Virginia Office of Emergency Medical Services
Medevac Best Practice 2.2.2
Risk Assessment

Proposed April 24, 2008

Virginia Department of Health
Office of Emergency Medical Services
P.O. Box 2448
Richmond, Virginia 23218
(804)864-7600
www.vdh.virginia.gov/oems

Virginia Medevac Best Practice

Date Reviewed: April 24, 2008

Target Audience: Virginia OEMS licensed Medevac agencies and EMS agencies, flight comm. centers, public safety comm. centers, first response agencies, hospitals and other interested parties.

Area: Initiating a Medevac Response – Risk Assessment

Best Practice: 2.2.2 Best Practice Recommendation for a Risk Management Program

Goal: To direct the guidance and control of hazards and risks found in Medevac operations in an effort to counter the increase of HEMS accidents.

Procedure:

I. **Purpose of the Recommendation**. The purpose of this Virginia State Medevac Best Practices Recommendation is to establish the concepts of risk management and provide guidance on the establishment and /or maintenance of risk management guidelines which are in-line with current recommendations and standards within the Helicopter EMS (HEMS) community. While the adherence to the guidelines within this document is not mandatory and does not constitute regulation, it is the recommended best practice for Virginia State Medevac Programs and bordering agencies routinely transporting patients in and / or out of the state. This document shall also serve as a source of information for the stakeholders of these Virginia State Medevac Programs, including, but not limited to, non-medevac Virginia EMS agencies and hospitals.

II. **Background of Risk Management**. Air medical providers operate in a challenging and hazardous environment and provide a valuable service to the community. In order to maintain a standard of safety a system must be in place to help identify, assess, and manage risk. Decisions can then be reasonably made to mitigate, defer, or accept risk. Current recommendations, as a result of studies published by the NTSB, require all EMS providers to have in place a risk management program and training.[3]

III. **Definition of Risk Management.** Risk management is defined as the concept of using decision making tools in order to assist the Operational Control Centers (OCC) and flight crews to identify operational risks and benefits associated with flights. The risk management process can then be used to minimize hazards and help increase the safety of the crews, patients, and resources.

IV. **Goals of Risk Management.** To direct the guidance and control of hazards and risks found in HEMS operations in an effort to counter the increase of HEMS accidents. To provide a foundation through proper training and suggested procedures for a safe environment within the fast paced and demanding

HEMS community outlined by current recommendations and best practices set forth by the Federal Aviation Administration (FAA), National Transportation Safety Board (NTSB), Commission on Accreditation of Medical Transport Services – 2007 Edition 2006 Accreditation Standard[1,2,3,4,5].

V. **Core Concepts of Risk Management.** The Virginia State Medevac Committee defines the core concepts of risk management as:
   - **a.** Establishing the framework[1,2]
   - **b.** Identifying the risk(s)[1,2.]
   - **c.** Examining the risk(s)[1,2.]
   - **d.** Evaluating the risk(s)[1,2.]
   - **e.** Treating the risk(s)[1,2.]
   - **f.** Observing and re-examining to ensure proper management[1,2.]

VI. **Fundamentals for Successful Implementation of a Risk Management Program.** a. Commitment from all levels of administration and from every member of the team[1,2.]
b. Clearly defined procedure for risk assessment and management[2.]
c. PIC with final authority to decline a flight[2.]
d. Inclusion of the OCC in evaluation of risks[6.]

VII. **Components of Risk Management Training.**
a. Initial didactic presentation is part of Air Medical Resource Management (AMRM) training and includes:
   - i. Background
     1. Review of NTSB Special Investigation Report
   - ii. Goals
   - iii. Basic Concepts
     1. Pilots authority
     2. Risk Assessment
     3. Operational Control Center input
     4. Decision making
   - iv. Example review
   - v. Variables
     1. Weather
     2. Airworthiness status of aircraft
     3. Incorporation of technologies to aid in managing risks
     4. Performance margins
     5. Pilot and crew member performance
     6. Operating environment
     7. Organizational environment
   - vi. Review of risk management tools
   - vii. Summary

VIII. **Recurrent Practice and Feedback**. Annual training is recommended by the Commission on Accreditation of Medical Transport Services (CAMTS) [5] for AMRM training which includes education on Risk Management; therefore, training recommendations will be the same.
a. Refresher on initial training.

b. New group discussions / activities
c. Reflection on the previous year's success and pitfalls.
d. Summary of updates to internal plan of action of the Risk Management program.

