GENERAL STANDARDS

MEDICAL SECTION

01.00.00 CAPABILITIES AND RESOURCES OF THE MEDICAL TRANSPORT SERVICE AND RECEIVING HOSPITALS

01.01.00	There must be written policies and procedures specifying the mission statement and scope of care to be provided by the service.	RW/FW/G
01.01.01	There is evidence that safety issues are addressed specific to the operational environment (i.e., weather, terrain, aircraft performance). Patient care issues are considered when choosing the aircraft or ground transport ambulance, and scope of care is considered when choosing the type and interior modification of the transport ambulance.	RW/FW/G
01.01.02	The scope of care will be commensurate with the level of education and ongoing clinical experiences available for medical personnel at the receiving facilities it serves. Education of medical personnel should include both ongoing didactic and clinical experiences corresponding to the scope of services provided.	RW/FW/G

01.02.00	There must be evidence of financial commitment to the program by the administrative structure and through financial resources that provides excellence in patient care and safety of the transport environment.	RW/FW/G

01.03.00	The transport service will know the capabilities and resources of receiving facilities and will transport patients to appropriate facilities within the service region based on direct referral, approved EMS plan, or services available when no direction is given.	RW/FW/G

01.04.00	All patient care resources, including personnel and equipment, necessary to the program's mission must be readily available in the aircraft/ground transport ambulance or available for placing in the aircraft/ground transport ambulance and operational prior to initiating the mission. This includes resources, personnel, and equipment provided by Specialty Care Providers.	RW/FW/G

01.05.00	The physical base of operations demonstrates an appropriate and safe work environment for all personnel with adequate lighting, ventilation, and storage of equipment for patient care and care of the transport ambulance.	RW/FW/G

01.06.00	Transport requests are accepted from authorized personnel with sensitivity to cultural differences and without discrimination due to race, creed, sex, color, age, religion, national origin, ancestry, or handicap. "Emergency calls" or those requests which involve a patient with a potentially life threatening illness or injury who requires rapid transportation and intervention at a location within the defined service area are accepted without prescreening for the ability to pay.	RW/FW/G

01.07.00	A professional and community education program and/or printed information with the target audience to be defined by the medical transport service should include but not be limited to:	RW/FW/GME
01.07.01	Hours of operation, phone number, and access procedure.	RW/FW/GME
01.07.02	Capabilities of medical transport personnel.	RW/FW/GME
01.07.03	Type of aircraft/ground interfacility ambulance(s) used and operational protocols specific to type.	RW/FW/GME
01.07.04	Coverage area for the transport service.	RW/FW/GME
01.07.05	Preparation and stabilization of the patient.	RW/FW/GME
01.07.06	Safety program consisting of patient preparation and personal safety around the aircraft to include landing zone (LZ) designation for rotor wing services.	RW
01.07.07	Patients considered appropriate for transport by the medical transport service. Generally, an appropriate transport is one that enhances patient outcome, safety and cost effectiveness over other modes of transport.	RW/FW/GME

01.08.00	The medical transport service should be integrated with and communicate with other public safety agencies, including ground emergency service providers. This may include participation in regional quality improvement reviews, regional disaster planning and mass casualty incident drills to include an integrated response to terrorist events.	RW/FW/G
01.08.01	There is a response plan to all types of disaster, including weapons of mass destruction, terrorist events and natural disasters.	RW/FW/G
01.08.02	There is a policy that prohibits "freelance responses" (responding without being specifically requested) to disasters.	RW/FW/G
01.08.03	Medical personnel will be familiar with the plan to respond to disasters.	RW/FW/G

01.09.00	Aircraft/ambulance and personnel security.	RW/FW/G
01.09.01	A policy addresses the security of the aircraft and/or ambulance and physical environment (i.e. hangar, fuel farm).	
	1. Security of the aircraft or ambulance if left unattended on a helipad, hospital ramp or unsecured airport or parking lot.	RW/FW/G
	2. Training for pilots and drivers to recognize signs of aircraft/ambulance tampering.	RW/FW/G
	3. Plan to address aircraft or ambulance tampering.	RW/FW/G
01.09.02	Personnel security	RW/FW/GME
	1. Policy addresses background checks on personnel.	

	2. Medical team is required to carry photo IDs (driver's license acceptable) with first and last name while on duty.	
01.09.03	Patient security—Family members or other passengers that accompany patients must be properly identified and listed by name (in compliance with HIPAA regulations) in the communications center or by the transport coordinator.	RW/FW/GME

01.10.00	The transport service develops and demonstrates use of a written code of ethical conduct that demonstrates ethical practices in business, marketing and professional conduct.	RW/FW/GME
01.10.01	If an accredited program refers a flight to another service: 1. The accredited service will attempt to refer a transport to another CAMTS accredited service whenever possible if unable to perform the transport. If an accredited service brokers a flight or uses another service's medical team and/or aircraft, the following conditions are maintained in practice and policy: 1. The other service will be CAMTS accredited whenever possible. 2. If an unfamiliar aircraft is used (either by the originating team or the other team), a medical team member familiar with the operation of medical systems, communications and emergency procedures must accompany the transport team. 3. The accredited program will disclose to the requesting agent whenever the transport is not accepted by their CAMTS accredited medical teams and/or aircraft. (This does not apply to teams that are listed as specialty teams as part of an accredited service.) *(See glossary for definitions of referred and brokered.)*	RW/FW FW
01.10.02	The transport service has, and will maintain, insurance with financially sound and reputable insurers qualified to do business in the state or states in which the service is located against loss or damage of the kinds customarily insured against and in such types and amounts as are customarily carried under similar circumstances by similar business: The types of insurance should include but are not limited to the following: 1. Hull insurance for each aircraft operating in the EMS environment. Aircraft liability provides coverage with a single limit of at least the following, or in such greater amount and such other amount and such other insurance as may be required by the statute or other rule in the state or states in which the service is located: Fixed Wing 5 million for twin engine aircraft 10 million for turbo props 20 million for jets Rotorwing – 10 million	RW/FW/G RW/FW FW RW

	2. Auto insurance (for ground vehicles and ambulances owned by the service) 3. Medical malpractice 4. General liability 5. Workers' compensation 6. Helipad insurance as pertinent to property ownership.	RW/FW/G RW
01.10.03	Federal ID tax number as pertinent to the business entity.	RW/FW/G
01.10.04	Practices are consistent with Centers for Medicare & Medicaid Services (CMS) requirements, and there is a policy that reflects ethical billing practices.	RW/FW/G
01.10.05	Business ownership reflects identification and proof of all entities that have 5% or more ownership in the company. Same owners should disclose all DBAs (doing business as) or ownership in medical transport companies operating under another name within the past five years.	RW/FW/G

01.11.00	The transport service demonstrates environmental integration with the local community with noise abatement and "fly" and/or "drive friendly" procedures.	RW/FW/G

01.12.00	Medical transport services are encouraged to report aviation and ground ambulance incidents and accidents to the CONCERN network and must report to the appropriate government agencies. There is a policy that addresses reporting incidents or accidents and assigns certain individual(s) with the responsibility to report. (See Glossary for definitions of accident and incident.)	RW/FW/G ME

02.00.00 MEDICAL PERSONNEL—The medical transport service is properly directed and staffed according to the mission statement, anticipated needs and scope of services offered.

02.01.00	Medical Director(s)—The medical director(s) of the program is a physician who is responsible for supervising and evaluating the quality of medical care provided by the medical personnel. The medical director ensures (by working with the clinical supervisor) competency and currency of all medical personnel working with the service.	RW/FW/G ME
02.01.01	The medical director(s) should be licensed and authorized to practice in the state in which the medical transport service is based and have educational experience in those areas of medicine that are commensurate with the mission statement of the medical transport service (i.e., adult trauma, pediatric, neonatal transport, etc.) or utilize specialty physicians as consultants when appropriate.	RW/FW/G ME
02.01.02	The medical director(s) should be experienced in both air and ground emergency medical services (as appropriate to the mission statement) and be familiar with the general concepts of appropriate utilization of air and ground interfacility services. In addition, the medical director should be current and demonstrate competency or provide documentation of equivalent educational experiences directed by the mission statement and scope of care. If a physician is boarded in an area appropriate to the mission and scope of the service, certifications #1 – 4 are optional. Specialty certifications are required as pertinent to the program's scope of care.	RW/FW/G ME

	1. Advanced Cardiac Life Support (ACLS) according to the current standards of the American Heart Association. 2. Advanced Trauma Life Support (ATLS) according to the current standards of the American College of Surgeons. 3. Neonatal Resuscitation Program (NRP) according to the current standards of the American Academy of Pediatrics (AAP) and the American Heart Association (AHA). 4. Pediatric Advanced Life Support (PALS) according to the current standards of the American Heart Association (AHA) or Advanced Pediatric Life Support (APLS) according to the current standards of the American College of Emergency Physicians (ACEP). 5. Patient care capabilities and limitations (i.e., assessment and invasive procedures during transport). 6. Infection control. 7. Stress recognition and management. 8. Altitude physiology/stressors of flight if involved in rotor wing or fixed wing operations. 9. Ground ambulance rules /regulations /driver safety course. 10. Appropriate utilization of medical/ground interfacility services. 11. Emergency Medical Services. 12. Hazardous materials recognition and response.	RW/FW/GME
02.01.03	The medical director(s) is actively involved in the quality management (QM) program for the service.	RW/FW/GME
02.01.04	The medical director(s) is actively involved in administrative decisions affecting medical care for the service.	RW/FW/GME
02.01.05	The medical director sets and reviews medical guidelines (for current accepted medical practice), and medical guidelines are in a written format.	RW/FW/GME
02.01.06	The medical director(s) is actively involved in hiring, training and continuing education of all medical personnel for the service.	RW/FW/GME
02.01.07	The medical director(s) is actively involved in the care of critically ill and/or injured patients.	RW/FW/GME
02.01.08	The medical director(s) is actively involved in orienting physicians providing on-line (in-flight) medical direction according to the policies, procedures and patient care protocols of the medical transport service.	RW/FW/GME
02.01.09	Specific policies should address diseases affected by altitude with maintenance of adequate oxygen saturation and treatment of oxygen desaturation. There is a mechanism to assure transports can be accomplished with the oxygen supply that is available according to patient needs and transport distances. Volume expansion in hollow organs should also be addressed. Policies will be consistent with principles of aeromedical physiology.	RW/FW ME

02.01.10	The medical director(s) ensures that ground transport is appropriate and safe for the patient's specific disease process/needs. (For example: patients requiring use of a hyperbaric chamber are usually transported by ground, but in some geographic locations, the distance would be prohibitive for ground transport.)	RW/FW/GME
02.01.11	Guidelines should state what parameters and disease processes need medical control input during patient transport.	RW/FW/GME
02.01.12	The medical director(s) should set a policy that insures compliance with federal EMTALA regulations. This policy should address bedside-to-bedside care for ALS and Critical Care Providers to prevent any diminution in level of care. The policy should also address situations where it may not be necessary to proceed from bedside to bedside with the patient. These incidents should be examined by the QM process.	RW/FW/G

02.02.00	Medical Control Physicians—On-line medical control physicians (who are trained and identified by the service) should have the appropriate knowledge base and experience sufficient to ensure proper medical care and medical control during transport for all patient types served by the medical transport service.	RW/FW/G
02.02.01	If the medical control physician's experience is lacking in a clinical area, he or she should seek prompt consultation as appropriate to ensure proper medical care and medical control during transport for all patient types served by the medical transport service. This consultant should be an appropriate designated physician or the patient's receiving attending physician.	RW/FW/G

02.03.00	Clinical Care Supervisor—Responsibility for supervision of patient care provided by the various clinical care providers (i.e., EMT-B, EMT-P, RT, RN, RCP, etc.) must be defined by the service. All patient care personnel must be supervised by someone knowledgeable and legally enabled to perform clinical supervision. The clinical care supervisor and medical director(s) must work collaboratively to coordinate the patient care delivery given by the various professionals and to review the overall system for delivery of patient care.	RW/FW/GME
02.03.01	The clinical care supervisor should demonstrate currency in the following or equivalent educational experiences as appropriate to the mission statement and scope of care. In addition, the clinical care supervisor must have immediate access to personnel with appropriate knowledge and experience as consultants. 1. Advanced Cardiac Life Support (ACLS) according to the current standards of the American Heart Association. 2. Auditing of Advanced Trauma Life Support (ATLS) according to the current standards of the American College of Surgeons or Transport Nurse Advanced Trauma Course (TNATC) according to the standards of the Air & Surface Transport Nurses Association. NOTE: The usual out-of-hospital trauma courses (e.g. BTLS or PHTLS) do not meet this requirement due to the need for higher level of understanding trauma pathophysiology and the need for more sophisticated skills performance. 3. Neonatal Resuscitation Program (NRP) according to the current standards of the American Academy of Pediatrics and the American Heart Association or equivalent. According to ACOG (American College of Obstetricians and Gynecologists) Standards, NRP is a required certification if medical personnel care for high-risk OB patients.)	RW/FW/GME

	4. Pediatric Advanced Life Support (PALS) or Advanced Pediatric Life Support (APLS) according to the current standards of the American Heart Association. 5. Patient care capabilities and limitations during transport (i.e., assessment and invasive procedures). 6. Infection control. 7. Stress recognition and management. 8. Altitude physiology/stressors of flight if involved in rotorwing or fixed wing operations. 9. Appropriate utilization of medical/ground interfacility services. 10. Emergency Medical Services. 11. Hazardous materials recognition and response. 12. The clinical care supervisor is actively involved in the QM Program. 13. The clinical care supervisor is actively involved in all administrative decisions affecting patient care for the service. 14. The clinical care supervisor is actively involved in hiring, training, and continuing education of all non-physician medical personnel for the service. 15. The clinical care supervisor must ensure adequate mechanisms for the evaluation of the clinical practice of patient care providers.	RW/FW/GME

