

2007 Iowa Helicopter EMS Summit

Executive Summary

December, 2007

On December 14, 2007, a summit was held at the Ankeny Regional Airport to discuss issues involving helicopter EMS operations in Iowa. The meeting was facilitated by the Iowa DOT Office of Aviation.

Attendees represented a cross section of helicopter EMS stakeholders including representatives from helicopter EMS programs from across Iowa, the Iowa Hospital Association, the Iowa Broadcasters Association, the Iowa DOT's Office of Aviation, the Federal Aviation Administration's (FAA) Des Moines Flight Standards District Office (FSDO), and the Iowa Department of Public Health EMS Bureau.

Goals of the meeting were to:

- 1) Educate various stakeholders on issues involving helicopter EMS operations;
- 2) Open lines of communication between helicopter EMS stakeholders;
- 3) Discuss State programs impacting helicopter EMS operations;
- 4) Identify issues and potential hazards in the operating environment, and;
- 4) Prioritize hazards and discuss potential solutions.

Those in attendance included:

Syd Morrow- Air Methods Regional Aviation Director
Chuck King, Aviation Service Manager/Pilot - Mercy Hospital Mercy One (Des Moines)
Greg Stanzel, Pilot - Mercy Hospital Air Care (Sioux City)
Kevin Takas- Medforce President and CEO (Davenport and West Burlington)
Bob Hartman, Lead Pilot/Safety Rep - University of Iowa Air Care (Iowa City)
Tom Pingel, Safety Rep/Pilot - Covenant Hospital Air Care (Waterloo)
Richard Miller, Director of Operations- St. Lukes Lifeguard (Cedar Rapids)
Michael Cufu, Chief Pilot/Safety Rep - St. Lukes Lifeguard (Cedar Rapids)
Elgin Lester, Pilot- St. Lukes Lifeguard (Cedar Rapids)
Sam Cain, Regional Pilot Mgr- Air Evac Lifeteam (Ottumwa/Fort Madison)
Sherman Weigel, Lead Pilot - Mercy Air Life (Mason City)
Bryan Williams, Chief Flight Nurse- Mercy Air Life (Mason City)
Maureen Keehnle, VP & General Council- Iowa Hospital Association
Keith Luchtel, Lobbyist- Iowa Broadcaster's Association
Joe Ferrell, Regulation Manager- Dept. of Public Health Bureau of EMS
Merrill Meese, North Central EMS Coordinator- Dept. of Public Health Bureau of EMS
Larry Arenholz, Operations Supervisor- FAA's Des Moines FSDO
Michelle McEnany, Director- Iowa DOT Office of Aviation
Tim McClung, Planning and Outreach Manager- Iowa DOT Office of Aviation
Mike Marr, Airport Inspector- Iowa DOT Office of Aviation

Background

Overview of Iowa Helicopter EMS Operations

More than 4,000 Emergency Medical Service (EMS) helicopter operations are conducted each year in Iowa. Seven Iowa hospitals provide helicopter EMS services in Iowa using specially designed air ambulance helicopters. Iowa hospitals with their own programs include:

- U. of I. Hospitals and Clinics in Iowa City (Air Care)
- Waterloo Covenant Hospital (Air Care)
- Mercy Hospital in Mason City (Air Life)
- Iowa Methodist Hospital in Des Moines (Life Flight)
- St. Lukes Hospital in Cedar Rapids (Lifeguard)
- Mercy Hospital in Sioux City (Air Care)
- Mercy Hospital in Des Moines (Mercy One)

Additional independent and out-of-state hospital programs such as MED-FORCE in the Quad Cities and Burlington; Air Evac Lifeteam out of Ottumwa and Kirksville, Mo.; Life Net in Omaha and Council Bluffs, and Careflight in Sioux Falls, S.D. also provide rapid air transport in Iowa.

With the exception of St. Lukes Hospital in Cedar Rapids, all of the Iowa hospital-based helicopter programs have contracted helicopter services with Air Methods Corporation of Englewood, Colorado. Air Methods provides pilot and mechanic services in accordance with Part 135 Federal Aviation Regulations, while their hospital partners provide medical personnel, communications, and dispatch functions.

