NEMSPA
National EMS Pilots Association

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E.D.P.

Enroute Decision Point

-Down by 30 protocol

Brief video of helicopter entering clouds

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Be Honest…Have you been there?

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The Million Dollar Question :

What are we going to do now??

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Three options EDP provides are:

Turn Around

Land Right There

Continue on and perform an IFR Approach

What has changed since EDP was introduced over a decade ago?

1. AMRM Training
2. Auto Pilot
3. Increase in UIMC Training

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EDP
Enroute Decision Point

An all too common and oftentimes

DEADLY SCENARIO

... has a very simple

SOLUTION

Image: NEMSPA

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IIMC

EDP

NEMSPA National EMS Pilots Association

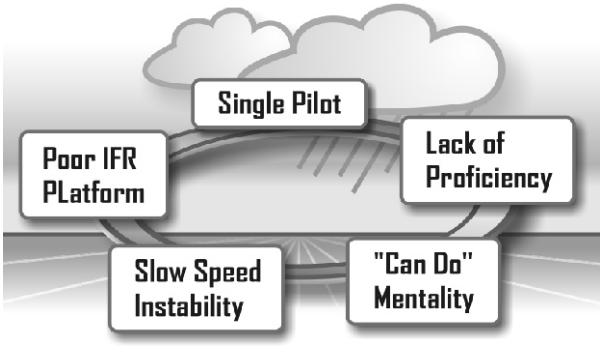
Enroute Decision Point

The Problem: Inadvertent IMC

Flight into inadvertent instrument meteorological conditions (IIMC) continues to be the dominant cause of fatal HEMS (Helicopter Emergency Medical Services) accidents.

The many underlying factors which contribute to this situation begin with the inherent instability of the helicopter at slower speeds and helicopter instruments were not designed specifically for helicopter IMC flying. The pilot's sensory, perceptual and cognitive processes are hindered by deteriorating visual environments. Precise weather information is often difficult if not impossible to obtain, and there is a lack of an adequate Low-Altitude IFR enroute structure. IFR flying "currency" is not the same as IFR flying "proficiency". The operational environment increases pilot's workload, stress and fatigue, especially in the single pilot configuration. Pilot decision making is easily swayed by the "we can always put it down somewhere" mindset, as well as the "Plan Continuation Bias" inherent to highly experienced pilots.

Even the most safety-conscience HEMS pilot can easily get caught in deteriorating weather. This has often ended in Loss of Control, Controlled Flight Into Terrain or striking an obstacle. Extensive analysis of HEMS accidents finds that 47% occurred during cruise flight, of which 63% resulted in fatalities. Night conditions accounted for 44% of the fatal accidents and IMC accounted for 34% of the fatal accidents during cruise.



The Solution: Enroute Decision Point (EDP)

Human factors studies and accident investigations reveal that often when an HEMS pilot encounters lowering visibilities and/or ceilings, a common reaction is to slow down and/or descend in order to maintain visual contact with the ground. This significantly degrades the aircraft's safety margins, and often results in Loss of Control, Controlled Flight Into Terrain, or striking an obstacle.

The "Enroute Decision Point" concept establishes a definitive "go no further" point mandating a corrective decision (land, turn around, go "IFR," etc) if the airspeed decays more than 30 knots from the cruise speed, and/or descends to within "X" feet above the ground. It provides pilots with an easy-to-implement decision making tool to break the error chain.

This would provide an additional layer in the "safety net" to reduce the risk of the helicopter entering into an undesired state (degradation of rotorcraft control and/or decreased distance from terrain and obstacles) as it encounters deteriorating visibility.

This concept would be easily adapted into Helicopter Flight Operations Quality Assurance (H-FOQA) programs for data trend tracking and revealing incidents which exceeded the program minimums, thus allowing managers to track what their flight crews are doing during line operations.

NEMSPA's EDP Poster

EDP: Does it Work?

THE EDP STUDY

Study Objective:

Determine whether the EDP concept will help helicopter pilots manage a flight into unplanned degrading meteorological conditions more safely.

This study will be executed in a controlled experimental environment at FlightSafety in Dallas, Texas, using a Eurocopter EC135 Level D six-degree-of-freedom simulator.

EMS pilots will be blinded to the study hypothesis and study design. Pilot participants in the control group will be asked to behave as they would in real life as the pilot in command of a HEMS mission. Pilot participants in the experimental group will receive the supplemental instruction "Fly as if your operator applies the EDP concept at any time your airspeed decays to below "x" knots or whenever your flight altitude above ground level becomes less than"y"feet."

During the simulated HEMS mission, pilot participants will encounter decreasing cloud ceiling and/or visibility. Pilot actions will be recorded, to include aircraft control and height above ground. Pilot performance markers will include communications, decision making, procedures, workload management, planning, error detection, etc. Performance will be evaluated by specially trained simulator instructors. All data will be strictly de-identified.

"While NEMSPA firmly believes in the EDP protocol, we also believe it is important to scientifically validate the concept and determine exact decision criteria."

Participants' actions will be compared using standard descriptive statistics. The results will be submitted to credible scientific journals in the aviation and aeromedical fields for peer review, and then widely disseminated through educational materials, trade journals, conference presentations, etc. to help operators implement this concept.

Typical responses from helicopter pilots with knowledge of or experience with the EDP protocol:

"One of the best practices our program has adopted."

"Takes the pressure away when the weather is marginal."

"I use it routinely."

"Why didn't someone come up with this before now?"

"Absolutely brilliant!"

Image: M. Huettner

The EDP Project: A Three Step Process

1 Organize EDP Advisory Group

Consisting of a small core of scientists and regulatory and industry representatives, this group will provide guidance and oversee the progression of the next steps.

2 Conduct Research

Pat Veillette, PhD, an award winning, human factors scientist will act as the principal investigator for this projected ten month project. Widely published and well known in aviation circles, Dr. Veillette, who is also a former EMS pilot holding both fixed and rotor wing ratings, is very familiar with the complexities and risks involved with VFR helicopter operations during marginal weather conditions. The entire research proposal can be found at http://edp.nemspa.org.

3 Promote EDP Concept

Results and recommendations obtained from the conducted research will be promoted throughout the helicopter industry. Through publishing findings in various journals, Dr. Veillette has included a portion of this segment in his proposal. However, a well-orchestrated EDP promotional campaign is seen as essential for promotion of the concept.

Project Support

Financial Requirements

To accommodate the needs of the research phase, NEMSPA has set a financial target of $75,000. Additional funds will be needed for the Promotional phase. A complete disclosure of the financial requirements is posted on http://edp.nemspa.org.

No money will be accepted until a minimum of $50,000 has been committed to the project.

Our Thanks to Metro Aviation

Metro Aviation, a Diamond level supporter, has committed sufficient simulator and pilot resources to complete the research phase. NEMSPA cannot over-emphasize the importance and value that this initial contribution has made to this project.

We Need Your Help

NEMSPA believes this could be one of the most important research endeavors ever undertaken in the helicopter industry. Most importantly, the results could **SAVE LIVES** at little cost to the industry.

If you are interested in participating, please email us at edp@nemspa.org or call Bill Winn directly at

☎ 801-450-6912

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