02.04.00	Staffing	
02.04.01	The service should have operational policies to address each of the areas listed below: 1. Scheduling and individual work schedules demonstrate strategies to minimize duty-time fatigue, length of shift, number of shifts per week and day-to-night rotation. These criteria do not address payment for overtime regulations, which vary from state to state, and by agreements with labor unions as applicable. 2. On-site shifts scheduled for a period to exceed 24 hours are discouraged. Twenty-four-hour shifts are acceptable if the service is able to demonstrate compliance with the following: a. Medical personnel are not required to routinely perform any duties beyond those associated with the transport service. b. Medical personnel are provided with access to and permission to uninterrupted rest after daily medical personnel duties are met. c. The physical base of operations includes an appropriate place for uninterrupted rest.	RW/FW/G

	d. Personnel must have at least eight hours of rest with no work-related interruptions prior to any scheduled shift of twelve hours or more. The intent is to preclude back-to-back shifts with other employment, commercial or military flying, or significant fatigue-causing activity prior to a shift. e. Medical personnel must have the right to call "time out" and be granted a reasonable rest period if the team member (or fellow team member) determines that he or she is unfit or unsafe to continue duty, no matter what the shift length. There should be no adverse personnel action or undue pressure to continue in this circumstance. f. Management should monitor transport volumes and personnel's use of the "time out" policy ensure that medical personnel utilize the right to call "time-out" appropriately.	RW/FW/G
	2. Policies should address minimum rest/duty time requirements for transports that are international or involve overnight stays, not to exceed more than 16 hours on duty in a 24-hour period OR a minimum of two medical team members to allow one member rest during the transport and insure another attends the patient.	
	3. Policies that address preparation for transport based on an available patient report and distance of transport (including international transports) to appropriately assess staffing and equipment/supplies needs.	FW
	4. Physical well-being is promoted through: a. Wellness programs that promote healthy lifestyles (e.g. balanced diet, weight control, no smoking). b. Evidence of an injury prevention program and ergonomic strategies to reduce employee injuries. c. Protective clothing and dress code pertinent to: - Mission profile - such as turn-out gear available at scene for medical personnel who assist with heavy extrication. - Safe operations, which may include: * Boots or sturdy footwear for on-scene operations. * Wearing reflective material or striping on uniforms for night operations <u>(Required if the service's mission includes night scene transports)</u> * Flame retardant clothing. * Appropriate outerwear pertinent to survival in the environment. d. Infection control - dress codes address jewelry, hair and other personal items of medical personnel that may interfere with patient care.	RW/FW/G

02.05.00	**<u>Mission Types</u>** - Staffing should be commensurate with the mission statement and scope of care of the medical transport service. The aircraft or ambulance, by virtue of medical staffing and retrofitting of medical equipment, becomes a patient care unit specific to the needs of the patient.	RW/FW/G

	There are patients in stable condition that may require only one medical professional of at least an EMT-B level. Although the criteria below may not apply to these types of transports, the medical transport service should have criteria or mechanisms to provide the appropriate care (number of medical personnel and level of care) required for patients who are requesting elective transport.	FW/G
02.05.01	**Critical Care** - A critical care mission is defined as the transport of a patient, from a scene or a clinical setting, whose condition warrants care commensurate with the scope of practice of a physician or registered nurse. 1. The medical team must, at a minimum, consist of a specially trained physician or registered nurse as the primary care provider. 2. A physician or registered nurse may be designated as the primary care provider if he/she meets the following criteria: a. There are adequate personnel to provide full coverage with physicians or RNs who are primarily assigned to the medical transport service and are readily available within the response time determined by the service. b. The physician or RN must have appropriate state licensure. 3. An Alternative to Current Critical Care Team Composition Requirements: As an alternative to the team composition (for example: paramedic-led teams or teams that include physician's assistants) requirement above, the following standard and criteria describe a new way to meet compliance with the accreditation standards as a critical care team. Please see Addendum A for Rationale. *(In 2002, the CAMTS Board developed this alternative means of satisfying the CAMTS Standards related to team composition. For the next several years, the Board will consider the approval of new methods that might satisfy educational and training requirements that demonstrate the capability of completing a program's mission through substantial linkage to a quality management program. In recent years CAMTS has reviewed programs that have developed innovative programs to meet educational and training needs of their particular service. The potential advantage of encouraging programs to develop options to current methodologies is that it would result in hiring, educational and training practices that better demonstrate that a particular program's practices are successful in providing the level of medical care that is specified in their mission statement.)*	RW/FW/G RW/FW/G
	The service must define in detail: **a. Its mission with respect to each category of patients that it transports.** *The program must provide a comprehensive listing of its mission with regard to each category of patient that it transports. Examples of mission types might include: adult medical, pediatric, pediatric scene trauma, adult scene trauma, OB, burns, IABP, and other means of categorization.* **b. Patient acuity level requests accepted by the service in each category of medical care.** *The program must detail in an objective manner the acuity level for each category of patients that it will accept for transfer. This would include the assignment of certain teams where more that one*	RW/FW/G

	type of team is available, the utilization of different aircraft or ambulances and any limitations imposed by the service. **c. <u>Patient acuity levels by volume.</u>** *The program will define its activity in respect to patient volume and acuity level for each of the categories outlined above. For new components, it will provide projections of activity expected once a component is available (i.e. the development of a new IABP component.)* **d. <u>Background and clinical experience of medical personnel.</u>** *The program will detail the educational accomplishments of its medical team members and provide comprehensive information of past clinical experiences. This listing may include skills logs, prior clinical experiences, competency reviews and other examples of prior experiences that may be applicable.* **e. <u>Educational requirements for medical personnel (pre-hire and ongoing).</u>** *The program will list minimal educational requirements for each medical team member category. Requirements might include formal educational degrees, certification examinations, national, regional or local courses.* **f. <u>Outcome studies that demonstrate appropriate care is provided by the assigned team.</u>** *This requirement is perhaps the most crucial component in demonstrating the ability of a program to transport specific categories of patients at selected acuity levels in a manner that will promote successful outcomes.* *<u>In Summary:</u>* *The use of this alternative track to satisfy medical team composition requirements promotes the development of innovative and more effective ways to match medical teams with the types of patients transported. CAMTS has purposely avoided a lengthy listing of specific requirements in order to allow for maximum flexibility and originality. In a sense, this alternative track is an investment in change, the results of which will guide the development and direction of future standards. Programs electing to use the alternative track of team composition will no doubt face greater scrutiny than programs using the traditional track because they will be required to demonstrate that their selection and training of team members results in satisfactory outcomes with regard to medical care. It is possible that all programs will bear this responsibility in the future.*	RW/FW/G
	4. Critical care missions require an additional team member, for a minimum of two medical attendants (for example, but not limited to, RN/RN, RN/RCP, RN/MD, RN/EMT-P), while a patient(s) is on board. Personnel should be available for each transport within a response time determined by the service. a. Regularly scheduled personnel should be assigned to the service as his/her primary responsibility, and should meet all appropriate and current state licensing, certification or permitting requirements for Respiratory Care Practitioners or EMT-Paramedic, or higher level. - They must meet educational requirements specific to the medical transport service environment assigned.	RW/FW/G

	b. On an emergency/unanticipated/infrequent basis, non-scheduled personnel can be added as the second team member according to the protocols of the medical transport service as long as orientation includes in-transport treatment protocols, general aircraft and ambulance safety, emergency procedures, operational policies and infection control.	RW/FW/G
	c. Under certain infrequent conditions, the weight of the second medical attendant or equipment could potentially compromise the performance of the aircraft and the safety of the mission. Under these conditions, if only one medical attendant can accompany the patient, the following should occur: - A policy exists defining the conditions of density altitude and weight and supporting the pilot's authority to make these decisions. - A single medical attendant should have the knowledge and medical equipment to adequately perform one-person CPR. - Quality management activities are in place that regularly review the patient care provided by only one medical attendant and the patient's status at the time of arrival at the scheduled destination facility. - No other transport team is available in that region at the time of the transport that would be more appropriate for delivering the level of care the patient requires.	RW

02.05.02	**Advanced Life Support**—An advanced life support (ALS) mission is defined as the transport of a patient from an emergency department or critical care unit or scene who receives care commensurate with the scope of practice of an EMT-Paramedic. (See ALS-BLS Ground Section as applicable.) 1. The medical team must at a minimum consist of at least one certified EMT-Paramedic as the primary care provider. a. There are adequate personnel to provide full coverage with EMT-Paramedics who are primarily assigned to the medical service and are readily available within the response time determined by the service (if the majority of transports are ALS missions). 2. The EMT-Paramedic provider must be licensed, certified, or permitted according to the appropriate state regulations and has current relicensing, recertification, or repermitting status. 3. Advanced life support missions require an additional team member, for a minimum of two medical attendants, while a patient(s) is on board. Personnel should be available for each transport within a response time determined by the service. a. Regularly scheduled personnel should be assigned to the service as his/her primary responsibility and should meet all appropriate and current state licensing, certification, or permitting requirements for Respiratory Care Practitioners or EMT-Paramedic, or higher level.	RW/FW

	b. They must meet educational requirements specific to the medical transport service environment assigned. c. On an emergency/unanticipated/infrequent basis, non-scheduled personnel can be added as the second medical team member according to the protocols of the medical service as long as orientation includes in-flight treatment protocols, general aircraft safety, emergency procedures, operational policies, and infection control. d. Under certain conditions, the weight of the second medical person or equipment could potentially compromise the performance of the aircraft and safety of the mission. Under these conditions, if only one medical person can accompany the patient, the following should occur: - A policy exists defining the conditions of density altitude and weight and supporting the pilot's authority to make these decisions. - A single medical attendant should have knowledge and medical equipment to adequately perform one person CPR. - Quality management activities are in place that regularly review the patient care provided by only one medical attendant and the patient's status at the time of arrival at the scheduled destination facility. - No other transport team is available in that region at the time of transport that would be more appropriate for delivering the level of care the patient requires.	RW
02.05.03	**Basic Life Support**—A basic life support (BLS) mission is defined as the transport of a patient from an emergency department or scene who receives care commensurate with the scope of practice of an Emergency Medical Technician-B. (See Ground ALS-BLS Section as applicable.) 1. There are adequate personnel to provide full coverage with EMT-B providers who are primarily assigned to the medical service and are readily available within the response time determined by the service. 2. The EMT-B provider must be licensed, certified or permitted according to the appropriate state regulations and have current relicensing, recertification, or repermitting status. 3. Basic life support missions require an additional EMT-B provider, for a minimum of two medical attendants, while a patient(s) is on board. Personnel should be available for each transport with a response time determined by the service. a. The additional EMT-B provider must be licensed, certified or permitted according to the current appropriate state regulations and have relicensing, recertification, or repermitting status. - They must meet educational requirements specific to the medical transport service environment assigned. b. Under certain conditions, the weight of the second medical attendant or equipment could potentially compromise the performance of the aircraft and safety of the	RW/FW RW

	mission. Under these conditions, if only one medical attendant can accompany the patient, the following should occur: - A policy exists defining the conditions of density altitude and weight and supporting the pilot's authority to make these decisions. - A single medical attendant should have the knowledge and medical equipment to adequately perform one-person CPR. - Quality management activities are in place that regularly review the patient care provided by only one medical attendant and the patient's status at the time of arrival at the scheduled destination facility. - No other transport team is available in that region at the time of transport that would be more appropriate for delivering the level of care the patient requires.	RW
	4. Fixed-wing services flying BLS missions may provide only one medical attendant (EMT-B level or above) when all of the following criteria are met: a. Specific criteria are used in screening each flight for the appropriateness of providing only one medical attendant; b. Quality management activities are in place that regularly review the patient care provided by only one medical attendant and the patient's status at the time of arrival at the scheduled destination facility; and c. No other transport team is available in that region at the time of transport that would be more appropriate for delivering the level of care the patient needs.	FW
02.05.04	**Specialty Care—**Specialty transport teams that are specifically trained for air and/or ground transport and are not accompanied by a transport team or team member should follow the criteria listed under critical care. Specialty personnel (as for neonatal, pediatric, perinatal or IABP transports) who are added to the regularly scheduled transport team should follow the criteria listed below: 1. Specialty care personnel must have appropriate state licensure or certification requirements by appropriate agencies or governing bodies and have relevant specialty experience as described by program policy. 2. Liaison roles with the host medical transport service ensure cohesive and safe operational relationships, and well-defined roles and policies. 3. Specialty care personnel must be accompanied by at least one regularly scheduled air medical personnel. 4. Specialty care personnel must be educated in in-flight and ambulance treatment modalities, altitude physiology, general aircraft and ambulance safety, and emergency procedures. For RW/FW, they must meet educational requirements for in-flight environment (reference pg. 21- Education specific to the in-flight and ground transport environment).	RW/FW/G RW/FW

02.05.05	Medical Escorts—See Medical Escort Standards in this manual for specific criteria.	

02.06.00	Training Program and Continuing Education Requirements—A planned and structured program should be required for all regularly scheduled medical transport personnel. Competency and currency must be ensured and documented through relevant continuing education programs/certification programs listed in this section. An appropriate training and continuing education program will be guided by each medical transport service's mission statement, scope of care and medical direction.	RW/FW/G
02.06.01	**CRITICAL CARE AND ALS PROVIDERS** 1. Initial training program requirements for all full-time and part-time Critical Care and ALS Providers. Each Critical Care and ALS provider must successfully complete a Comprehensive training program or show proof of recent experience/training in the categories listed below prior to assuming independent responsibility. Initial and ongoing training need not be absolutely equivalent depending on roles in patient care for different providers as defined by the program and/or state regulations, but training must have basic equivalencies. Both medical personnel members need to be didactically trained. (For example: a paramedic or nurse may not be allowed to do a procedure by state regulation, but that provider needs to be familiar with the steps in the procedure in order to assist the other provider in the performance of that procedure.)	RW/FW/G
	* NOTE: Human Patient Simulators may be considered a substitute for human or cadaver experience requirements if the simulators are dynamic (able to reflect physiologic changes resulting from a performed procedure) and not static. The Human Patient Simulator (HPS) must meet the following criteria if used to meet compliance with intubation skills and/or invasive procedures and/or if used to access clinical competency. The dynamic changes that the simulator performs are to be controlled by an operator without the user being aware of what is being changed. The results must be critiqued by a trained operator.	RW/FW/G ME
	For airway competency in initial training to meet the 5 live or cadaver intubation requirement: - Must be capable of real time changes in difficult airway scenarios including a surgical airway. - Must allow realistic pharmacologic/pharmodynamic responses to drug interventions. - Must allow for realistic learner interventions in terms of all aspects of airway intervention (i.e. Use of bag-valve mask, oropharyngeal airway, nasal-pharyngeal airway, laryngeal mask airway, endotracheal tube and other ancillary airway devices), CPR, pacing and defibrillation. - Must allow for real time feedback to the user in regards to actions taken, such as changes in vital signs, cardiac rhythm, breath sounds, pulses, pulse ox, end tidal CO2 etc.	RW/FW/G

