never adopted standards specific to the operational risks of helicopter air ambulances despite appeals to do so from the National Transportation Safety Board, media and the public. The proposed revisions to A021 and A050 appear to be regulatory efforts by the agency designed to address the unique operational risks and safety issues posed within the realm of helicopter ambulance operations.

These types of operations are known by various terms such as medivac or medevac, helicopter emergency medical services (HEMS), air ambulance helicopters and descriptors. They all refer to use of helicopters to transport patients. These comments are intended to relate only to rotor wing aircraft or helicopters used in air ambulance operations.

It is not clear to me why revisions to operations specifications are being utilized rather than implementing specific rules, where appropriate, within 14 C.F.R. Parts 61, 91 and 135. Regardless of the agency's rationale for using revisions to operations specifications as the vehicle for change, the agency should ensure that the helicopter air ambulance industry understands that the newly implemented standards, whatever form they are in, have the force and effect of the Federal Aviation Regulations and that the standards are minimum standards. This needs to be clearly stated in the proposed specifications.

I have long advocated for and continue to urge the implementation of specific regulations to accomplish risk reduction and safety enhancement for helicopter air ambulance

operators within the ambit of 14 C.F.R. Part 135. New rules, specific to helicopter air ambulance operations should be added to Part 135. These new rules should be accompanied by appropriate and complementary advisory circulars and operations specifications. I would also recommend requiring that all helicopter air ambulance operations, regardless of whether a patient transport is contemplated, be conducted under Part 135. In essence, I would eliminate the ability of air ambulance operators to conduct any Part 91 operations. By mandating that all air ambulance operations be conducted under Part 135, significant safety margins should be realized over Part 91.

Additionally, the agency should consider enacting rules based upon the voluntary accreditation standards published by the Commission on Accreditation of Medical Transport Systems (CAMTS), particularly those standards that apply to helicopter operations. In contrast to the current federal standards, the CAMTS rotor wing standards reflect standards tailored to the risks associated with helicopter ambulance operations. While these standards are not, by any means, perfect they are far superior to and much more comprehensive than the existing federal standards and even the limited operational enhancements proposed in A021 and A050. The CAMTS standards would offer much greater safety margins to patients, medical support personnel and the public if they benefitted from the force of law and were not merely voluntary.

#### A021

I would offer the following additional comments related to the subjects covered by A021:

##### Dispatch and Medical Screening Procedures

Many patient transports by helicopter ambulances are unnecessary and expose the patient and crew to inappropriate and unwarranted risks. In the 2001 paper that I authored, several studies cited in the paper concluded that a relatively small percentage of patients actually benefitted medically from helicopter transport over the alternative of a ground ambulance transport. This is because, in urban areas, large numbers of ground ambulances are dispersed within the urban area and those units are able to achieve shorter transport times to deliver the patient to an appropriate care facility, on average, than the helicopter ambulance alternative. Of course, the cited studies noted that the medical efficacy of the mode of transport varied with the particular medical condition. Consequently, there is a need to insert a qualified medical screener into the process of evaluating whether to transport a patient by ground ambulance or helicopter ambulance.

However, few helicopter ambulance operations are equipped with a qualified medical screener who reviews the transport request independently of the dispatcher and flight crew and determines whether the patient's medical outcome could be enhanced by using a helicopter rather than a ground ambulance.

Far too many of the cases that I have handled or investigated have involved flights dispatched for patient transport where, in hindsight, the medical condition did not warrant exposing the patient or the crew to the risk of a helicopter ambulance flight. Tragically,

the vast majority of fatal patient transport crashes I have handled or investigated involved medical conditions that were entirely appropriate for ground ambulance transport and where the patient or crew was unnecessarily exposed to risk with no meaningful medical benefit at stake for the patient.

Many witnesses we have spoken to in the helicopter ambulance industry have alluded to the tendency or propensity of air ambulance crews to take patient transports in the face of known risks due to their inherent traits as responders and rescuers. This is not a criticism of these wonderful qualities but an observation that supports separating the medical screening function from the pilot's independent role of assessing the flight risks so that the dispassionate medical decision is in the hands of a ground-based screener and is not resting on the minds and shoulders of the pilot and the flight nurses and paramedics.

Other industry witnesses have spoken about competitive pressures or financial pressures to take transports which were medically unnecessary.