It is worth noting that many of the current pilots flying helicopter EMS operations are Vietnam era pilots that have been with their programs for extensive periods of time and have become intimately familiar with landing areas in Iowa. Over the next decade or so, there will be a rather significant transition to a new set of pilots.

Nationwide Accident Trends and NTSB Recommendations

Nationally, air ambulance accidents have spiked in recent years. This has led to increased industry review of helicopter EMS operations, including recommendations from the National Transportation Safety Board (NTSB). NTSB recommendations have focused on go/no-go decision making, terrain collision avoidance, and night vision imaging systems. They include:

- Operating all flight segments with medical personnel on board under FAA Part 135 operating rules, which have tighter rules regarding weather minimums and crew rest requirements;

- Implementation of flight risk evaluation programs;
- Formalization of flight dispatch operations and;
- Recommended usage of technologies such as terrain awareness warning systems and night vision imaging systems.

Safety Issues in Iowa

Operations in Iowa over recent years have remained accident free. In Iowa, two fatal accidents involving helicopter EMS operations have occurred since helicopter EMS operations began in the state in 1979.

The first was in March of 1980 when a Lifeflight helicopter owned by Rocky Mountain Helicopters was dispatched from Des Moines Methodist Hospital and crashed in Webster City, killing the pilot and two nurses on board. The accident occurred as the helicopter experienced engine failure during a downwind approach to the hospital, followed by an unsuccessful emergency landing attempt.

The second accident occurred in August of 1998 when a helicopter owned by Rocky Mountain Holdings was dispatched from Sioux Valley Hospital in Sioux Falls, South Dakota to the Spencer Municipal Hospital and crashed approximately one mile west of the Spencer Municipal Airport, killing the pilot, a flight nurse, and flight paramedic on board. The accident occurred as the helicopter was in a cruise descent and experienced mechanical failure of the swashplate and subsequent in-flight break up.

Helicopter EMS operations in Iowa have communicated they are heeding recent recommendations by the NTSB and FAA. Each Iowa program has designated safety personnel. Most, if not all programs have plans to eventually move to night vision and terrain awareness technology.

Additionally, the FAA, responsible for inspecting helicopter EMS operations through FAA Part 135 certification, has identified helicopter EMS operations as a special emphasis area and is working with operators to promote implementation of improved safety procedures.

In recent years, the Iowa DOT Office of Aviation has received input regarding needs for development of safety programs involving the helicopter EMS operating environment. Issues have included the development of a statewide heliport directory and mitigation of obstruction hazards.

Designated Landing Zones in Iowa

The approximately 130 helicopter EMS landing zones in Iowa range from full-scale heliports with fencing, lighting, pavements markings, and windsocks to designated landing areas on or near hospital facilities. They are located at tertiary medical care centers, local community hospitals, and various designated landing areas throughout the State. Helicopter EMS operations also frequently

land on the scene of accidents and provide parameters to first responders for setting up on-scene landing zones.

The majority of helipads associated with helicopter EMS operations are considered private-use facilities that are not subject to mandatory obstruction guidelines required of public-use facilities. Private heliports are required to be registered with the FAA at the time of construction using FAA form 7480-1. However, because they are private facilities, feedback from the FAA is considered advisory in nature and is only provided at the time of initial registration. Guidance for heliport design is available to owners of private helipads through FAA Advisory Circular 150/5390-2B (http://www.faa.gov/airports_airtraffic/airports/resources/advisory_circulars/media/150-5390-2B/150_5390_2b.pdf).

The Des Moines Flight Standards District Office (FSDO) does conduct Helicopter Emergency Medical Service (HEMS) inspections in Iowa where the primary focus is on operations. One component of the inspection is to inspect the heliport facility used for the base operation.

Beyond impact to the base operator, HEMS inspections are not enforceable in regard to the facility itself. HEMS inspections are mandated through FAA Order 1800.56H and are conducted as part of a special emphasis area identified by the FAA. It should be emphasized that inspections are conducted only at base heliports, leaving privately-owned non-base facilities uninspected after initial development.

Helicopter EMS landing zones meet the definition of an airport under Iowa law as *“any landing area used regularly by aircraft for receiving or discharging passengers or cargo”*. Iowa law does provide the Iowa Department of Transportation (DOT) with the authority to develop minimum standards for airports, however, minimum standards for heliport facilities do not currently exist. While the Department does have the authority to annually certify public-use airports, the same authority does not apply to private-use helicopter EMS facilities.