	For invasive skills - HPS is capable of simulating same skills as listed in ATLS or TNATC curriculum and as consistent with the program's scope of care. For ongoing clinical experience - Must allow for creation of patient scenarios pertinent to patient types (cardiac, trauma, pediatrics, high risk OB etc.). - Scenarios are submitted for acceptance by the CAMTS Board. General guidelines for use of the HPS: - Pre-designed readings should be assigned to introduce the concepts that the training will provide. (For example: pathophysiology, selected skills). - The participants should be provided with a course introduction and review of all the conceptual materials to be covered. - Participants should be allowed time to become familiar with the simulator. The environment in which the procedure may have to occur should be reviewed. (For example: airway management in the air and ground environments, different aircraft sizes, etc.) - Patient scenario modules based on the type of patients transported. - Multifacted, complex, realistic simulations should be written out and used for documentation of education.	RW/FW/G
	a. Didactic Component of Initial Education - should be specific and appropriate for the mission statement and scope of care of the medical transport service. Measurable objectives need to be developed and documented for each experience. - Advanced airway management. - Altitude physiology/stressors of flight. - Anatomy, physiology and assessment for adult, pediatric and neonatal patients. - Aviation - aircraft orientation/safety & in-flight procedures/general aircraft safety including depressurization procedures for fixed wing (as appropriate). Ambulance orientation/safety and procedures as appropriate. - Cardiac emergencies and advanced cardiac critical care. - Disaster and triage. - EMS radio communications.	RW/FW/G RW/FW RW/FW/G RW/FW RW/FW/G

		- Environmental emergencies.	RW/FW/G
		- Hazardous materials recognition and response. *(Even if not part of the service's mission statement, personnel should be able to recognize a hazardous-materials situation if encountered.)*	
		- Hemodynamic monitoring, pacemakers, automatic implantable cardiac defibrillator (AICD), intra-aortic balloon pump, central lines, pulmonary artery and arterial catheters, ventricular assist devices and extracorporeal membrane oxygenation (ECMO).	
		- High risk obstetric emergencies (bleeding, medical, trauma).	
		- Human Factors – Crew Resource Management	
		- Infection control.	
		- Mechanical ventilation and respiratory physiology for adult, pediatric and neonatal patients as appropriate to the mission statement and scope of care of the medical transport service specific to the equipment.	
		- Metabolic/endocrine emergencies.	
		- Multi-trauma (chest, abdomen, facial).	
		- Neonatal emergencies (respiratory distress, surgical, cardiac.)	
		- Oxygen therapy in the medical transport environment – Mechanical ventilation and respiratory physiology for adult, pediatric and neonatal patients as appropriate to the mission statement and scope of care of the medical transport service.	
		- Pediatric medical emergencies.	
		- Pediatric trauma.	
		- Pharmacology.	
		- Quality Management – Didactic education that supports the medical transport service's mission statement and scope of care of the medical transport service.	
		- Respiratory emergencies.	
		- Scene management/rescue/extrication.	RW
		- Stress recognition and management.	RW/FW/G

	- Survival training.	RW/FW/G
	- Thermal, chemical and electrical burns.	
	- Toxicology.	
	b. Clinical Component – Clinical experiences should include, but not be limited to the following eight points (experiences should be specific and appropriate for the mission statement and scope of care of the medical transport service). Measurable objectives need to be developed and documented for each experience listed below reflecting hands-on experience versus observation only.	RW/FW/G
	- Critical care.	
	- Emergency care.	
	- Invasive procedures on mannequin equivalent for practicing invasive procedures.	
	- Neonatal intensive care.	
	- Obstetrics.	
	- Pediatric critical care.	
	- Prehospital care.	
	- Tracheal intubations.	
2.	Continuing education/staff development must be provided and documented for all full-time and part-time Critical Care and ALS Providers. These should be specific and appropriate for the mission statement and scope of care of the medical transport service.	RW/FW/G
	a. Didactic continuing education must include an annual review of:	
	- Aviation safety issues (if involved in rotorwing or fixed wing operations).	RW/FW
	- Hazardous materials recognition and response.	RW/FW/G
	- Human factors – Crew Resource Management	RW/FW
	- Infection control.	RW/FW/G
	- State EMS rules and regulations regarding ground and air transport.	
	- Stress recognition and management.	
	- Survival training.	

		b. Clinical and laboratory continuing education should be developed and documented on an annual basis and must include: - Critical care (adult, pediatric, neonatal). - Emergency/trauma care. - Invasive procedure labs. - Labor and delivery. - Prehospital experience. - Skills maintenance program documented to comply with number of skills required in a set period of time according to policy of the medical transport service (i.e., endotracheal intubations, chest tubes). Since airway management is an essential life-saving measure, and endotracheal intubation is an important aspect of airway management, no less than one successful live, cadaver or mannequin intubation per quarter is required for each Critical Care or ALS Provider. Success rates for all live intubations are documented and monitored through the QM process with the expectation that orientation to endotracheal intubations requires no less than 5 live or cadaver intubations within the previous 24 months. This requirement may be met by documentation of 5 live or cadaver intubations previously. Both crewmembers must be trained, although state regulations or other factors may preclude one crewmember from performing endotracheal intubations in the field. Live, mannequin or cadaver intubation experience within the scope of practice served by the medical transport service: i.e., neonates less than 28 days; children age 2 to 8 years.	RW/FW/G
	3.	Policies ensure that clinical competency is maintained by currency in the following or equivalent training as appropriate for the position description, mission statement, and scope of care of the medical transport service. **The Education Matrix – Addendum B –** contains a listing of the current national and international courses that are available for educational preparation of transport crews and is intended to assist in the determination of compliance with the standards. In addition, the supporting associations are listed. These associations have websites where additional information can be obtained. There are others courses that have been developed by programs, hospitals, local and state agencies that may be used to meet educational requirements such as the Critical Care Paramedic Course (CC-EMT). No matter what is chosen—a national course as listed below or a locally-developed course—specific objectives, content outlines and measurable outcomes need to be included in what is developed and must include primary and secondary assessment, advanced physiology and advanced skills.	RW/FW/G

	a. Basic Life Support (BLS)—documented evidence of current BLS certification according to the American Heart Association (AHA). b. Advanced Cardiac Life Support (ACLS)—documented evidence of current ACLS according to the AHA. c. Advanced Trauma Life Support (ATLS)—according to the American College of Surgeons - ATLS audit, ATLS for Nurses or Transport Nurse Advanced Trauma Course (TNATC). NOTE: The usual out-of-hospital trauma courses (e.g., BTLS or PHTLS) do not meet this requirement due to the need for a higher level of understanding trauma pathophysiology and the need for more sophisticated skills performance. d. Pediatric Advanced Life Support (PALS)—or Advanced Pediatric Life Support (APLS) according to the AHA and ACEP, or equivalent education. e. Neonatal Resuscitation Program (NRP)—documented evidence of current NRP according to the AHA or AAP or equivalent education. f. Nursing certifications (such as CEN, CCRN, RNC and especially CFRN) are encouraged. If required in position descriptions, certifications must be current. g. Paramedic certifications (such as NREMT-P and especially FP-C) are encouraged. If required in position descriptions, certifications must be current.	RW/FW/G
02.06.02	**BLS PROVIDERS** 1. Initial Training Program—Each BLS provider must successfully complete a comprehensive training program or show proof of recent experience/training in the categories listed below prior to assuming independent responsibility. The appropriate training and continuing education program will be guided by the medical service's mission statement, scope of care and medical direction (See ALS-BLS Ground Section as applicable). a. Didactic Component - Should be specific and appropriate for the mission statement and scope of care of the medical service. - Altitude physiology/stressors of flight. - Aviation - aircraft orientation/safety & in-flight procedures/general aircraft safety including depressurization procedures for fixed wing (as appropriate). - Basic Trauma Life Support (BTLS) or equivalent education. - Care of cardiac, medical, trauma, pediatric, obstetric, neonatal emergencies. - EMS radio communications. - Hazardous materials recognition and response.	RW/FW

	- Human Factors – Crew Resource Management - Infection control. - Quality management. - Stress recognition and management. - Survival training. b. Clinical Component—Clinical experiences should include, but not be limited to, the following (experiences should be specific and appropriate for the position description, mission statement and scope of care of the medical service): - Emergency care. - Prehospital care.	RW/FW
	2. Continuing education/staff development—Continuing education must be provided and documented for all full-time and part-time BLS providers. These should be specific and appropriate to the mission statement and scope of care of the medical service: a. Didactic continuing education must include: - Altitude physiology/stressors of flight. - Aviation safety issues. - BTLS or equivalent education to address initial care of the trauma patient. - Emergency care courses – basic level. - Hazardous materials recognition and response. - Human factors – Crew Resource Management - Infection control. - Stress recognition and management. - Survival training b. Clinical continuing education should be developed and documented on an annual basis and must include: - Emergency/trauma care. - Prehospital experience.	RW/FW

02.06.03	**SPECIALTY CARE PROVIDERS** 1. Education requirements for Specialty Care Providers a. Education requirements will be similar to the initial training program for Critical Care and ALS Providers (Didactic and Clinical Components) and specific for the specialty area (i.e., neonatal vs. pediatric). b. Continuing education must be provided and documented for specialty care providers and should be specific and appropriate for the mission statement and scope of care of the medical transport service: - Didactic continuing education programs specific to the specialty. - Ongoing clinical experiences specific to the specialty. - Clinical competency must be maintained by currency in specialty education required by position description (i.e., American Heart Association/American Academy of Pediatrics, or Pediatric Advanced Life Support pertinent to appropriate specialty).	RW/FW/G
02.06.04	Education Specific to the In-Flight and Ground Transport Environment 1. Completion of all the following educational components should be documented for each of the medical personnel. These components should be included in initial education as well as reviewed on an annual basis with all regularly scheduled, part-time or temporarily scheduled medical personnel and specialty care providers as appropriate for the mission statement and scope of care of the medical service. a. Medical patient transport considerations (assessment/treatment/preparation handling/equipment). b. Day-and night-flying protocols. c. EMS communications (radios) and familiarization with EMS system. d. Extrication devices and rescue operations (ranging from familiarity to explicit training depending on the service's mission statement) (RW). e. General aircraft safety. (It is strongly recommended to have the aircraft physically present when providing this training.) This training addresses: - Aircraft evacuation procedures (exits and emergency release mechanisms). To include emergency shut down- engines, radios, fuel switches, electrical and oxygen shutdown. - Aviation terminology and communication procedures to include knowledge of emergency communications frequency.	RW/FW/G RW/FW

		- In-flight and ground fire suppression procedures (use of fire extinguishers).	RW/FW
		- In-flight emergency and emergency landing procedures (i.e., position, oxygen, securing equipment).	
		- Safety in and around the aircraft, including FAA rules and regulations pertinent to safety for medical team members, patient(s), and lay individuals.	
		- Specific capabilities, limitations and safety measures for each aircraft used, which includes specific training for backup or occasionally used aircraft.	
		- Use of emergency locator transmitter (ELT), if installed.	
		f. Ground operations.	RW
		- Landing sites.	
		* On-scene requirements.	
		* Hospital landing site changes or special needs review.	
		- Patient loading and unloading – policy for rapid loading/unloading procedures.	
		- Refueling policy for normal and emergency situations.	
		g. Hazardous materials recognition and response.	RW/FW
		h. Survival training/techniques/equipment that is pertinent to the environment/geographic coverage area of the medical service.	RW/FW
	2.	<u>Completion of all the following educational components should be documented for each of the ground transport personnel.</u> These components should be included in <u>initial</u> education as well as reviewed on <u>an annual basis</u> with all regularly scheduled, part-time or temporarily scheduled personnel or specialty care providers as appropriate for the mission statement and scope of care of the ground interfacility service.	G
		a. EMS communications (radios) and familiarization with EMS system.	
		b. Extrication devices and rescue operations (ranging from familiarity to explicit training, depending on the service's mission statement).	
		c. General safety. (It is strongly recommended to have the ambulance physically present when providing this training.) This training addresses:	
		- Ambulance evacuation procedures (exits and emergency release mechanisms).	
		- Fire suppression procedures (location and use of fire extinguishers).	

	- Patient loading and unloading procedures. - Refueling procedure with patient(s) on board. - Use of road hazard equipment. - Specific capabilities, limitations and safety measures for each ambulance used, which includes specific training for backup or occasionally used ambulances. d. Hazardous materials recognition and response. e. Survival training/techniques/equipment that is pertinent to the environment/geographic coverage area of the medical transport service.	G

AIRCRAFT/AMBULANCE SECTION

03.00.00 MEDICAL CONFIGURATION OF THE AIRCRAFT/AMBULANCE—Any in-service aircraft/ ambulance should be configured in such a way that the medical transport personnel can provide patient care consistent with the mission statement and scope of care of the medical transport service. On the aircraft, the medical interior is installed according to FAA criteria, and the ambulance will be equipped according to state law.

