

EMERGENCY NURSES ASSOCIATION AIR & SURFACE TRANSPORT NURSES ASSOCIATION

JOINT POSITION STATEMENT

STAFFING OF CRITICAL CARE AIR MEDICAL TRANSPORT SERVICES

STATEMENT OF PROBLEM

There are no nationally supported minimum standards for the qualifications of health care providers actively participating in the air ambulance transport of critically ill and/or injured patients.

SIGNIFICANCE

Currently, resources are available to all geographic areas of the United States for the provision of air ambulance transport, either helicopter and/or fixed wing, of critically ill or injured patients. Each air medical transport program provides services to a large geographic area usually encompassing multiple counties and often several states. Policies and regulations regarding the provision of patient care may vary significantly from one political area to another. Air medical transport of critical patients requires highly sophisticated, specialized, medical and nursing knowledge and clinical skills to assure the provision of an adequate level of care. Medical care providers referring and receiving patients and also public consumers utilizing air transport services should be able to expect a nationally consistent level of care.

The number of air medical transport services throughout the country establishes a significant need to develop minimum standards for the qualifications of air medical care providers that will be nationally endorsed and supported. To assure the provision of appropriate aeromedical care to the consumers of these services, the skill and training of the personnel must be commensurate with the rapidly advancing sophistication of methodologies and equipment for providing critical care in the complex environment of air transport.

BACKGROUND

The initial use of helicopter and fixed-wing transport of critically ill and/or injured patients in the modern sense can be traced primarily to the military experience during the Korean and Vietnam conflicts. Helicopters were utilized to rapidly transport wounded soldiers from the battlefield to field hospitals. Although physicians were occasionally used on an experimental basis in these settings, military medics were the principal care providers on the evacuation helicopters. Once initially treated at field hospitals, some patients were later transferred to larger facilities in Southeast Asia and the U.S. with military flight nurses on large fixed-wing aircraft.

Civilian use of this concept in the U.S. began in the mid to late 1960's with the informal initiation of several private and public service operated fixed-wing and helicopter transport services. These early services utilized a variety of medical crew members including physicians, nurses and prehospital personnel.

The first formal hospital-based helicopter transport service was initiated in October of 1972 at St. Anthony's Hospital in Denver, Colorado. By June 1986, there were approximately 140 hospital-based helicopter transport services (HBHTS) in operation throughout the United States. Most HBHTS provide services within a 130-mile radius from the base facility. For those programs also providing hospital-based fixed-wing transport services (HBFWTS), the primary service area is usually extended to approximately 500 miles from the base facility. Several HBFWTS services also routinely provide transport to all areas of the continental U.S. and to international and intercontinental locations.

The growing demand for highly sophisticated air medical transport services has, in part, been the result of the rapidly growing technological complexity of medical care for critically ill and injured patients. The most sophisticated and technologically advanced treatments are only available at regional referral centers usually located in large metropolitan

areas. A need was created, therefore, to transfer those patients requiring such care to the regional referral centers. Because of the distance and time involved and because of a need to maintain a comparable level of care during transport, critical care air medical transport services were found to be best suited to accomplish the patient transfer.

In 1984, the National Flight Nurses Association (NFNA) now the Air & Surface Transport Nurses Association (ASTNA) conducted a survey of all 103 hospital-based air medical transport services in operation at that time. Of the 83 services that responded, 46% provided both fixed wing and helicopter transport services. It is important to note that 97% of the responding 83 services utilized registered professional nurses as routine members of the medical flight crew. The medical crew configurations were reported as follows:

One RN 20%

Two RN 15%

One RN/One Staff MD 14%

One RN/One Resident 7%

One RN/One Paramedic 27%

One RN/One Physician Assistant 3%

One RN/One Respiratory Therapist 5%

Paramedics Only 3%

The 2000 Medical Crew Survey published in the September/October 2000 addition of

the AIRMED Journal surveyed 358 air medical service providers worldwide. Of those, 119 U.S.-based programs and one international program completed the survey, a 33.5% response. In both helicopter and fixed-winged aircraft staffing missions with two medical attendants (97 %) remains the standard and 97% have an RN as part of the medical crew make-up. The Medical crew configurations were reported as follows:

Staffing Helicopter Fixed Wing

One Attendant: 3% 3%

Two Attendants: 96% 97%

One Supplemental Staff 1% 0%

RN/Paramedic 71% 61%

RN/RN 8% 8%

RN/Physician 3% 3%

RN/EMT 1% 5%

RN/other (RRT/PA) 10% 18%

Paramedic/Paramedic 5% 0%

Other 2% 5%

Paralleling the development of air medical transport systems in the U.S., ground emergency medical services (EMS) systems were developed to provide pre-hospital care with an emphasis on providing initial stabilization of ill and injured patients in the field and during transport to more definitive care facilities. These services primarily utilize Emergency Medical Technicians (EMT) of various levels including basic (EMT-A) and the intermediate level EMT (EMT-I) as well as the highest level of EMT, the paramedic (EMT-P). The educational preparation for the basic EMT is a 110-hour course as outlined by standards promulgated by the U.S. Department of Transportation (DOT). This course focuses on basic, initial pre-hospital care. The EMT-I has basic EMT training and receives additional instruction in performance of specified advanced pre-hospital skills. EMT-P's receive additional training and certification focusing on more advanced pre-hospital care skills including airway management, intravenous fluid administration and administration of limited medications for initial stabilization of ill and injured patients. Several recent courses have focused on certification for the Critical Care Transport EMT-P.

With the explosion of sophisticated techniques, the medical and nursing professions have developed the ability to monitor and maintain the physiologic requirements of the body in situations of extreme stress and compromise. Use and understanding of equipment and techniques such as mechanical ventilators, central venous catheters and monitors, arterial catheters and monitors, intra-aortic balloon pumps, and cardiac assist pumps have made significant improvements in the morbidity and mortality of critically ill and injured patients. In addition to highly sophisticated equipment and techniques, an ever-increasing variety of medications are being utilized in emergency and critical care settings. The use of such equipment, techniques and medications depends on specialized training and a complex theoretical understanding of normal and abnormal physiologic functioning. Currently in the hospital setting, this advanced level of care is being provided by highly skilled physicians and nurses.

To adequately consider the type of medical crew members best suited to provide care for patients being transported by air medical services, it is important to understand the type of patients transported and the environment from which they are transported (whether directly from the scene of the accident or from another hospital). Based on the 1984 NFNA survey, patients with traumatic injuries and medical-cardiac conditions were the most frequent types of patients transferred by the 83 air-medical services responding. Other types of patients frequently transferred were critical neonates, burn patients, high-risk obstetrical patients and other critical surgical and medical patients.

The 1984 NFNA survey further found that the 83 responding services transported an average of 4,700 patients per month or approximately 56,000 patients per year. Seventy five percent of all patients transported by these services were inter-hospital transfers rather than scene responses. The number of patients transported per month by individual programs varied from 8 to 350. Although the percentage of patients transferred directly from the scene also varied among the responding programs (0% to 85%), 60% of these programs transferred 25% or less of their patients from the scene while 86% of these programs transferred 50% or less of their patients from the scene.

When responding to transfer patients directly from the scene, HBHTS services are rarely the first or sole responder. A ground EMS ambulance almost always precedes them. The role of ground EMS responders is to assess the patient and request the response of the HBHTS if, according to specified criteria:

The patient requires a higher level of care than can be provided by the ground EMS crew, or If the patient requires rapid transfer to a regional referral center for specialized critical care not available at the local resource hospital.

The air medical transport service providing critical care has become a functional extension of hospital emergency and critical care services. In the hospital setting, physicians and nurses are the primary care providers for patients requiring the most advanced medical technology and care. They are highly trained and skilled at caring for unstable neonates, high-risk obstetrical patients, and seriously ill and injured adults and children. In flights made directly to the scene of accidents, the medical crew's primary responsibility is to bring to the patient the highly regional referral services.

If specially trained physicians are not utilized for these sophisticated care and experience of the hospital's emergency and critical care transports, the sophistication of care required can only be provided by specially trained flight nurses who have a variety of critical care experience and training. In addition, these flight crew members must, at a minimum, have training and experience in altitude physiology, management of patients in the pre-hospital setting, and flight communications and safety. They must also have the ability and training to function autonomously in a variety of settings with treatment protocols if immediate communication with a physician is not possible or if immediate life-saving actions are required.

A major advantage to the use of critical care air medical transport services is the ability to provide care prior to and during transport at a level of sophistication previously available only in a regional referral center's emergency and critical care units. The use of any level of EMT as the principle medical crew member for the air transport of critically ill and injured patients from the scenes of accidents cannot provide a level of care commensurate with hospital emergency and critical care services; thus removing a major advantage to its use. The use of any level of EMT as the principal medical crew member for critical air medical transports between hospitals significantly reduces the level of care already established by the referring hospital.