Under Federal Aviation Regulations (FAR's), it is ultimately the decision of the pilot as to whether or not a helipad, designated landing area, or on-scene landing area is suitable for landing and taking off.

Obstruction Hazards

Obstructions in the helicopter EMS operating environment are potential hazards to operations, especially since helicopter EMS operations are conducted in a large number of landing zones, differing weather conditions, and at night time.

In Iowa, obstructions in the area of established private landing zones, such as those at local community hospitals, are not subject to obstruction regulations that

would be required of a public-use airport facility. As a result, some landing zones have close-in obstructions that could present a hazard to helicopter EMS operations. Some of these obstructions include:

- Towers and antenna structures
- Electrical poles and wires
- Light poles
- Buildings
- Trees
- etc.

The Federal Communications Commission (FCC) is responsible for enforcing tower marking and lighting requirements. Lighting requirements for towers are located in Advisory Circular AC70-7460-1K.

In general, towers are required to be lighted if they are more than 200 ft. tall, or if they exceed obstruction standards around a public-use airport. If lights are inoperative, tower owners are required to correct the problem as soon as possible and are required to contact the FAA to issue a Notice to Airman (NOTAM).

If a pilot or concerned citizen wants to report an unlit tower, they can do so by calling the FAA Central Region office at 816-329-3524. The FAA Central Region office will work directly with the FCC. The FCC may be contacted directly at 888-225-5322 (888-Call FCC). When reporting a tower issue, it is important to have a good tower location description, or even the seven digit FCC# that is located on the base of any tower.

Towers that are 200 ft tall or less are not required by the FCC to be lighted. When approaching a landing zone, especially at night, pilots will conduct high level and low reconnaissance to check for obstructions. Unlit obstructions in the area of an established heliport present the greatest risks due to the frequency of operations in and out of the landing zone.

Unlit towers that are not located in the vicinity of a heliport present less of a threat during landing and take off operations due to the lower frequency of operations and heightened vigilance on the part of helicopter and ground crews when landings are conducted at an accident scene. Towers below 200 ft should not present a hazard in the enroute environment since those operations are conducted at higher altitudes.

Often times, landings are made on-scene and can present unique challenges. Training of local first responders is an ongoing effort that is a key safety and marketing component for all helicopter EMS operations. This training includes providing guidelines local first responders so they can identify and prepare on-scene landing sites.

Discussion and Feedback

A facilitated session was held with attendees of the meeting to discuss;

- 1) Existing State programs;
- 2) Identification of issues and potential hazards and;
- 3) Prioritization of issues.

While some solutions were addressed through the process, time limited a full discussion of potential solutions and will require additional follow up.

State Programs Impacting Helicopter EMS Programs

Windsock Program- the Iowa DOT Office of Aviation Windsock Program is a statewide safety initiative that provides windsocks at no-charge to airports and hospitals around Iowa. Windsocks provide important wind direction and velocity information to landing and departing aircraft. Windsocks are available for all helicopter EMS landing zones upon request by calling the Office of Aviation at 515-239-1468.

Iowa Aviation Weather System- Iowa has a system of 38 Automated Weather Observation Systems (AWOS). This system is complemented by an additional 17 weather reporting systems operated by the FAA. The following feedback was received regarding Iowa-maintained AWOS systems;

- Sites going down on the weekend are an issue.
- Gaps in coverage exist in the following areas;
 - o The area between Dubuque, Decorah, Monticello, and Independence.
 - o The Ida Grove area between Storm Lake and Dennison
 - o The Keosauqua area
- An updated brochure with contact information would be helpful.
- Problems with the system can be reported to the Office of Aviation during the week at 515-239-1468 or via a 24/7 number at 515-290-5743.

Iowa Aircraft Registration Program- Aircraft registration requirements in Iowa were reviewed. Iowa law calls for a flat annual registration fee of \$1,000 on air ambulance helicopters.

Bureau of EMS- The Iowa Department of Public Health has an EMS Bureau that oversees EMS in Iowa. A subcommittee of their advisory council is currently developing administrative rules specific to aeromedical operations that should be complete in about a year. The rules will be specific to equipment, staffing, communications, dispatch, etc.