03.01.00	Configuration of the aircraft/ambulance interior should not compromise the ability to provide appropriate care or prevent providers from performing emergency procedures if necessary.	RW/FW/G
03.01.01	Medical transport personnel have access to the patient in order to begin and maintain basic and advanced life support treatment.	RW/FW/G
03.01.02	The aircraft/ambulance configuration allows for stabilizing and childbirth procedures if that is part of the service's mission.	RW/FW/G
03.01.03	The aircraft/ambulance configuration and patient placement allows for safe medical personnel egress. 1. Doors must be fully operable from the interior. 2. Doors must be capable of being opened fully and held by a mechanical device.	RW/FW/G
03.01.04	The service's mission and ability to transport two or more patients should not compromise the airway or stabilization or the ability to perform emergency procedures on any on-board patient.	RW/FW/G
03.01.05	The aircraft/ambulance should have access for simultaneous airway management if there is a two-patient configuration.	RW/FW/G
03.01.06	For all transports, there are written guidelines describing types of patients that can be transported in a two-patient litter configuration if the aircraft/ambulance configuration does not allow for full access to the second patient.	RW/FW/G

03.01.07	For all transports, strict policies will address: weight limitations, patient condition based on anticipated needs, and patient position in the aircraft/ambulance. Policies will be written and adhered to for one or more patient transports if the interior configuration of the aircraft/ambulance does not allow for uninhibited access to one or more patients while enroute. Policies will address under what circumstances two critical patients may or may not be transported, including staffing and equipment.	RW/FW/G

03.02.00	Maintaining airway	RW/FW/G
03.02.01	There should be access and necessary space to ensure any on-board patient's airway is maintained and to provide adequate ventilatory support from the secured, seat-belted position of medical transport personnel.	RW/FW/G
03.02.02	It is strongly encouraged that seating be designed in the ground ambulance so that patient care can be rendered from a seat-belted position.	G

03.03.00	Delivering oxygen	
03.03.01	Oxygen is installed according to FAA regulations in the aircraft and according to state and federal regulations for ambulances. Medical transport personnel can determine if oxygen is on by pressure gauges mounted in the patient care area. 1. Each gas outlet is clearly identified. 2. Oxygen flow can be stopped at or near the oxygen source from inside the aircraft or ambulance. 3. The following indicators are accessible to medical transport personnel while enroute: a. Quantity of oxygen remaining. b. Measurement of liter flow.	RW/FW/G
03.03.02	A variety of oxygen delivery devices consistent with the service's scope of care must be available.	RW/FW/G
03.03.03	Adequate amounts (for anticipated liter flow and length of transport with an emergency reserve) of oxygen must be available for every mission.	RW/FW/G
03.03.04	An appropriately secured portable oxygen tank with a delivery device must be carried on the aircraft/ambulance so that oxygen delivery is not disrupted when transferring the patient to a hospital or other receiving facility. A portable oxygen tank is never to be secured between patient's legs while aircraft or ambulance is in motion.	RW/FW/G
03.03.05	There must be a backup source of oxygen (of sufficient quantity to get safely to a facility for replacements) in the event the main system fails. For air transports, this backup source can be the required portable tank as long as the portable tank is accessible in the patient care area during flight.	RW/FW/G

03.03.06	There is appropriate storage of oxygen in the facility according to OSHA standards.	RW/FW/G
03.03.07	Oxygen flow meters and outlets must be padded, flush mounted, or so located to prevent injury to medical transport personnel.	RW/FW/G

03.04.00	Maintaining IV fluids	RW/FW/G
03.04.01	IV supplies and fluids are readily available.	RW/FW/G
03.04.02	Hangers/hooks are available that secure IV solutions in place or a mechanism to provide high flow fluids if needed.	RW/FW/G
03.04.03	All IV hooks are padded, flush mounted, or so located to prevent head trauma to the medical transport personnel in the event of a hard landing in the aircraft or emergency with the ambulance.	RW/FW/G
03.04.04	Glass IV containers are not used unless required by specific medications and are properly secured.	RW/FW/G
03.04.05	A minimum of three IV infusion pumps are on the aircraft/ambulance or immediately available for critical care transports and as appropriate to the scope of care.	RW/FW/G

03.05.00	Medications consistent with the service's scope of care are accessible.	RW/FW/G
03.05.01	The transport service has a method of assuring that all medications and intravenous fluids are appropriately calculated. Examples of effective methods include the use of drug calculation lists, internet based programs and pre-programmed drug delivery systems such as those found in medication pumps.	RW/FW/G
03.05.02	Medications are easily accessible. Controlled substances are in a locked system or kept in a manner consistent with state law.	RW/FW/G
03.05.03	Storage of medications allows for protection from extreme temperature changes if environment deems it necessary.	RW/FW/G
03.05.04	There is a method to check expiration dates of medications and supplies on a regular basis.	RW/FW/G

03.06.00	Medical supplies and equipment must be consistent with the service's mission statement and scope of care. Additionally, the following equipment must be on the aircraft/ambulance or immediately available for all Critical Care or ALS Providers.	RW/FW/G
03.06.01	Cardiac monitoring capabilities 1. Cardiac monitor, defibrillator and external pacemaker are secured and positioned so that displays are visible. 2. Extra batteries or power source are available for cardiac monitor/defibrillator or external pacemaker.	RW/FW/G

	3. Aircraft/ambulance is configured for effective CPR.	RW/FW/G
03.06.02	Defibrillator 1. Defibrillator is secured and positioned for easy access. 2. Semiautomatic or automatic external defibrillator may be required for some BLS Providers (where permitted as scope of care for EMT-B). 3. Pediatric paddles available if applicable to the scope of care of the medical transport service.	RW/FW/G
03.06.03	External pacemaker on-board or immediately available as a carry-on item.	RW/FW/G
03.06.04	Pulse generator pacemaker on-board or immediately available as a carry-on item or policy addressing arrangements to continue use of the pacemaker from the sending facility.	RW/FW/G
03.06.05	Advanced airway and ventilatory support equipment 1. Laryngoscope and tracheal intubation supplies, including laryngoscope blades, bag-valve-mask and oxygen supplies, including PEEP valves; appropriate for ages and potential needs of patients transported. 2. A mechanical ventilator should be available for critical care transports as pertinent to the scope of care of the medical transport service.	RW/FW/G
03.06.06	Two suction units, one of which is portable and both of which must be required to deliver adequate suction.	RW/FW/G
03.06.07	Pulse oximetry on-board or immediately available.	RW/FW/G
03.06.08	End-tidal CO2 monitoring capabilities available.	RW/FW/G
03.06.09	If inhaled nitric oxide or other inhaled gases are used, policies address the following: 1. Monitoring 2. Cylinder safety 3. Transportation regulations 4. Occupational exposure 5. Equipment issues a. Weight - Mounting in the vehicle - Delivery of the drug 6. Emergency procedures	RW/FW/G
03.06.10	Automatic blood pressure device, sphygmomanometer, doppler or arterial line monitoring capability on-board or immediately available.	RW/FW/G

03.06.11	Devices for decompressing a pneumothorax and performing an emergency cricothyroidotomy available if applicable to scope of care of the medical transport service.	RW/FW/G
03.06.12	The aircraft/ambulance design and configuration must not compromise patient stability in loading, unloading or in-flight operations. 1. The aircraft/ambulance must have an entry that allows loading and unloading without excessive maneuvering (no more than 45 degrees about the lateral axis and 30 degrees about the longitudinal axis) of the patient, and does not compromise functioning of monitoring systems, intravenous lines, and manual or mechanical ventilation. 2. A minimum of one stretcher should be provided that can be carried to the patient. a. Aircraft stretchers and the means of securing it in-flight must be consistent with FAR's. Ambulance stretchers must comply with state and federal laws. b. Policy indicates the maximum gross weight allowed on the stretcher (inclusive of patient and equipment) consistent wit manufacturer's guidelines. c. The stretcher should be large enough to carry the 95th percentile adult patient, full length in the supine position. (The 95th percentile adult American male is 6 ft. and 212 lbs.) d. The stretcher should be sturdy and rigid enough that it can support cardiopulmonary resuscitation. If a backboard or equivalent device is required to achieve this, such device will be readily available. e. The head of the stretcher is capable of being elevated at least 30 degrees for patient care and comfort. f. If the ambulance stretcher is floor supported by its own wheels, there is a mechanism to secure it in position under all conditions. These restraints permit quick attachment and detachment for patient transfer. 3. Patients transported by air are restrained with a minimum of three cross straps that must comply with FAA regulations. Ground ambulance patients are securely restrained in accordance with state and federal laws. a. Patients under 60 pounds (27kg.) should be provided with an appropriately sized restraining device (for patient's height and weight) which is further secured by a locking device. All patients under 40 pounds must be secured in a five-point safety strap device that allows good access to the patient from all sides and permits the patient's head to be raised at least 30 degrees. Velcro straps are not encouraged for use on pediatric devices. b. If a car seat is used, it must have an FAA approved sticker. c. There must be some type of restraining device within the isolette to protect the infant in the event of air turbulence or poor road conditions.	RW/FW/G G RW/FW/G

	4. Supplemental lighting system will be installed in the aircraft/ambulance in which standard lighting is insufficient for patient care. a. A self-contained lighting system powered by a battery pack or a portable light with a battery source must be available. b. In an aircraft, a means to protect the pilot's night adaptation vision should be provided for night operations, either through the medical configuration or by a dividing curtain. (Use of red lighting or low intensity lighting in the patient care area is acceptable if not able to isolate the patient care area.) c. In an ambulance, the interior lighting includes an overhead or dome light that is configured so as not to cause reflection and impair the driver's vision while driving. 5. Isolette must be capable of being opened from its secured position in order to provide full access to the infant in the event of complicated airway problems or extrication from the isolette becomes necessary. 6. Electric power outlet must be provided with an invertor or appropriate power source of sufficient output to meet the requirements of the complete specialized equipment package without compromising the operation of any electrical aircraft/ambulance equipment. An extra battery may be the back-up power source for equipment. 7. Medical or communications equipment will be functional without interfering with the avionics nor should avionics interfere with function of medical equipment on the aircraft. Medical or communications equipment will be functional on the ambulance without interfering with the mechanical components of the ambulance or vice-versa. 8. Aircraft/ambulance operational controls and communications equipment are physically protected from any intended or accidental interference by the patient, medical transport personnel, or equipment and supplies. 9. <u>Head-strike envelope</u> a. Appropriately sized helmets are worn (by all personnel on the aircraft except for the patient) <u>OR</u> the interior modification of the aircraft is clear of objects/projections <u>OR</u> the interior of the aircraft is padded to protect the head-strike envelope of the medical personnel and patients as appropriate to the aircraft. b. The head-strike envelope in the ambulance should be clear of hard objects that could cause injury in the event of poor road conditions or sudden stops. 10. All aircraft equipment (including specialized equipment) and supplies must be secured according to FAR's. Ambulance equipment must be secured by an appropriate clamp, strap, or other mechanism to the vehicle or stretcher/isolette to prevent movement during a crash or abrupt stop.	RW/FW/G

04.00.00 OPERATIONAL ISSUES - AIRCRAFT/AMBULANCE

04.01.00	There should be specific policies and procedures regarding aircraft/ambulance operations and evidence of training in the following areas:	RW/FW/G
04.01.01	If night vision goggles (NVGs) are used by the service, a policy addresses use of night vision goggles by personnel on board, and training is documented for personnel involved. 1. The aviation operator must have Operations Specifications approved by the FAA indicating authorization for operations utilizing night vision devices. 2. The training program must be approved by the FAA and will specify initial qualifications and currency requirements. 3. If NVGs are used to the ground, the pilot and one crewmember must be trained and authorized to use the NVGs 4. If NVGs are used only by medical personnel, crew coordination must be outlined by policy, and appropriate training must be documented.	RW
04.01.02	Medical transport personnel must ensure that all medical equipment is in working order and all equipment/supplies are validated through documented checklists for both the primary and backup aircraft/ambulance. 1. Equipment must be periodically tested and inspected by a certified clinical engineer. 2. Equipment inspections will be required according to the program's guidelines.	RW/FW/G
04.01.03	Occupant restraint devices 1. Medical personnel must be in seat belts (and shoulder harnesses if installed) that are properly worn and secured for all takeoffs and landings according to FAA regulations. A policy defines when medical personnel can get out of restraints. 2. Ambulance personnel must be seat belted when the ambulance is in motion unless emergent patient condition precludes it. a. Front seat occupants must always be belted. b. Overhead grab rails must be present in the patient care area. c. Seat belt mountings on side facing bench should be situated in order to restrain personnel/passengers at the pelvic level.	 RW/FW G
04.01.04	Specialty teams will respond within 45 minutes from the "time of dispatch" to "time depart base."	RW/FW/G
04.01.05	A policy describing patient loading and unloading procedures for medical transports as follows: 1. Specific policies concerning circumstances for rapid patient loading or unloading if practiced.	RW/FW

	2. There is an established policy to ensure that the pilot is notified of any add-on equipment for weight and balance considerations.	
04.01.06	Refueling policies for normal and emergency situations: For aircraft/ambulance, refueling with the engine running, rotors turning, and/or passengers on-board is not recommended. However, emergency situations of this type can arise. Specific and rigid procedures should be developed by the operator to handle these occurrences. Such "rapid refueling" procedures will be covered by the operator's training program. Refueling policies should address: 1. Refueling with engine(s) running or shut down. 2. Refueling with medical transport personnel or patient(s) on board, which includes a requirement that at least one medical transport person remain with the patient at all times during refueling or stopover. 3. Fire hazard policies pertinent to refueling procedures are addressed in the certificate holder's Operations Specifications Manual.	RW/FW/G RW/FW
04.01.07	Specific policy to govern mission limitations for nighttime "scene" landings if the searchlight and/or the radar altimeter are not functioning. If Night Vision Goggles are used, the policy should be appropriate to that specific mode of operation.	RW
04.01.08	Specific policy to address the combative patient. 1. Additional physical and/or chemical restraints should be available and used for combative patients who potentially endanger themselves, the personnel or the aircraft/ambulance. 2. A policy should address refusal to transport patients, family members or others who may be considered a threat to the safety of the transport and/or medical transport personnel.	RW/FW/G
04.01.09	Policy to address response to hazardous materials requests or unanticipated contact with hazardous materials. 1. There is an outlined plan of action according to pre-established policies with appropriate training of the medical transport team. 2. A plan for patient decontamination procedures prior to transport, including removal of patient clothing and other decontamination procedures for saturation of gasoline or other hazardous chemicals. 3. The medical transport team must be fully informed about the nature of the hazardous materials. 4. A list of contaminated materials, which could pose a threat to the medical transport team or render transport inappropriate, must be readily available. 5. The LZ or aircraft operational area must be a safe distance to avoid any downwind danger when approaching or departing.	RW/FW/G RW

