
Virginia Office of Emergency Medical Services
Medevac Best Practice 2.2.1
Air Medical Resource Management (AMRM)

Proposed April 24, 2008

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Virginia Medevac Best Practice

- Date Reviewed:** April 29, 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 – Air Medical Resource Management (AMRM) program
- Best Practice:** 2.2.1 Best Practice Recommendation for an Air Medical Resource Management (AMRM) Program.
- Goal:** The goal of AMRM is to provide the methodology to make optimum use of the capabilities of the individuals and aircraft systems to achieve the safest and most efficient completion of a flight.

Procedure:

- I. **Purpose of the Recommendation.** The purpose of this Virginia State Medevac Best Practices Recommendation is to establish the core concepts of Air Medical Resource Management (AMRM) and to provide guidelines for the continuous application of these core concepts. 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 AMRM.** According to the Federal Aviation Administration (FAA), “Helicopter Emergency Medical Service (HEMS) is a very demanding and time critical / mission orientated operation. One consistent priority that needs to be addressed by each individual air ambulance organization is the safety of the flightcrew, medical crew, patient passengers, and support personnel. No operator goes out anticipating the occurrence of an accident, and like most aviation accidents, there is rarely a single event that is the cause of an accident. It is usually a multitude of contributing factors that lead to potentially catastrophic results. *Preventing accidents is the responsibility of everyone involved and takes the dedicated involvement of all of the aviation and medical professionals involved in the operation to provide the public the safest possible air ambulance service.*”¹

Over the past several years, it has become increasingly more common for Communications Specialists to share more of the responsibility of “preventing accidents.” According to the FAA, “It is important to instill a company philosophy that flight operations are a team effort and not simply a matter of a flight crew receiving their basic mission information and then it being the flight crew’s responsibility to complete the mission.”² While the traditional approach of *Three to Go, One to Say No* philosophy has proven effective (pilot and the

¹ FAA Advisory Circular 00-64, Air Medical Resource Management

² FAA Advisory Circular 120-OCC (draft), Integration of Operations Control centers into HEMS Operations

two medical crew members), the Virginia State Medevac Committee encourages the inclusion of the Communications Specialist(s) in a *Four to Go, One to Say No* approach, by supplying the flight crew with a variety of supplementary information (such as Landing Zone info), monitoring a variety of mission considerations (such as weather), and monitoring mission progression (such as flight following).² This concept has been affirmed by the National Transportation Safety Board, as noted in their 2005 recommendation to the FAA: “Require EMS operators to use formalized dispatch and flight following procedures that include up-to-date weather information and assistance in flight risk assessment decisions.”³ FAA Advisory Circular 120-OCC (draft) provides an official recommendation on an aviation-specific training curriculum for Communications Specialists in assuming this role. This includes (but is not limited to) Crew Resource Management (predecessor of Air Medical Resource Management) and Aeronautical Decision Making and Risk Management (as per FAA AC60-22).

- III. **Definition of AMRM.** AMRM is the effective management of all resources available to ensure that all group members are operating from a common frame of reference and toward a common goal of aviation safety.⁴ According to the FAA, AMRM addresses the challenge of optimizing the human / machine interface and related interpersonal issues, with maximum focus on communication skills and teamwork.¹ AMRM is “human factors training.”
- IV. **Goals of AMRM.** The goal of AMRM is to provide the methodology to make optimum use of the capabilities of the individuals and aircraft systems to achieve the safest and most efficient completion of a flight.⁴
- V. ***Core Concepts of AMRM.** The Virginia State Medevac Committee defines the core concepts of AMRM as:
- a. Promotion of Positive Human Factors
 - b. Minimization of Negative Human Factors
 - c. Consistent Application of Positive Habits
- VI. **Fundamentals for Successful Implementation of an AMRM program.**
- a. Commitment from all levels of administration.
 - b. Commitment from all members of the duty team, to include (at a minimum): 1) pilots, 2) medical flight crew, and 3) Communications Specialists.
 - c. Initial indoctrination / Awareness.
 - d. Recurrent Practice and Feedback.
 - e. Continuing Reinforcement.
- VII. **Components of AMRM Training: Initial Indoctrination / Awareness.**
- a. Initial didactic presentation to include:
 - i. Background
 1. Negative Example: Review of Eastern Airlines Flight 401.
 2. History / Rationale of the Transition from Cockpit Resource Management to Crew Resource Management to Air Medical Resource Management.
 3. Positive Example: Review of United Airlines Flight 232.
 - ii. Definition
 - iii. Goals
 - iv. Core Concepts
 - v. Summary of the Internal Plan of Action for the AMRM Program.
 - vi. Group Discussion / Activities (with focus of application of the core concepts)

³ NTSB Special Investigation Report: EMS Operations and Briefs of Seven EMS Accidents