IX. Models of Risk Management Tools and Assessment Resources

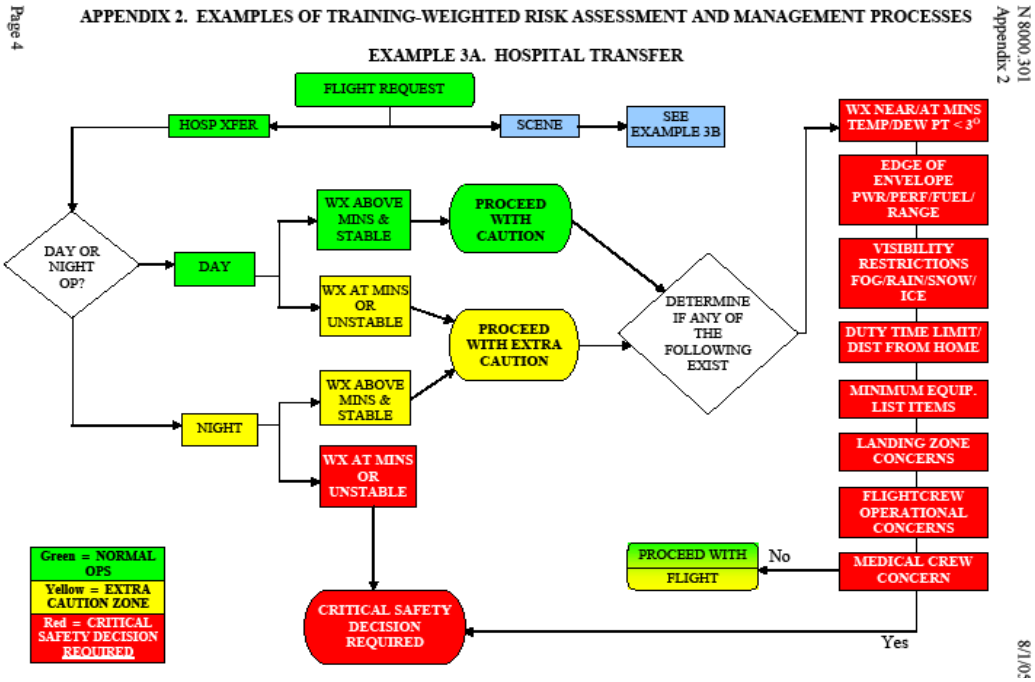
There is no "one size fits all" tool for all HEMS operators. Each operator should consider its own operational and environmental needs in developing its risk assessment tool(s) and plans. These examples should be used to give a foundation for the formatting and structuring of risk plans, matrix's, and assessment charts that are specifically adapted for individual programs. These customized devices should be implemented by the program or an outside source according to location, mission orientation, and operator specified requirements.

The examples given are for reference only; the FAA or any other entity/committee does not endorse the use of one tool or assessment resource over another. Each of the following risk assessment configurations are effective; however, an integrated program providing enhanced training in aeronautical decision making, combining procedures, concepts, and weighted factors, may achieve the paramount outcome for your individual program or operation [2].

The following contains examples of risk assessment tools that are currently used in the HEMS operational community [2].

a. Risk assessment Matrix/Chart for various Operations and Procedures [2]

EXAMPLE 1. RISK MATRIX/DECISION TREE



NOTE: This example is for reference only. Each operator should consider their own operational and environmental needs in developing risk assessment tool(s) and plans.

b. Go/No Go Decision Matrix/Chart [2]

EXAMPLE 2.1 GO/NO-GO DECISION MATRIX – Static Risk Factors

STATIC RISK FACTORS		SCORE
< 6 mos. on Current Job	+1	
< 1 yr. in EMS	+1	
< 200 hrs. in Type	+1	
> 500 hrs. in Type	-1	
Last Flight > 30 Days	+1	
Last Night Flight > 30 Days (night requests only)	+1	
6 mos. Since Check Ride	-1	
Cockpit Not Configured for Inadvertent IMC	+1	
Navigation or Radio Item on MEL	+1	
Back-up Aircraft	+1	
Newly-installed Equipment (i.e., satellite phone, avionics, GPS)	+1	
Night Vision Goggles (NVG) Equipped	-1	
< 3 NVG Flights in the Last 120 Days	+1	
Medical Crew < 1 yrs. Experience (both crewmembers)	+1	
IFR Program	-4	
VFR Program	+1	
External Stresses (divorce, illness, family/work issues/conflicts)	+1	
Total Static Score		

EXAMPLE 2.2 GO/NO-GO DECISION MATRIX – Dynamic Risk Factors

DYNAMIC RISK FACTORS		SCORE
Ceiling within 200' of Program Minimums	+1	
Visibility within 1 Mile of GOM Minimums	+1	
Precipitation with Convective Activity	+1	
Convective Activity with Frontal Passage	+1	
Deteriorating Weather Trend	+1	
High Wind or Gust Spread Defined by Operations Manual	+2	
Moderate Turbulence	+2	

EXAMPLE 2. GO/NO-GO DECISION MATRIX – Dynamic Risk Factors (cont'd)

Temperature/Dew Point < 3 Degrees F	+1	_____
Forecast Fog, Snow, or Ice	+2	_____
Weather Reporting at Destination	-1	_____
Mountainous or Hostile Terrain	+1	_____
Class B or C Airspace	+1	_____
Ground Reference Low	+1	_____
Ground Reference High	-1	_____
Night Flight	+1	_____
90% of Usable Fuel Required (not including reserve)	+1	_____
Flight Turned Down by Other Operators Due to Weather (if known)	+4	_____
Control Measures		
Delay Flight	-1	_____
Avoid Mountainous/Hostile Terrain	-1	_____
Utilize Pre-Designated LZs for Scene Requests	-1	_____
Plan Alternate Fuel Stop	-1	_____
Familiarization Training (self-directed)	-1	_____
Total Dynamic Score		_____
Grand Total of Static and Dynamic Scores		_____

EXAMPLE 2.3 GO/NO-GO DECISION MATRIX – Application of Scoring

RISK CATEGORY		COLOR CATEGORY	EOC ACTION	TOTAL POINTS
Normal		GREEN	Pilot Approval	0 - 14
Flight Manager Level		YELLOW	Call Manager	15 - 18
Unacceptable		RED	Cancel Flight	19 or Greater

NOTE: This example is for reference only. Each operator should consider there own operational and environmental needs in developing risk assessment tool(s) and plans.