	6. A policy addressing carry-on baggage of patient or passenger that must be checked for hazardous materials before loading on the transport aircraft/ambulance. 7. A policy addresses the presence of firearms on the transport vehicle.	RW/FW/G
04.01.10	The floor, sides and ceiling in the patient cabin of the aircraft or ambulance must be a surface capable of being cleaned and disinfected in accordance with OSHA regulations with the appropriate disinfectant.	RW/FW/G

05.00.00 AIRCRAFT/AMBULANCE EQUIPMENT

05.01.00	The aircraft must be equipped with a 180 degree controllable searchlight of at least 400,000 candle power (RW).	RW
05.01.01	It is strongly encouraged that the aircraft be equipped with a functioning radar altimeter.	RW/FW
05.02.00	The aircraft must be equipped with a functioning emergency locator transmitter (ELT) in compliance with the applicable FAR's. However, ELTs are strongly encouraged on all aircraft.	RW/FW
05.03.00	The aircraft must be equipped with survival gear appropriate to the coverage area and the number of occupants. 1. Survival gear will be maintained appropriately per policy and should be available to personnel on board. 2. A policy must be in place regarding checking survival kit contents and expiration dates on timed supplies.	RW/FW
05.04.00	A fire extinguisher must be accessible to medical transport personnel and pilot(s) or driver while in motion.	RW/FW/G
05.05.00	"No smoking" signs are prominently displayed inside the cabin or ambulance.	RW/FW/G
05.06.00	The interior of the aircraft or ambulance should be climate controlled. If air conditioning or heat is not available, policy will address what type of patients cannot be transported during extreme temperatures as defined by the program and what measures are taken to avoid adverse affects on patients and personnel on board.	RW/FW/G

06.00.00 COMMUNICATIONS SECTION

06.01.00	Communications equipment on the aircraft and ambulance	
06.01.01	All communications equipment must be maintained in full operating condition and in good repair. Ambulance communications equipment must be capable of transmitting and receiving clear and understandable voice communications to and from the base station at a reasonable distance. Radios on aircraft and ambulances (as range permits) should be capable of transmitting and receiving the following:	RW/FW/G

	1. Medical direction. 2. Communications center. 3. Air traffic control (aircraft). 4. EMS and law enforcement agencies.	
06.01.02	Pilot is able to control and override radio transmissions from the cockpit in the event of an emergency situation.	RW/FW
06.01.03	Medical team must be able to communicate with each other during flight. Headsets or helmets with communications capabilities are required on RW.	RW/FW
06.01.04	If cellular phones are part of the on-board communications equipment, they are to be used in accordance with FCC regulations *(Code of Regulations #47, Parts 20-39, Section 22.925; October 1, 1996).*	RW/FW/G
	1. For aircraft, cellular phones must be shut off whenever the aircraft leaves the ground, and the following notice should be posted in the aircraft: *"The use of cellular phones when the aircraft is airborne is prohibited by FCC rules. Violation of this rule could result in suspension of service and/or a fine. The use of cellular phones while the aircraft is on the ground is subject to FCC regulations."*	RW/FW
	Ground providers whose medical director(s) has established the requirement for transmission of biomedical telemetry may utilize the cellular telephone system for such communications. Other communications equipment such as cellular phones are in addition to and not in place of the radio equipment and should not be used in the presence of pacemakers or other equipment sensitive to interference.	G
	2. Policy limits drivers' use of cellular phones and other communication devices while driving except for vital communications.	G

06.02.00	A Communication Specialist must be assigned to receive and coordinate all requests for the medical transport service.	RW/FW/G
06.02.01	Staffing 1. Scheduling and individual work schedules demonstrate strategies to minimize duty-time, fatigue, length of shift, number of shifts per week and day-to-night rotation. a. Call volume and other required duties are considerations in the number of communication specialists on duty at any one time. b. There are relief personnel (with the appropriate training) available for periodic breaks. c. On-site shifts scheduled for a period to exceed 24 hours are not encouraged. Twenty-four hour shifts are acceptable if the service is able to demonstrate compliance with the following criteria:	RW/FW/G

	- Personnel must have at least eight hours of rest with no work-related interruptions prior to any scheduled shift of twelve hours or more. The intent is to preclude back-to-back shifts with other employment, commercial or military flying, or significant fatigue-causing activity prior to a shift. - Personnel must have the right to call "time out" and be granted a reasonable rest period if a team member determines that he or she is unfit or unsafe to continue duty, no matter what the shift length. There should be no adverse personnel action or undue pressure to continue in this circumstance. - Management should monitor flight volumes and personnel's use of the "time out" policy to ensure that medical personnel utilize the right to call "time-out." 2. Communications personnel are provided with an opportunity to join wellness programs offered by the medical transport service.	
06.02.02	Training of the designated person should be commensurate with the scope of responsibility of the Communications Center personnel. 1. Initial training, which must include: a. Medical terminology. b. Knowledge of EMS—roles and responsibilities of the various levels of training – BLS/ALS, EMT/ EMT-Paramedic. c. State and local regulations regarding EMS. d. Familiarization with equipment used in the field setting. e. Knowledge of Federal Aviation Regulations and Federal Communications Commission regulations pertinent to medical transport service. f. General safety rules and emergency procedures pertinent to medical transportation and flight following procedures. g. Navigation techniques/terminology and understanding weather interpretation. This should include an understanding of GPS navigation and approaches. h. Types of radio frequency bands used in medical and ground EMS. i. Assistance with the hazardous materials response and recognition procedure using appropriate reference materials. j. Stress recognition and management to include resources for Critical Incident Stress Debriefing or other type of post critical incident counseling.	RW/FW/G RW/FW RW/FW/G

	k. Customer service/public relations/phone etiquette. l. Quality management. m. Crew Resource Management (CRM) pertinent to communications. n. Computer literacy and software training. o. Post incident accident plan.	RW/FW/G
06.02.02	1. There is evidence of recurrent training and training as policies and equipment changes occur. 2. Certifications (such as EMT, EMS, NAACS certified flight communications course) are encouraged, and if required by position description, must be current.	RW/FW/G
06.02.03	Communications is part of the program's QM program and communications personnel participate in staff, safety and QM meetings.	RW/FW/G

06.03.00	Communications policies to reflect:	
06.03.01	Aircraft should communicate, when possible, with ground units securing unprepared landing sites prior to landing.	RW
06.03.02	A readily accessible post incident/accident plan must be part of the flight following protocol so that appropriate search and rescue efforts may be initiated in the event the aircraft or ground ambulance is overdue, radio communications can not be established nor location verified. There should be a written plan to initiate assistance in the event the ambulance is disabled. 1. Written post incident/accident plans are easily identified, readily available, and understood by all program personnel and minimally include: a. List of personnel (with current phone numbers) to notify in order of priority (for communication specialist to activate) in the event of a program incident/accident (for air or ground)**.** This list should minimally include sponsoring organization individuals where applicable, risk management attorney, family members of team members, family of patient, referring hospital, receiving hospital, security (as applicable), human resources (as applicable), media relations or pre-identified individual who will be responsible for communicating with the media, state health department and other team members. b. Consecutive guidelines to follow in attempts to: - Communicate with the aircraft or ambulance. - Initiate search and rescue or ground support. - Have a back-up plan for transporting the ground ambulance patient in the event of an incident or accident and the ambulance is inoperable. -Have an aviation individual identified as the scene coordinator to coordinate activities at the crash site. c. Preplanned time frame to activate the post incident/accident for overdue aircraft or ambulance.	RW/FW/G

	d. A method to insure accurate information dissemination. e. Coordination of transport of injured team members. f. Procedure to document all notifications, calls communications and to secure all documents and tape recordings related to the particular incident/accident. g. Procedure to deal with releasing information to the press. h. Resources available for CISD or other counseling alternatives. i. Process to determine whether the program and/or component of the program (RW/FW/G/ME) will remain in service. If it is determined that the program or a component of the program will go out of service - other regional transport services, primary customers, EMS, public service groups and other applicable groups are advised. 2. An annual drill is conducted to exercise the post incident/accident plan. This drill should include pilots, medical personnel, communications personnel, mechanics and administrative personnel. Written debriefing and critique of PIAP drills should be shared with all staff members. 3. A general test of all emergency procedures to include fire drill, intruder on premises, catastrophic failure of the communications center, helipad mishaps, forces of nature etc. should also be conducted on an annual basis.	RW/FW/G

06.04.00	Initial coordination must be documented and continuous flight following (or initiating and following ground transport) must be monitored and documented and should consist of the following: *(NOTE: The transport times terminology below are adapted from research study results of the best descriptive terms used by helicopter services in order to promote standardized terminology. Each criteria below may not be pertinent to each type of transport and therefore should be adapted according to the type of transport involved – rotorwing, fixed wing, or ground transport.)*	RW/FW/G
06.04.01	<u>Initial coordination</u> to include communication and documentation of: 1. Time of call. (Time request/inquiry received) 2. Name and phone number of requesting agency. 3. Age, diagnosis or mechanism of injury. 4. Referring and receiving physician and facilities (for interfacility requests) as per policy of the medical transport service. 5. Verification of acceptance of patient and verification of bed availability by referring physician and facility.	RW/FW/G

	6. Destination airport, refueling stops (if necessary) location of transportation exchange and hours of operation. 7. Ground transportation coordination at sending and receiving areas. 8. Time of Dispatch (Time medical personnel notified flight is a go, post pilot OK's flight) 9. Time Depart Base (Time of lift-off from base or other site.) 10. Number and names of persons on board. 11. Amount of fuel on board. 12. Estimated time of arrival (ETA). 13. Pertinent LZ information. 14. Time Arrive Location (Time helicopter arrives at landing zone or helipad) 15. Time Depart Location (Time helicopter lifts off from landing zone or helipad) 16. Time Arrive Destination (Time patient transferred to receiving clinical team – in unusual circumstances, this may not be at a healthcare facility.) 17. Time Depart Destination (Time left patient destination. Will be recorded for transports not ending at base). 18. Time Arrive Base (Time arrive base after call completed) 19. Time Aborted (Time authorized transport aborted/cancelled after dispatch)	RW/FW RW/FW/G RW/FW RW RW/FW/G
06.04.02	Concluding documentation (which is pertinent to RW but can also be useful for FW and G services) may include calculation of: 1. Response Time (Time interval between Time of Dispatch and Arrive Location) 2. Ground Time (Time interval between Time Arrive Location and Time Depart Location) 3. Transport Time (Time from Time Depart Location to Time Arrive Location) 4. Total Mission Time	RW

	(Time interval between Time of Dispatch and Time Arrive Base)	RW
06.04.03	Additional Criteria for Fixed Wing—Operations should be conducted using VFR flight plans minimally and IFR flight plans whenever feasible. 1. Procedures ensure that pilots use ATC radar and/or communications services whenever operating under VFR and within the service area of an ATC facility or a communications service. 2. In addition to IFR flight plans, there are procedures to notify the communications center of the specific aircraft departure time, estimated time of arrival and arrival at the scheduled destination. 3. For a fixed wing service that flies only pre-scheduled flights, an answering service may serve as the receiving point for requests for service. a. Answering service personnel must be trained to obtain specific information when receiving a request to schedule fixed wing patient transportation. b. The items should include but not be limited to: *Name and telephone number of caller *Patient type/condition *Date and time call received *Anticipated or scheduled date/time of departure *Location of patient and destination c. Specific methods must be used by the answering service for contacting the medical service coordinator (or designee) to relay request information, i.e. pager numbers, telephone and/or cellular numbers. d. Guidelines of timely notification (less than thirty [30] minutes) should be established. Alternate procedures for notification must be in place in case the coordinator is not available to receive the request/information. e. An on-call roster of the medical team must be provided to the answering service. The roster includes a priority phone list of personnel to notify in the event of an emergency.	FW
06.04.04	Flight Following and Communications During a Mission—The medical transport service should provide direct communication capabilities for parties involved in the transport, i.e., medical personnel, ground ambulance providers, to ensure rapid dissemination of information, coordination of efforts and problem solving. In each case, direct contact between the parties should be established whenever possible as follows: 1. Direct or relayed communications to communications center (while in motion) specifying locations and ETAs, and deviations, if necessary.	RW/FW/G RW/FW/G

	a. A sterile cockpit is maintained below predetermined altitudes so that the pilot is able to transmit and receive vital information and to minimize distractions during any critical phase of flight. No external communications are permitted, and no patient information is transmitted at this time unless radios for medical report are isolated.	RW/FW
	b. There should be a policy/procedure for diversions from original destinations (airports, hospital landing sites, alternative scene LZs).	
	2. Direct or relayed communications to communications center specifying all takeoff and arrival times.	
	3. Time between each communication.	
	a. Time between each communication should not exceed 15 minutes while in flight unless a system of continuous automatic position tracking is utilized.	RW
	b. If an IFR or VFR flight plan has <u>not</u> been filed, time between communications should not exceed 30 minutes if a means to communicate, directly or indirectly, is available.	FW
	c. Time between communications should not exceed 45 minutes while on the ground.	G
	d. Alternate agencies are used to relay communications when direct contact is not possible.	RW
	4. While the aircraft is on a mission, a communicator assigned to flight follow will be in the communications center at all times.	RW

06.05.00	The Communications Center must contain the following:	
06.05.01	At least one dedicated phone line for the medical transport service.	RW/FW/G
06.05.02	There is a method to keep noise and other distractions (traffic) from the communications area while the communications specialist is involved with a medical transport mission.	RW/FW/G
06.05.03	A system for recording all incoming and outgoing telephone and radio transmissions with time recording and playback capabilities. Recordings to be kept for 30 days.	RW
06.05.04	Capability to immediately notify the medical transport team and on-line medical direction (through radio, pager, telephone, etc.)	RW/FW/G
06.05.05	Backup emergency power source for communications equipment, or a policy delineating methods for maintaining communications during power outages and in disaster situations.	RW/FW/G
06.05.06	A status display with information about pre-scheduled flights/patient transports, the medical transport team on duty, weather and maintenance status.	RW/FW/G
06.05.07	Local aircraft service area maps and navigation charts or mapping software should be readily available. Road maps must be available for ground transports services.	RW/FW/G
06.05.08	Communications policy and procedures manual.	RW/FW/G

