

DATA BY LINDA WERFELMAN DEVELOPMENT



Air Methods

A Foundation-backed project will use FOQA data to fight HEMS safety risks.

Flight Safety Foundation and Air Methods, the world's largest air ambulance operator, have begun a two-year project designed to use flight operational quality assurance (FOQA) — sometimes known as flight data monitoring — to gather safety information on helicopter emergency medical services (HEMS) operations.

The project — financed through a grant to the Foundation from the estate of Manuel S. Maciel, founder

of Manny's Sonoma Aviation, a full-service fixed base operation in Santa Rosa, California, U.S. — is designed to identify safety risks in HEMS operations and develop procedures to eliminate them.

The HEMS industry in the United States has experienced a surge in accidents in recent years, including 146 HEMS crashes between 1998 and 2008 — 50 of them fatal. In 2008 alone, there were 13 accidents, including nine fatal

accidents, and 29 fatalities, according to data developed by Ira Blumen, M.D., program and medical director of the University of Chicago Aeromedical Network.¹ More recently, a published report cited 11 crashes of EMS helicopters in the United States since September 2009; those accidents resulted in 19 fatalities.²

In response, government and private agencies have conducted studies and issued recommendations. Flight

Safety Foundation has been among them, with the release in 2009 of the *Industry Risk Profile* developed by Aerosafe Risk Management, which criticized the widely varying standards and conflicting practices throughout the industry.³

The risk profile was especially critical of the absence of a “publicly visible accountability structure for the industry,” the variations in standards for HEMS professionals and the “lack of confidence by the stakeholders that effective health care can be effectively delivered.”

The new study by the Foundation and Air Methods, along with companies in other segments of the aviation industry — including Aerobytes, Appareo Systems, L-3 Communications and the Office and Professional Employees International Union, AFL-CIO — will use FOQA to develop a better picture of the procedures being used by HEMS operators and pilots.

“We don’t know exactly how these pilots are flying their approaches to the landing sites,” said Robert Vandel, a retired FSF executive vice president who is now a Foundation fellow working on the study. “We can’t begin to figure out how to solve this problem because we don’t know exactly what’s going on, considering the divergence of standard operating procedures. We need to get enough data to analyze and then assemble experts — safety personnel, pilots and manufacturers — to identify the best practices and improve what we can.”

Eric Lugger, Air Methods corporate safety manager, said that plans call for the company to use 10 of its helicopters in the study, retrofitting all 10 with quick access recorders. After the recorders have been installed, a one-year data-collection period will begin, followed by a period of data analysis and writing a report on the study, he said. The goal, Lugger said, is “quality improvement in the operation of the aircraft.”

Vandel said that the study should be complete in mid-2012 and that, “by then, we’ll have data to build on.”

The study’s findings will be used to help the International Helicopter Safety Team (IHST) in developing recommendations to improve the overall safety of HEMS operations. Vandel said

that the concepts developed by the IHST also will ultimately help individual HEMS operators to implement a safety management system (SMS) — typically described as a predictive mode of managing safety in which data collection and analysis enable risks to be identified and addressed before they cause an accident or serious incident.

Air Methods already has implemented an SMS, and FOQA will be a major component of that initiative, Lugger said.

The U.S. Federal Aviation Administration (FAA) estimates that there are about 840 EMS helicopters in operation nationwide. The FAA has calculated the HEMS fatal accident rate at 1.18 per 100,000 flight hours, compared with 1.13 per 100,000 flight hours for all general aviation and air taxi flights, 1.0 for turboshaft helicopters and 1.94 for all piston helicopters. However, the FAA said, “the number of HEMS accidents nearly doubled between the mid-1990s and the HEMS industry’s rapid growth period from 2000 to 2004.”

The U.S. National Transportation Safety Board (NTSB), which issues an annual “Most Wanted” list of transportation safety improvements, added a new category in 2008: improving the safety of EMS flights. The NTSB’s specific recommendations call for stricter regulations for EMS flights conducted with medical personnel aboard; implementing flight-risk evaluation programs for EMS operations; requiring formalized dispatch and flight-following procedures, including current weather information; and installing terrain awareness and warning systems (TAWS) on EMS aircraft. ➤

Notes

1. Werfelman, Linda. “Closing the Loop.” *AeroSafety World* Volume 4 (March 2009): 14–18.
2. Levin, Alan. “Medevac Industry Opposing Upgrades Wanted by NTSB.” *USA Today*, Aug. 19, 2010.
3. Aerosafe Risk Management. *Helicopter Emergency Medical Services (HEMS) Industry Risk Profile*. April 2009. <http://flightsafety.org/files/HEMS_Industry_Risk_Profile.pdf>.



Quick access recorders, like the one pictured here, are being installed in Air Methods helicopters as part of a FOQA data development project.