Currently there are no nationally supported policies regarding the staffing of air medical transport services. Several professional organizations and others have developed or are developing standards for staffing of critical care air medical transport services. At present, however, none of these standards have been uniformly adopted and implemented throughout the United States.

The Commission on Accreditation of Medical Transport Systems (CAMTS) in their Fourth Edition of Accreditation Standards, October, 1999 lists the following standards for critical care transport staffing. A critical care mission is defined as the transport of a patient whose condition warrants care commensurate with the scope of practice of a physician or registered nurse. The medical team must, at a minimum, consist of a specially trained physician or registered nurse, as the primary care provider.

The Association of Air Medical Services (AAMS) has developed minimum standards, which must be met by member organizations to receive full membership. Greater than 394 of the current hospital-based air medical services subscribe to these standards and are full members of AAMS. The AAMS standard regarding staffing as adopted in December 1985, is as follows:

"Staffing the aircraft shall be commensurate with the advanced life support environment afforded by the airborne emergency care facility. The aircraft in fact, by virtue of critical care staffing and medical retrofitting, becomes a special care unit. The medical flight crew must, at a minimum, consist of at least one specially trained registered nurse."

In June 1986, The American College of Surgeons Board of Regents approved standards for critical care air ambulance services as Appendix D to their document, "Hospital and Prehospital Resources for Optimal Care of the Injured Patient." These standards recommend, "If only one medical crew member is present, this should be a specially trained flight nurse."

Numerous states have also developed standards or regulations regarding the staffing of air medical transport services in operation within their jurisdiction. These staffing standards/regulations vary widely from state to state.

ASSOCIATION POSITION

The Emergency Nurses Association (ENA) and the Air & Surface Transport Nurses Association (ASTNA) believe that services providing air transport of the critically ill and injured are functional extensions of hospital emergency and critical care services. The ENA and ASTNA further believe that staffing for these air medical services must minimally consist of at

least one specially trained registered professional nurse who has extensive experience and expertise in caring for critically ill and injured patients.

BIBLIOGRAPHY

American College of Surgeons Committee on Trauma: Appendix D to Hospital Resources Document. Critical Care Air Ambulance Service. Approved June 8, 1986

by the American College of Surgeons Board of Regents. Publication Pending.

Association of Air Medical Services (AAMS): Rotorcraft Standards. Adopted at 6th Annual Conference; Reno, Nevada; December 1985

Baxt WG, Moody P, Cleveland HC, et al: Hospital-Based Rotorcraft Aeromedical

Emergency Care Services and Trauma Mortality: A Multicenter Study. *Ann Emerg Med*; 1985; 14:859-864.

Cleveland HC, Miller JA: An Air Emergency Service: The Extension of the Emergency Department. *Top Emerg Med*; 1979; 1:47-54.

Commission on Accreditation of Medical Transport Systems (CAMTS); Accreditation Standards of CAMTS, Fourth Edition, October 1999

Kyes FN: National Flight Nurses Association: Liaison Committee Flight Programs

Data Report. Unpublished Raw Data: 1984.

Neel SH: Helicopter Evacuation in Korea. *USAF Med J* ; 1955; 6:691-702.

Neel SH: Army Aeromedical Evacuation Procedures in Vietnam. *JAMA* ; 1968; 204:99-103.

Rau W: 2000 Medical Crew Survey. *AIRMED*; Sept/Oct 2000; Vol. 6, No. 5; 17-22

Scheib BT, Foust J, Mueller W, et al: MAST: Military Assistance to Safety and Traffic, A Decade of Service. *JEMS*; November, 1983; 38-45.

Shea, D: The Role of Nurses and Paramedics on EMS Rotorcraft. *Trauma Quarterly*; May, 1985; 1:33-37.

U.S. Department of Health, Education and Welfare: Essentials and Guidelines for the Education and Training of the Emergency Medical Technician - Paramedic .

Washington, D.C. U.S Department of Health, Education and Welfare, 1999.

U.S. Department of Transportation: National training course: Emergency Medical

Technician - Paramedic . (Module I and Course Guide). National Highway Traffic Safety Administration. Washington, D.C.: U.S. Government Printing Office, 1999.

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