06.05.09	Seating and workstations that are ergonomically appropriate are provided for each communications specialist on duty.	RW/FW/G

MANAGEMENT AND ADMINISTRATION SECTION

07.00.00 MANAGEMENT / POLICIES

07.01.00	Management demonstrates a commitment to the medical transport service.	
07.01.01	There is a well-defined line of authority. 1. There is a clear reporting mechanism to upper level management. An organizational chart defines how the medical transport service fits into the governing/sponsoring institution. 2. Medical personnel understand the chain of command. 3. A policy should be in place that documents the employer's disciplinary process and protects employees from capricious actions. 4. Written policies and procedures indicate what therapies can be performed without on-line medical direction.	RW/FW/G
07.01.02	Management policies encourage ongoing communications between patient care personnel, communications personnel, pilots and mechanic(s) and ground transport personnel. 1. There are formal, periodic staff meetings for which minutes are kept on file. Minutes will include base identification (if multiple bases), who is presiding and discussion (versus agenda/topics only). There are defined methods, such as a staff notebook, for disseminating information between meetings. 2. For public or private institutions and agencies that contract with an aviation firm to provide medical services or an ambulance firm to provide ground transport services, there should be a policy that specifies the lines of authority between the medical management team and the aviation/ambulance management team.	RW/FW/G
07.01.03	Management sets guidelines for press-related issues and marketing activities.	RW/FW/G
07.01.04	Management ensures, through policy, that all transfers of patient care occur from a lower level of care to an equal or higher level of care except for elective transfers for patient convenience or returning a patient to a referring facility/residence.	RW/FW/G
07.01.05	Hospital or non-hospital based program director/administrator is oriented to FARs that are pertinent to the medical service and state ambulance rules and regulations pertaining to ground ambulances.	RW/FW/G
07.01.06	Hospital or non-hospital based program director/administrator is oriented to how management can affect aeronautical decision-making.	RW/FW
07.01.07	A Safety Program includes all disciplines and processes of the organization. A Safety Committee should meet at least quarterly with written reports sent to management and kept on file as dictated by policy. 1. Written variances relating to safety issues will be addressed in Safety Committee meetings.	RW/FW/G

	2. The committee will promote interaction between medical transport personnel, communications personnel, pilots, mechanics and drivers addressing safety practice, concerns, issues and questions. 3. Recommendations for operational and safety issues will be reviewed by management. 4. There should be a designated safety person for an air transport service. Ground transport services that are not affiliated with an air transports service should also have a designated safety person. 5. The Safety Committee is linked to CQI and risk management. 6. Aviation and ambulance related events (see Glossary) are identified and tracked to minimize risks.	RW/FW/G
07.01.08	Management ensures an appropriate utilization review process (some criteria do not apply to elective transports) based on: 1. Medical benefits to the patient. a. Timeliness of the transport as it relates to the patient's clinical status. b. Transport to an appropriate receiving facility: - Interfacility transports require physician referral/acceptance and confirmation of bed availability to ensure continuity of care and establish patient care parameters during the transport. Patient transfer protocols to comply with Federal requirements exist. - An appropriate receiving facility may include: * A hospital or facility where the patient has previously undergone specialized treatment and where the patient's previous medical records are located. * A hospital or facility where the patient's attending physician practices to ensure continuity of care. * A hospital or facility with a specialized level of care not available in the referring institution. * A facility at too great a distance for ground transport. c. On scene transports—The following types of criteria are used in the triage plan for on-scene transports to minimize overtriage: - Anatomic and physiological identifiers. - Mechanism of injury identifiers.	RW/FW/G RW

	- Situational identifiers. * Air vs. ground times. * Road conditions. * Entrapment or multiple injured.	
	2. Specialized medical transport personnel expertise and/or equipment available during transport that would otherwise not be available.	RW/FW/G
	3. Safety of the transport environment.	
	4. Cost of the transport.	
	a. Emergency transports do not require a guaranteed payment prior to transport.	RW/G
	b. Calling agents for non-emergent requests are assisted with information about the cost of the transport as well as alternative, more economical (and equally appropriate) means of transport, if available.	RW
	5. A structured, periodic review of transports (to determine transport appropriateness or that the mode of transport enhances medical outcome, safety or cost effectiveness over other modes of transport) performed at least semiannually and resulting in a written report. *(Medical outcome does not apply to elective transports.)*	RW/FW/G
	6. The following indicators may trigger a review of the record to determine the medical appropriateness of the transport based upon patients:	
	a. Who are discharged home directly from the Emergency Department, or discharged within 24 hours of admission.	RW
	b. Who are transported without an IV line or oxygen.	
	c. Upon whom CPR is in progress at referring location.	
	d. Who are not transferred from a critical care unit.	
	e. Who are "scheduled transports."	
	f. Who are air transported more than once for the same illness or injury within 24 hours.	
	g. Who are transported from the scene of injury with a trauma score of 15 or greater or fails to meet area-specific triage criteria for a critically injured trauma patient.	
	h. Who are treated at scene, but not transported.	
	i. Who are transported interfacility, and the receiving facility is not a higher level of care than the referring facility.	

	j. Who are transported from the scene of injury to any hospital which was not the closest appropriate and available trauma center (based on regional trauma plans, if present).	RW
	k. Who are flown initially by fixed-wing and transported from the airport to the receiving facility by helicopter.	RW/FW
	l. Who are ground transported with red lights and sirens.	G
	m. Who are served by an appropriate aircraft (time/distance/speed considerations etc.)	RW/FW
	n. Who are served by an appropriate team (i.e. ALS team used but patient requires critical care skills)	FW/FW/G
	o. Who are served by an appropriate ambulance that met the aircraft to continue transport with the level of care, equipment and supplies appropriate to the patient's specific needs.	FW
07.01.09	Management ensures that patient care records, meeting minutes, policies and procedures are stored according to hospital or agency policies and HIPAA regulations are indicative of the individual medical transport service's sensitivity to patient confidentiality.	RW/FW/G
	1. A record of patient care is completed, and a copy remains at the receiving facility for appropriate continuity of care.	RW/FW/G
	a. A policy outlines minimal requirements for items to be documented in the patient care records that includes:	RW/FW/G
	- Purpose of the transport	
	- Treatments, medications and patient's response to treatments and medications.	
	- Transport facilities (to and from) and whom report was given to at the receiving facility.	
	- Patient condition at certain predetermined altitudes.	RW/FW
	b. Records are stored according to hospital or agency medical records policies and are indicative of the individual medical transport service's sensitivity to patient confidentiality.	RW/FW/G
	2. Meeting minutes (Staff, Safety, QM meetings etc.) are kept on file.	RW/FW/G
	a. Minutes are dated, and personnel present are clearly identified by title (e.g., Director, RN, EMT-P, RRT).	
	3. A policy manual is available and familiar to all personnel.	RW/FW/G
	a. Policies are dated and signed by the appropriate manager(s).	

	b. Policies are reviewed on an annual basis as verified by dated manager's signature on a cover sheet or on respective policies.	
07.01.10	Management monitors and evaluates the quality and appropriateness of the medical transport service through an active Quality Management (QM) program, including the following: 1. At a minimum, reviews the periodic QM committee reports. 2. Encourages staff participation in the QM Program. 3. Promotes the effectiveness of the QM program through active participation by management in the program and by sponsoring active communication pathways bidirectionally between staff and management.	RW/FW/G

08.00.00 QUALITY MANAGEMENT (Includes performance improvement, continuous quality improvement, total quality management, etc)

08.01.00	There is an ongoing Quality Management (QM) program designed to objectively, systematically and continuously monitor, assess and improve the quality and appropriateness of patient care and safety of the transport service provided by the medical/ground interfacility service.	RW/FW/G ME
08.01.01	The QM program should be integrated and include activities related to patient care (including customer satisfaction), communications, and all aspects of transport operations and equipment maintenance pertinent to the service's mission statement.	RW/FW/G ME

08.02.00	The medical transport service has established patient care guidelines/standing orders that must be reviewed annually (for content accuracy) by management, QM Committee members and the Medical Director(s).	RW/FW/G ME

08.03.00	The Medical Director(s) is responsible for ensuring timely review of patient care, utilizing the medical record and pre-established criteria.	RW/FW/G ME

08.04.00	There is an established Quality Management Program in place, including the Medical Director(s) and management, to assure the process is implemented.	RW/FW/G ME
08.04.01	A QM flow chart diagram is developed demonstrating organizational structure in the QM plan and linkage to the Safety and Risk Management Committees.	RW/FW/G ME
08.04.02	The QM Program is linked with risk management, so that concerns raised through the risk management program can be followed up through the continuous quality improvement program. 1. There is a process to identify, document and analyze sentinel events, adverse medical events or potentially adverse events (near misses) with specific goals to improve patient safety and/or quality of patient care.	RW/FW/G ME

08.04.03	There is a written QM plan that includes the following components: 1. Responsibility/assignment of accountability. 2. Scope of care. 3. Important aspects of care, including clinical outcomes. 4. Operational processes such as financial outcomes and customer needs. 5. Indicators. 6. Thresholds for evaluation, which are appropriate to the individual service. 7. Methodology—the QI process or QI tools utilized. 8. Groups should be assembled to address each identified area of quality concern; these groups should include representatives of all disciplines involved, ensuring communication and problem-solving. 9. The plan should emphasize the quality of services offered is considered on a continuum, with constant attention to developing new strategies for improving; maintaining the status quo or achieving arbitrary goals are not considered the end-measures. 10. Evaluation of the improvement process.	RW/FW/G
08.04.04	There will be regularly scheduled QM meetings providing a forum for all disciplines involved in the medical transport service to present their needs and areas for improvement to each other.	RW/FW/G

08.05.00	The monitoring and evaluation process has the following characteristics:	RW/FW/G
08.05.01	Driven by important aspects of care, and operational practices identified by the medical transport service's QM plan.	RW/FW/G
08.05.02	Indicators and thresholds or other criteria are identified to objectively monitor the important aspects of care.	RW/FW/G
08.05.03	Evidence of QM studies and evaluation in compliance with written QM plan.	RW/FW/G
08.05.04	Evidence of action plans developed when problems are identified through QM and communication of these plans to the appropriate personnel.	RW/FW/G
08.05.05	Evidence of reporting QM activities through an established QM organizational structure.	RW/FW/G
08.05.06	Evidence of ongoing re-evaluation of action plans until problem resolution occurs.	RW/FW/G
08.05.07	Evidence of outcome studies should minimally include airway, fluid resuscitation and adherence to ACLS, PALS and NRP protocols.	RW/FW/G
08.05.08	Evidence of annual goals established prospectively for the QM program that provide direction for the work groups and that are quantitative. The emphasis must be on loop closure and resolution of problems within a finite time period.	RW/FW/G

08.06.00	Quarterly review should include (at a minimum, but may exceed) criteria based upon the important aspects of care/service. The following examples are encouraged:	RW/FW/G
08.06.01	Reason for transport	RW/FW/G
08.06.02	Mechanism of injury or illness.	RW/FW/G
08.06.03	Medical interventions performed or maintained. 1. Time of intervention consistently documented. 2. Patient's response to intervention documented. 3. Appropriateness of interventions performed or omission of needed interventions.	RW/FW/G
08.06.04	Patient's outcome (morbidity and mortality) at the time of arrival at destination 1. Patient's change in condition during transport.	RW/FW/G
08.06.05	Timeliness of the transport/Coordination of the transport from reception of request to liftoff of aircraft or ambulance enroute time.	RW/FW/G
08.06.06	Safety practices 1. Safety issues may be handled through the Safety Committee where a problem, incident or accident should be identified with detailed reporting and analysis of aircraft and vehicular incidents and resolution of issues with findings and action plans reported back to the QM committee. 2. QM personnel may collect data and refer to the Safety Committee for action and resolution.	RW/FW/G
08.06.07	Operational criteria to include at a minimum the following quantity indicators: 1. Number of completed transports. 2. Number of aborted and canceled flights/transports due to weather. 3. Number of aborted and canceled flights/transports due to maintenance. 4. Number of aborted and canceled flights/transports due to patient condition and use of alternative modes of transport.	RW/FW/G
08.06.08	For both QM and utilization review programs, there should be evidence of actions taken in problem areas and the evaluation of the effectiveness of that action.	RW/FW/G
08.06.09	For both QM and utilization review programs, there should be evidence of reporting of results through established organizational structure to the service's sponsoring institution(s) or agency (if applicable). For both QM and utilization programs, there is direct integration of the medical transport service's activities with the sponsoring institution or agency (if applicable).	RW/FW/G

09.00.00 INFECTION CONTROL

09.01.00	Policies and procedures addressing patient transport issues involving communicable diseases, infectious processes and health precautions for emergency personnel as well as for patients must be current with the local standard of practice, standards of OSHA and as published by the Center for Disease Control (CDC).	RW/FW/G
09.01.01	Policies and procedures must be written and readily available to all personnel of the medical transport service.	RW/FW/G
09.01.02	There is an Exposure Control Plan consistent with Federal OSHA Guidelines.	RW/FW/G
09.01.03	Additional medical and agency resources pertinent to infection control must be identified and made available in the policy manual to all medical transport personnel.	RW/FW/G
09.01.04	Education programs will include the institution's/service's infection control resources, programs, policies and CDC recommendations. Policies and procedures will be reviewed on an annual basis.	RW/FW/G
09.01.05	Education programs and policies regarding latex allergies may include: 1. Patients at risk for latex sensitivities and symptoms manifested by an allergic reaction to latex. 2. Maintaining a latex-safe environment. 3. Methods to minimize latex exposure to lessen risks of allergic reactions in medical personnel.	RW/FW/G