⁴ Blumen, I. A Safety Review and Risk Assessment in Air Medical Transport

1. Recent Case Studies for Group Discussion
2. Examples from NTSB Board Meeting January 25, 2006
3. Other Examples from final reports from the NTSB Aviation Accident Database and Synopses (www.nts.gov)
4. Concern Network Bulletins
5. Internal Examples of Program Near Misses or Recent Areas Identified as Opportunities for Improvement
6. Team Building and Conflict Resolution Exercises

VIII. **Recurrent Practice and Feedback.**

- a. Formal evaluation from all team members on aspects of AMRM training, with changes implemented as needed.
- b. Shift briefings, to include all involved personnel, and pro-active communications and planning.
- c. Immediate post transport debriefings for all flights, with routine review for trends and education as needed.
- d. Administration provides an environment in which team members are empowered to hold each other accountable for consistent application of the core concepts of AMRM.
- e. Public commendation given for positive examples of application of the core concepts of AMRM.
- f. Private coaching's given for negative examples of the core concepts of AMRM.

IX. **Continuing Reinforcement.** Annual training, as recommended by the Commission on Accreditation of Medical Transport Services.

- a. Refresher on the initial training.
- b. New group discussions / activities
- c. Reflection on the previous year's successes and pitfalls.
- d. Summary of updates to the internal plan of action of the AMRM Program.

X. **Summary.** This intention of this guidance document is to provide a framework for individual Virginia State Medevac Programs, its bordering agencies, and all stakeholders in the Virginia State Medevac System, for the development of an AMRM program *tailored to the individual needs of that program*. Each HEMS program should assess their Air Medical Resource Management program on an annual basis, making changes as needed. With the appropriate training and consistent application of the core concepts of AMRM, team members will develop an increased awareness of the potential impact of both the positive and negative human factors influencing their practice and modify behavior as appropriate, with an end result of a potential reduction in air medical accidents due to human error.

* Examples for each of the three major concepts included in Figures 1, 2, and 3.

FIGURE 1. AMRM Core Concept: Promoting Positive Human Factors.

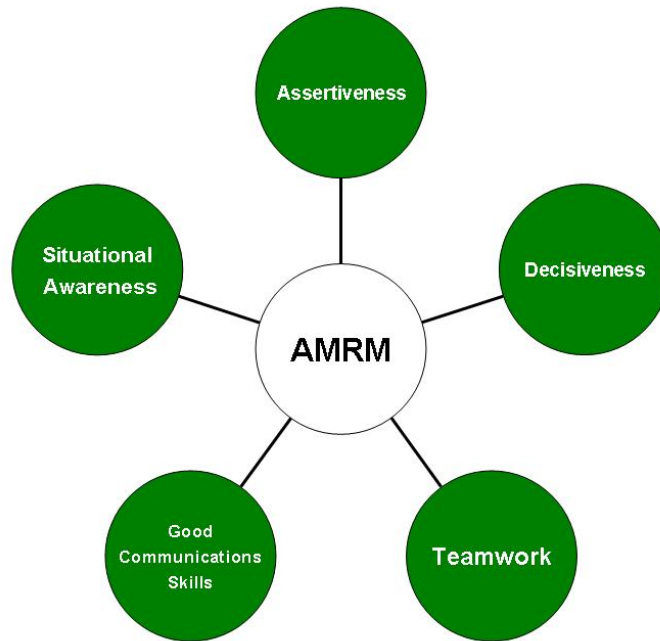


FIGURE 2. AMRM Core Concept: Minimizing Negative Human Factors.

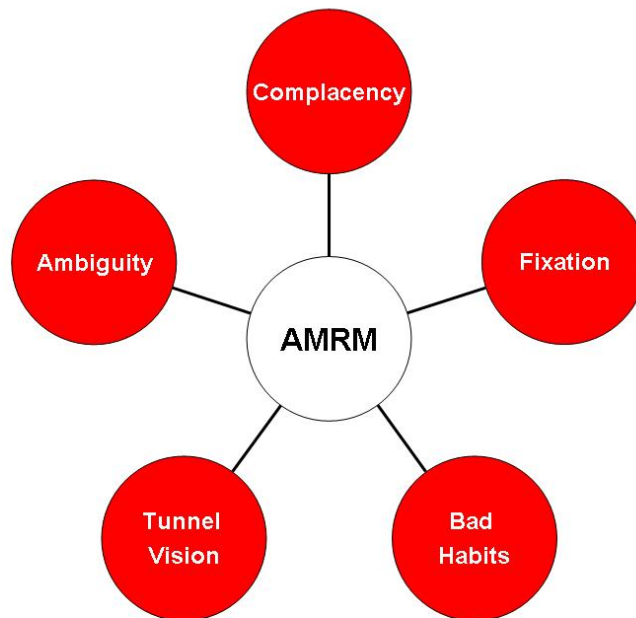


FIGURE 3: AMRM Core Concept: Consistent Application of Positive Habits.