Iowa Heliport Directory- a Heliport Directory is distributed by the Iowa DOT Office of Aviation that provides basic information on heliports and designated landing areas in Iowa. Data sheets with greater detail are available on the “Iowa Airports” page of the Office of Aviation’s Web site at www.iawings.com. The online system allows pilots to submit changes, comments, and photos to the directory administrator (Airport Inspector). Potential changes that were recommended for the directory included;

- Inclusion of AWOS frequencies and telephone numbers
- Listing potential hazards
- Differentiating between heliport and designated landing areas and/or providing textual descriptions of the landing site
- Adding hospital radio frequencies
- Marking ingress/egress routes on photos
- Possibly developing minimum safe altitudes (MSA’s) within ½ mile of the landing site

Issues in the Operating Environment

The cost of mitigating some potential hazards could be very expensive and there is no enforcement authority at the state or federal level. In general, attendees agreed that many hospitals are struggling financially and there are no readily apparent sources of funding for modifications or improvements to these facilities. However, it was also noted that in many cases, relatively simple changes could enhance safety.

An issue that was quickly determined was that no minimum standards exist for helicopter EMS designated landing areas. As a result, once a landing area is originally registered, they are no longer subject to ongoing inspections. Changes around helipads such as growing trees and new construction can change slowly, but over time have a cumulative affect on operations.

The group achieved a consensus that addressing the top three issues would be a substantial effort toward improving the safety of helicopter EMS operations in Iowa. However, the group also agreed that emphasis should be placed on the top priority item of obstacles in designated landing areas. Issues identified include;

Top Priority Issues

- 1) Address obstacles around helipads and designated landing areas to include from highest to lowest priority;
 - a. Unlit or unmarked towers within ½ mile of the landing zone (especially hospital communication towers and close-in cell phone towers). Possible remedies would include lighting, spotlighting, or marking with reflective tape).
 - b. Wires and poles
 - c. Perimeter obstacles e.g. signs or fences
 - d. Trees
 - e. Temporary obstacles i.e. cranes
- 2) Identify approach paths on heliport directory
 - a. A process will need to be defined
 - b. Identifying an MSA within ½ mile may be an option
- 3) Address environmental issues
 - a. Snow, ice, sprinklers, etc

Lower Priority Issues

- 1) Lighting and marking of helipads to include pad identification (i.e. rotating beacon) and pad illumination (pad lighting and marking with reflective paint).
- 2) Pad dimensions
- 3) Fire suppression
- 4) Marking and lighting of towers in rural areas
- 5) Lighting of wind turbine farms

Several possibilities were discussed on how to address some of these issues, including tool kits for hospitals to evaluate the safety of their own landing areas, development of minimum standards, and recurrent ongoing inspections by Iowa DOT or FAA.

A separate issue was also identified where it is very difficult for pilots to overlay FAA NOTAM's with the location of FCC regulated towers. The Office of Aviation will address that issue with its national association and the FAA to see if efforts can be taken to get that information provided to pilots in a more user-friendly format.

Next Steps

The Office of Aviation is proposing several follow up steps to this summit.

- 1) Initiate discussion with the FAA and the National Association of State Aviation Officials (NASAO) regarding the capability of filtering FAA NOTAM data with FCC tower data.
- 2) A group will be formed to develop criteria for identifying;
 - a. obstacle hazards around helipads and designated landing areas
 - b. appropriate approach paths
 - c. environmental concerns
- 3) Information from step two will be communicated to Iowa hospitals through the Iowa Hospital Association and an effort will be taken to conduct a statewide inventory of helicopter EMS designated landing zones based on the criteria established above.
- 4) Enhancements will be made to a new Iowa Heliport Directory
- 5) An action plan will be developed based on information from the statewide inventory conducted in step three.

Questions regarding the 2007 Iowa Helicopter EMS summit may be addressed to Tim McClung at the Iowa DOT Office of Aviation at 515-239-1689. This summary will be posted on the Office of Aviation Web site at www.iawings.com by clicking on "Current Issues".

This report summarizes issues and discussions that were addressed at the 2007 Iowa Helicopter EMS Summit. The report is intended to be an educational tool for helicopter EMS operators, hospitals, and other stakeholders and interested parties. In no way should the contents of this report be construed to supersede state or federal laws and regulations governing helicopter EMS operations.