09.02.00	Medical transport teams transporting patients must practice preventive measures lessening the likelihood of transmission of pathogens. Policies and procedures address:	RW/FW/G
09.02.01	Personnel health concerns and records of: 1. Pre-employment and annual physical exams or medical screening to include: a. History of acute or chronic illnesses. b. Illnesses requiring use of medications that may cause drowsiness, affect judgment or coordination. c. Immunization history—transport team members are encouraged to have tetanus and hepatitis B immunization. Measles, mumps, and rubella (MMR) immunizations are encouraged for those born after 1957. d. Weight and lifting/strength/agility testing as appropriate to policies of the service. e. Determination of whether individual is fit for duty. 2. Annual tuberculosis testing (purified protein derivative). This includes medical personnel, pilots and mechanics. 3. International immunization history of the transport team is documented if appropriate to the scope of care.	RW/FW/G

09.02.02	Management of communicable diseases and infection control in the transport environment is outlined in policies. 1. Use of gloves, eye and mouth protection. Personal protective equipment is readily accessible in the aircraft/ambulance or issued to the medical transport team. 2. Sharps disposal container for contaminated needles and collection container for soiled disposable items on the aircraft/ambulance. 3. Cleaning and disinfecting with appropriate disinfectant of the patient cabin area, equipment, and personnel's soiled uniforms. 4. Mechanism for identifying those at risk for exposure to an infectious disease. 5. A plan for communication between the medical transport service personnel, EMS providers, and hospital when exposure is suspected/confirmed to include what follow-up is necessary. a. Written notification should go out in an expedient manner. b. Follow-up is documented. 6. A policy for special precautions when transporting patients with known infectious diseases. a. There is also a method to verify patient's immunization history for international transport. b. Blood specimens or other potentially infectious materials should be placed in a leakproof, sealed container during transport. c. Disposal of contaminated materials from the aircraft or ambulance meets Federal OSHA Guidelines. 7. Proper cleaning or sterilization of all appropriate instruments or equipment. 8. Hand washing before and after each invasive patient intervention and after removing gloves. a. When hand washing facilities are not available, antiseptic hand cleaners or towelettes should be used. b. If antiseptic hand cleaners or towelettes are used, hands should be washed as soon as feasible with soap and running water. 9. Management maintains confidential records related to bloodborne pathogens including exposure incidents, post-exposure follow-up, hepatitis B vaccination status and training for all employees with occupational exposure.	RW/FW/G

	10. A policy addresses access to post exposure prophylaxis (PEP) medications for HIV, meningococcal infections, etc. The PEP medications should be available in a timely manner for all team members. 11. Where there is likelihood of occupational exposure. The following are prohibited: eating, drinking, applying cosmetics or handling contact lenses. 12. Food and drink will not be stored where blood or other potentially infectious materials are present. If the service performs transports with long in-flight times, there should be a policy to address the nutritional needs of patients and personnel.	

ROTORWING STANDARDS

10.00.00 CERTIFICATE OF THE AIRCRAFT OPERATOR—Certificate holder must meet all Federal Aviation Regulations (FARs) or national/international regulations specific to the operations of the medical service in the country of residence, as applicable. This includes a FAR Part 135 Certificate (public service medical transport agencies are included in this requirement) or pertinent operating certificate if outside of the U.S., and Ambulance Operations Specifications specific to EMS operations. The transport service demonstrates compliance with the legal requirements and regulations of all local, state and federal agencies under whose authority it operates.

11.00.00 WEATHER AND WEATHER MINIMUMS

11.01.00	Visual Flight Rules (VFR) Weather Issues
11.01.01	VFR weather minimums should be specified for day and night local, and day and night cross country.
11.01.02	The "local flying area" should be determined by the operator based upon the operating environment.
11.01.03	There is a system for obtaining pertinent weather information. 1. The pilot in command (PIC) is responsible for obtaining weather information according to policy that should address at a minimum: a. Routine weather checks. b. Weather checks during marginal conditions. c. Weather trending. 2. Communication between pilots, medical personnel, and communication specialists at shift change regarding the most current and forecasted weather is part of a formal briefing.
11.01.04	VFR "response" weather minimums—Minimums to begin a transport should be no less than: **CONDITIONS** **CEILING** **VISIBILITY** Day/local 500 1 mile Day/Xcountry 1000 ft. 1 mile Night/local 800 ft. 2 miles Night/Xcountry 1000 ft. 3 miles *Recognizing that many services utilize a lower ceiling and higher visibility; 800 ft. and 2 miles is also an acceptable minimum for Day/Xcountry.*
11.01.05	Policies include provisions for patient care and transport alternatives in the event that the aircraft must use alternate landing facilities due to deteriorating weather.
11.01.06	There is a weather turn-down policy that addresses how the program interfaces with other air medical services in the same coverage area to alert them of a weather turn-down and to discourage “shopping” by first responders.

11.01.07	A policy of the certificate holder specifies an appropriate training program for new pilots based on the pilot's experience, flight time, local environment and personal adaptation. An evaluation tool applied individually to each new pilot should define the time frame. Strong consideration should be given to higher weather minimums for new pilots.

11.02.00	IFR Weather Issues - When transitioning to an off-airport site after an instrument approach, the following should apply:
11.02.01	Local VFR weather minimums should be followed if within a defined local area and if the route and off-airport site are familiar.
11.02.02	Cross country VFR weather minimums should be followed if not in defined local area or if the pilot is not familiar with route and off-airport site.

12.00.00 PILOT PERSONNEL

12.01.00	Staffing
12.01.01	There should be a minimum of four (4) flight-ready pilots permanently assigned per single-pilot aircraft which is available 24 hours a day. Temporary staffing by fewer pilots is permitted for no more than 6 months, while finding and training a replacement pilot provided such staffing assures FAA crew rest requirements. No fewer than six permanently assigned pilots are required for two-pilot operations at a service that is available 24 hours a day. It is encouraged to have eight (8) pilots or four (4) two-pilot crews for two-pilot operations at a service that is available twenty-four hours a day. This will be pro-rated for services that fly less than 24 hours per day.
12.01.02	Scheduling practices reflect consideration for minimizing duty-time fatigue, length of shift, number of shifts per week, and day-to-night rotation.
12.01.03	Physical well-being is promoted by the employer through no-smoking and wellness programs.

12.02.00	Operations facilities should include a quiet area for flight planning, training, and record-keeping.

12.03.00	Pilot determines that the aircraft is in airworthy condition.
12.03.01	Prior to the first flight of shift of duty, the pilot: 1. Verifies that maintenance is not due on the aircraft. 2. Performs a pre-flight inspection according to the manufacturer's checklist.
12.03.02	A walk-around inspection of the aircraft is performed prior to each takeoff.

12.04.00	Pilot in Command qualifications
12.04.01	Must possess at least a commercial rotorcraft-helicopter and instrument helicopter rating.
12.04.02	Must possess 2000 total flight hours with a minimum of 1500 helicopter flight hours prior to assignment with a medical service with the following stipulations. 1. At least 1000 of those hours must be as PIC in rotorcraft. 2. At least 100 of those hours must be unaided night-flight time as PIC. 3. A minimum of 500 hours of turbine time—1000 hours of turbine time strongly encouraged.
12.04.03	ATP certificate and instrument currency is strongly encouraged.
12.04.04	Pilot training requirements. 1. Initial training should, at a minimum, consist of the following and be verified by written criteria, outlines or curriculum. a. Terrain and weather considerations specific to the program's geographic area. b. Orientation to the hospital or health care system associated with the medical service. c. Orientation to infection control, medical systems installed on the aircraft and patient loading and unloading procedures. d. Orientation to the EMS and public service agencies unique to the specific coverage area. e. Instrument Meteorological Conditions (IMC) recovery procedures by reference to instruments or IFR currency. f. Minimum requirements for specific training in aircraft type. - Factory school or equivalent (ground and flight). - 5 hours as pilot in command or at the controls prior to EMS missions if transitioning from a single to a single; from a twin to a single; or from a twin to a twin. - 10 hours as pilot in command or at the controls prior to EMS missions if transitioning from a single to a twin engine aircraft. g. Minimum requirements for area orientation. - 5 hours area orientation of which 2 hours must be at night as pilot in command or at the controls prior to EMS missions. - Training hours in aircraft type and area orientation may be combined depending on the experience and background of the pilot.

h. Aeronautical decision-making (ADM) and Crew Resource Management (CRM) which includes:

- Judgment and decision-making.

- Risk assessment.

- Human factors.

- Pre-flight and in-flight stress management (Stress management in all phases of flight).

- Interpersonal communications between two crew members (for two-pilot crews)

  * Delegation of responsibilities.

  * Prioritization and crew coordination.

- Workload management.

- Cockpit distractions.

- Situational awareness.

2. Recurrent training minimally includes the following and is verified by written criteria, outlines or curriculum:

a. FAR Part 135 training requirements.

b. IMC recovery procedures annually.

c. Flight by reference to instruments annually or IFR currency if operating IFR

d. Annual recurrent training should also include:

- Local routine operating procedures.

- Area terrain hazards.

- Review of landing sites at referring and receiving hospitals or any operational changes.

- Scene operations procedures.

- Review of landing sites at referring and receiving hospitals or any operational changes.

- Scene operations procedures.

	- Aeronautical decision-making (ADM) or Crew Resource Management (CRM), which includes: * Judgment and decision-making. * Risk assessment. * Human factors. * Pre-flight and in-flight stress management (Stress management in all phases of flight). * Interpersonal communications between two crew members (for two-pilot crews) which includes: - Delegation of responsibilities. - Prioritization and crew coordination. * Workload management. * Cockpit distractions. * Situational awareness. e. Annual review of infection control, medical systems and installations on the aircraft, patient loading and unloading procedures.

12.05.00	Relief Pilot - A planned and structured orientation must be provided to the relief pilot with criteria to be based on the mission statement.
12.05.01	The orientation must, at a minimum, contain: 1. Role responsibilities. 2. Area, weather, terrain, and program-specific orientation.
12.05.02	Currency should be determined prior to the beginning of operations.

13.00.00 MAINTENANCE

13.01.01	There must be a mechanic primarily assigned to each specific aircraft who must be FAR 135 qualified to maintain the aircraft operated by the medical service and who possesses 2 years of rotorcraft experience as a certified airframe and powerplant mechanic prior to assignment with the medical service. 1. The mechanic primarily assigned to a specific aircraft must be factory schooled or equivalent in an approved program on the type specific airframe, the powerplant and all related systems. The primarily assigned mechanic provides direct (on-site during maintenance) supervision to other mechanics assisting with maintenance that may not have this level of experience or training.

	2. All mechanics should receive formal training on human factors and maintenance error reduction. 3. A policy is written that grants the mechanic permission (without fear of reprimand) to decline from performing any maintenance critical to flight safety (that he has not been appropriately trained for), until an appropriately trained mechanic is available to directly supervise or assist. 4. Annual review of infection control, medical systems and installations on the aircraft, patient loading and unloading procedures for all mechanics. 5. At least one technician is available for each service with formal training on the aircraft electrical system and formal training on the autopilot system.
13.01.02	Training related to the interior modification of the aircraft. 1. Should prepare the mechanic for inspection of the installation as well as the removal and reinstallation of special medical equipment. 2. Supplemental training on service and maintenance of medical oxygen systems and a policy as to who maintains responsibility for refilling the medical oxygen systems.

13.02.00	Staffing of Mechanics
13.02.01	A single mechanic on duty or on call 24 hours a day should be relieved from duty for a period of at least 24 hours during any 7 consecutive days, or the equivalent thereof, within any 1 calendar month. In addition: 1. It is strongly encouraged that mechanics should not be permitted to work more than 14 continuous hours. 2. Following extended maintenance such as 12–14 continuous hours, it is strongly recommended that a mechanic be scheduled for 8 hours of uninterrupted rest.
13.02.02	1.5 mechanic full-time equivalents are encouraged for a 24 hour aircraft. For more than one aircraft, staffing should be appropriate to the hours the aircraft are in service, the availability of backup or on-call mechanics and the number of bases necessitating travel time.
13.02.03	Back-up personnel should be provided to the mechanic during periods of extensive scheduled or unscheduled maintenance or inspection. Complexity of the aircraft and an increased number of flight hours may be considerations for increased mechanic staffing.

13.03.00	Maintenance Facilities
13.03.01	There must be a mechanism/procedure for alerting flight and medical personnel when the aircraft is not airworthy.

13.03.02	A hangar or similar-type facility should be available for the mechanic to perform heavy maintenance.
13.03.03	Specific workshop area criteria - Workshop area should be in close proximity to the helipad. A workshop area is defined as an area where a desk, shelves, workbench, storage, and telephone are available. 1. Workshop area should be climate controlled (heated and cooled) to avoid adverse effects of temperature extremes. 2. Appropriate ventilation will be installed to clear the facility of hazardous fumes (such as fuels, solvents, oils, adhesives, cleaners) common to the aviation environment. 3. Workshop area should be well lit with the appropriate number of electrical outlets. 4. Floodlights should be available on the helipad – fixed and/or portable. Luminescence level will be equal to the modern office environment. 5. Hand cleaners, disinfectants and eye wash bottles are to be available. 6. Tools are locked in a secured area when not in use with a method to ensure tools are not left in the aircraft following maintenance procedures.
13.03.04	Storage of equipment, parts, and tools is orderly and clear of fire hazards and in compliance with OSHA and Environmental Protection Agency (EPA) regulations.
13.03.05	There is a system to periodically track timed parts and expiration dates on shelf items. 1. All parts are properly tagged and environmentally protected. a. Parts are wrapped or boxed in a manner that prevents damage or contamination. b. Open ends of fabricated and bulk lines and hoses are capped or covered. c. Serviceable parts are kept in a separate area from unserviceable parts. 2. Parts received are inspected to ensure an approved vendor provided them and that the required certification documentation is provided.
13.03.06	Airworthiness directives and service bulletins are coordinated to ensure they are accomplished on time.
13.03.07	There is a method to track all deferred maintenance items and coordinate all requirements to support closure.
13.03.08	There is a method to track tool calibration status. 1. Tools requiring calibration have documentation or tags on the tools that list the last calibration date and the next due date.