Regardless of why so many medically inappropriate or unnecessary transports are occurring, they need to cease. I recommend requirements that helicopter ambulance operations establish a system for screening flight requests by qualified medical personnel such that the decision about the medical appropriateness of a helicopter transfer is made by a medical professional and prior to the transport request being passed to the pilot for a flight-risk assessment. This independent, evaluative function could greatly reduce the number of medically unnecessary helicopter flights especially when the medical outcome of the patient is not dependent on getting to the care facility via helicopter ambulance.

#### Minimum Helicopter Equipment

The proposed revisions to A021 do not go far enough in establishing minimum equipment needs for air ambulance helicopters. Even though I generally oppose helicopter ambulance operations in instrument meteorological conditions, I would require that all helicopters be equipped to meet requirements for flight in instrument conditions due to the risk of inadvertent flight into limited visibility conditions. I would also require all air ambulance helicopters to be equipped with terrain avoidance warning systems to minimize the risk of inadvertent ground proximity, and to add additional safety margins and reduce flight risks.

#### Pilot Minimum Experience

The proposed revisions do not include sufficient minimum experience requirements for pilots who fly air ambulance helicopters. The crashes of helicopter ambulances I have investigated or handled over the last 25 years point to the following pilot experience problem areas:

- (a) pilots with little or no time in the specific make and model of helicopter being flown;

- (b) pilots with little or no actual instrument or night experience;
- (c) pilots with substantial helicopter experience but little or no experience in air ambulance operations;
- (d) pilots with limited familiarity with local flight hazards especially terrain features and obstructions;
- (e) pilots with limited familiarity with the generic flight risks of a particular region such as mountainous terrain, high desert terrain or unlighted areas with no horizon references during night operations.

In my opinion, flight risks can be substantially reduced by enhancing specific experiential requirements for pilots.

### Operating Minimums

I have advocated (a) limiting helicopter air ambulance operations to daytime VFR unless a specific operator can demonstrate through experience, the qualifications of its flight crews and avionics equipment on its helicopters that operations at night or in instrument meteorological conditions is safe, and (b) significantly enhancing the night standards for pilot night experience and weather minimums to ensure that all night operations are conducted under VFR and with special requirements for ceiling and visibility. The proposed specifications do not go far enough in reducing the risk of night operations.

There have been far too many fatal crashes during night operations. Some of these have also involved reduced visibility but others have occurred at night where the pilot simply collided with the ground or an obstruction. Several of the fatal night crashes we have examined occurred where the pilot deviated from the planned route and hit an obstruction, natural or man-made. Many of these navigational errors would not have occurred during daytime VFR operations. The agency should consider the frequency of night crashes and implement appropriate operating minimums to eliminate this risk. Even if the agency is averse to prohibiting night operations, the night operating minimums and pilot experiential requirements should be sufficiently rigorous to effectively eliminate the prevailing nighttime risks.

### A050

I would offer the following additional comments related to the subjects covered by A050:

The use of night-vision goggles (NVG) as a solution to reduce nighttime or reduced-light medical helicopter crashes is a worthy approach to risk reduction. There is no question that NVG can significantly improve pilots' visibility in night or reduced-light conditions. However, NVG is not a panacea or cure-all and, if entrusted to pilots with little NVG experience, may add significant risks to an already risky flight environment. Of course, I feel that use of NVG should only occur if conducted in night VFR conditions and pursuant to enhanced ceiling and visibility requirements, recommended above.

The military's own experience has taught us that proper NVG training is essential to avoid disorientation with this specialized equipment. Most NVG training for helicopters is given by the military, and most pilots with significant NVG experience are former military helicopter pilots. Many civilian-trained pilots have little-or-no training or experience flying helicopters with NVG. Even those who have training in NVG, have a paltry amount of actual NVG flight experience.

Given the increasing number of civilian-trained pilots being hired in the expanding air ambulance market, the introduction of NVG operations by unqualified pilots has the unintended consequence of adding risk unless the agency adopts very strict NVG pilot experience and training standards. Otherwise, the potential safety gains offered by NVG will be negated by having inexperienced pilots using sophisticated equipment that exceeds their skills and abilities.

I would recommend that the revisions to A050 contain appropriate flight and training minimums that assure the public that the NVG equipment is being used in a manner that enhances safety and does not add another unsafe dimension to an array of risks prevailing in night operations. I would also encourage the agency to add specific language to the proposed specification that details the minimum requirements approved NVG equipment.

Thank you for considering these comments.

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