	2. If employee-owned tools are permitted on the premises, there is a system to ensure that these tools are currently calibrated.
13.03.09	Maintenance Distractions—Policy should be written and implemented to reduce the likelihood of interruptions and distractions to the mechanic, such as: 1. The mechanic's phone should have voice mail or messaging. 2. Aircraft tours, public relations events, janitorial services, etc., should be postponed or cancelled if involving the aircraft while maintenance is being performed. 3. Mechanic's work site (hangar-helipad) should not be used as a gathering place/social area by the flight team while maintenance is being performed. 4. All calls and inquiries regarding the aircraft status will be screened.

14.00.00 HELIPAD

14.01.00	Primary, receiving hospital(s) helipad(s) must:
14.01.01	Be marked (with a painted H or similar landing designation).
14.01.02	Be identified by a strobelight or heliport beacon. 1. A beacon may not be necessary when the location of the hospital can be readily determined by the lights(s) on a prominent building or landmark near the helipad.
14.01.03	Have perimeter lighting for night operations.
14.01.04	Have a device to identify wind direction and velocity (i.e., windsock). 1. The wind indicator should be located in an illuminated area or lighted for night operations.
14.01.05	Have at least one clear final approach and takeoff area (FATO) according to the FAA Advisory Circular entitled Heliport Design Advisory Circular, AC 150/5390-2A which also includes: 1. Takeoff and landing area length and width, or diameter, should be 1.5 times the overall length of the helicopters that utilize the helipad. 2. Surface of the helipad should be clear of objects, including parked helicopters. a. A parking area should be provided if more than one helicopter at a time is to be accommodated.
14.01.06	Have at least two approach and take-off paths, oriented to be 90-180 degrees apart.
14.01.07	Have adequate fire retardant chemicals readily available.
14.01.08	Have documented, ongoing safety programs for those personnel responsible for loading and unloading patients or working around the helicopter on the helipad.

14.01.09	Have evidence of adequate security—A minimum of one person to prevent bystanders from approaching the helicopter as it lands or lifts off, or perimeter security such as fencing, roof top etc. A means must exist to monitor the primary helipad if accessible to the public (i.e., through direct visual monitoring or closed circuit TV).
14.01.10	There should be a policy to address more than 1 running aircraft at any one time and a policy to address permission to land or takeoff from the helipad.
14.01.11	There is limited distance from the helipad to the hospital (positioned at the closest, safe location) in order to minimize the effects to the patient. 1. Patient monitoring should continue without interruption between the helipad and the hospital. 2. Emergent patient interventions can be performed as needed between helipad and hospital.
14.01.12	Hearing protection is provided for all personnel who assist with patient rapid loading/ unloading.
14.01.13	Evidence of a system to communicate changes to the helipad for users of the primary helipad(s) must be available (construction, additions, obstructions, etc.) and may include a pilot's memo book or a database in the communications center.

14.02.00	Occasional or episodic use helipad.
14.02.01	Helipads used occasionally (at referring or receiving hospitals). Evidence of a system to communicate changes to the occasionally used helipads (at referring or receiving facilities, pre-designated helistops, fueling pads, etc.) must be available to users of the helipads and may include a pilot's memo book or a database in the communications center. Helipads used occasionally should be reviewed periodically or during normal operations for the following, and changes are noted in the database or in other means of communications to describe: 1. Obstructions and hazards. 2. Lighting for night operations. 3. Approach and departure obstacles and/or routes. 4. Special procedures or considerations (i.e. noise abatement). 5. Adequate security to prevent bystanders from approaching the helicopter as it lands and lifts off. 6. Communications requirements. 7. Where adequate fire retardant chemicals are readily available.

14.03.00	Temporary scene landings should be:

14.03.01	Secured.
14.03.02	Lit at the perimeter with handheld floodlights, emergency vehicles or other lighting source to define the designated landing area at night.
14.03.03	Free of obstructions and ground debris.
14.03.04	Appropriate in size to the type of aircraft.

15.00.00 REFUELING

15.01.00	A policy should require that the pilot or designee stay with the aircraft when refueling and verify fuel type.

15.02.00	On-site refueling
15.02.01	A policy clearly identifies who has responsibility for quality control checks on the fuel system.
15.02.02	There is a procedure to ensure the fuel is free of contaminants upon dispensing into the aircraft.
15.02.03	Procedures clearly demonstrate safe practices and fire prevention considerations at the on-site refueling facility.
15.02.04	There is a policy regarding on-site handling and disposal of waste fuel, oil and any other hazardous materials.

15.03.00	The fuel system is approved by the Environmental Protection Agency (EPA).

16.00.00 COMMUNITY OUTREACH

16.01.00	Integration into existing EMS and interfacility networks.
16.01.01	The medical service should be licensed/permitted/certified by the appropriate state agency if applicable.
16.01.02	The medical service must interface (through telephone calls and outreach programs) with existing communications, public safety and law enforcement agencies, as well as with local off-line medical direction, as appropriate within a scene response area.
16.01.03	The medical service must ensure continuity of care and expeditious treatment of patients by utilizing regional EMS medical protocols, whenever possible.
16.01.04	The medical service should facilitate integration of all emergency services and transport modalities by supporting joint continuing education programs and operational procedures to include but not be limited to: 1. Hazardous materials recognition and response. 2. Disaster response/triage. 3. Advanced trauma care.

	4. Interface of the medical team with other regional resources. 5. Crash recovery (e.g., extricating a person from specific types of aircraft and knowledge of location of certain components within an airframe of specific aircraft make and model)
16.01.05	The service should promote a timely feedback to referring agency, facility or physician about patient outcome and treatment rendered before, during, and after transport where appropriate.
16.01.06	A planned and structured safety program must be provided to public safety/law enforcement agencies and hospital personnel who interface with the medical service that includes: 1. Identifying, designating and preparing an appropriate landing zone (LZ). 2. Personal safety in and around the helicopter for all ground personnel. 3. Procedures for day/night operations, conducted by the medical team, specific to the aircraft: a. High and low reconnaissance. b. Two-way communications between helicopter and ground personnel to identify approach and departure obstacles and wind direction. c. Approach and departure path selection. d. Procedures for the pilot to ensure safety during ground operations in a LZ with or without engines running. e. Procedure for the pilot to have ground control during engine start and departure from a landing site.
16.01.07	Records are kept of initial and recurrent safety training of prehospital, referring and receiving ground support personnel.

FIXED WING STANDARDS

17.00.00 CERTIFICATE OF THE AIRCRAFT OPERATOR—Certificate holder must meet all Federal Aviation Regulations (FARs) or national/international regulations specific to the operations of the medical service in the country of residence, as applicable. This includes a FAR Part 135 Certificate (public service medical transport agencies are included in this requirement) or a pertinent operating certificate if outside of the U.S., and Ambulance Operations Specifications specific to EMS operations.

18.00.00 AIRCRAFT

18.01.00	The aircraft should be a twin-engine or turbine single engine aircraft appropriate to the mission statement and scope of care of the medical service.
18.01.01	Pressurized aircraft are strongly preferred for medical transports. A physician familiar with altitude physiology should be consulted or written policies address altitude limits for specific disease processes of the patient to be transported in an unpressurized cabin.
18.01.02	Evidence of adequate security—A means must exist to monitor the aircraft (i.e., through direct visual monitoring or closed circuit TV) or the aircraft must be in a secured location with locked perimeter fencing or hangar available.

19.00.00 WEATHER

19.01.00	VFR or IFR flight plans are filed or communications center does flight following with every takeoff and immediately post-landing.
19.01.01	There is a system of obtaining pertinent weather information. 1. The pilot in command (PIC) is responsible for obtaining weather information according to Policy which should address at a minimum: a. Routine weather checks. b. Weather checks during marginal conditions. c. Weather trending. 2. Communication between pilots, medical personnel, and communication specialists regarding the most current and forecasted weather is part of a formal briefing.

20.00.00 PILOT PERSONNEL

20.01.00	Staffing – The pilot must be readily available within a defined call-up time to ensure expeditious and timely response. There must be a policy describing the availability of pilots.

20.01.01	Scheduling practices reflect consideration for minimizing duty-time fatigue, length of shift, number of shifts per week and day to night rotation. 1. The certificate holder has a policy regarding pilots on call with the use of remote paging devices. The policy indicates how the use of pagers impacts duty-time limitations.
20.01.02	Physical well-being is promoted by the employer through no-smoking and wellness programs.
20.01.03	Operations facilities should include a quiet area for flight planning, training, and record-keeping.

20.02.00	Pilot determines that the aircraft is in airworthy condition.
20.02.01	Prior to the first flight of shift of duty, the pilot: 1. Verifies that maintenance is not due on the aircraft. 2. Performs a pre-flight inspection according to the manufacturer's checklist.
20.02.02	A walk-around inspection of the aircraft is performed prior to each takeoff.

20.03.00	Pilot in command qualifications
20.03.01	Must possess 2000 airplane flight hours prior to assignment with a medical service with the following stipulations: 1. At least 1000 of those hours must be as PIC in an airplane. 2. At least 500 of those hours must be multi-engine airplane time as PIC. (Not required of single-engine turbine aircraft) 3. At least 100 of those hours must be night flight time as PIC.
20.03.02	PIC must be ATP rated; SIC is strongly recommended to be ATP rated and must complete an operator approved SIC training.

20.04.00	Pilot Training requirements
20.04.01	Initial training should, at a minimum, consist of the following and be verified by written criteria, outlines or curriculum. 1. Terrain and weather considerations specific to the program's geographic area. 2. Orientation to the hospital or health care system associated with the medical service. 3. Orientation to infection control, medical systems installed on the aircraft and patient loading and unloading procedures.

4. Aeronautical decision-making (ADM) or Crew Resource Management (CRM), which includes:

a. Judgment and decision-making.

b. Risk assessment.

c. Human factors.

d. Stress management for all phases of flight.

e. Interpersonal communications between two crew members (for two-pilot crews), which includes:

- Delegation of responsibilities.

- Prioritization and crew coordination.

f. Workload management.

g. Cockpit distractions.

h. Situational awareness.

5. Minimum requirements for specific training in aircraft type:

a. 25 hours in specific make and model of aircraft before flying as PIC on patient missions or completion of a commercially established training program for the specific make and model aircraft and the successful completion of the check ride. (Those aircraft identified in FAR 135-3B as being similar in design and operation may be considered same make and model.)

6. Annual recurrent training to minimally include the following and verified by written criteria, outlines or curriculum.

a. Part 135 instrument currency as required by FAR 135.297.

b. Annual review of infection control, medical systems installed on the aircraft, and patient loading and unloading procedures.

c. Aeronautical decision-making (ADM) or Crew Resource Management (CRM), which includes:

- Judgment and decision-making.

- Risk assessment.

- Human factors.

- Stress management for all phases of flight.

- Interpersonal communications between two crew members (for two-pilot. crews), which includes:

	* Delegation of responsibilities. * Prioritization and crew coordination. - Workload management. - Cockpit distractions. - Situational awareness.

21.00.00 POLICIES

21.01.00	There is an established policy to ensure that the pilot is notified of any add-on equipment for weight and balance considerations.
21.02.00	Policy and outline of passenger safety briefings.

22.00.00 MAINTENANCE

22.01.00	The mechanic primarily assigned to a specific aircraft must possess 2 years of airplane experience as a certified airframe and power plant mechanic prior to assignment with a medical service.
22.02.00	There must be a mechanic primarily assigned to each specific aircraft who must be FAR 135 qualified to maintain the aircraft operated by the medical service and who possesses 2 years of experience as a certified airframe and powerplant mechanic prior to assignment with the medical service.
22.02.01	The mechanic primarily assigned to a specific aircraft must be factory schooled or equivalent in an approved program on the type specific airframe, the powerplant and all related systems. The primarily assigned mechanic provides direct (on-site during maintenance) supervision to other mechanics assisting with maintenance who may not have this level of experience or training.
22.02.02	All mechanics should receive formal training on human factors and maintenance error reduction.
22.02.03	A policy is written that grants the mechanic permission (without fear of reprimand) to decline from performing any maintenance critical to flight safety (that he has not been appropriately trained for), until an appropriately trained mechanic is available to directly supervise or assist.
22.02.04	Annual review of infection control, medical systems and installations on the aircraft, patient loading and unloading procedures for all mechanics.
22.02.05	There will be at least one technician available for each service with formal training on the aircraft electrical system and formal training on the autopilot system.

23.00.00 Training related to the interior modification of the aircraft

23.01.00	Should prepare the mechanic for inspection of the installation as well as the removal and reinstallation of special medical equipment.

23.02.00	Supplemental training on service and maintenance of medical oxygen systems and a policy as to who maintains responsibility for refilling the medical oxygen system.

24.00.00 STAFFING OF MECHANICS

24.01.00	A single mechanic on duty or on call 24 hours a day should be relieved from duty for a period of at least 24 hours during any 7 consecutive days, or the equivalent thereof, within any 1 calendar month. In addition: 1. It is strongly encouraged that mechanics should not be permitted to work more than 14 continuous hours. 2. Following extended maintenance such as 12–14 continuous hours, it is strongly recommended that a mechanic should be scheduled for 8 hours of uninterrupted rest.
24.01.01	For more than one aircraft, staffing should be appropriate to the hours the aircraft are in service, the complexity of the aircraft, and the number of bases necessitating travel time. Back-up personnel should be provided to the mechanic during periods of extensive scheduled or unscheduled maintenance or inspection.

25.00.00 MAINTENANCE FACILITIES

25.01.00	There must be a mechanism/procedure for alerting flight and medical personnel when the aircraft is not airworthy.

25.02.00	The maintenance facilities are large enough to accommodate the aircraft, adequately lighted and properly equipped for required maintenance.

25.03.00	Specific workshop area criteria
25.03.01	Workshop area should be in closer proximity to the hangar. A workshop area is defined as an area where a desk, shelves, workbench, storage and telephone are available.
25.03.02	Workshop area should be climate controlled (heated and cooled) to avoid adverse affects of temperature extremes.

25.03.03	Appropriate ventilation will be installed to clear the facility of hazardous fumes (such as fuels, solvents, oils, adhesives, cleaners) common to the aviation environment.
25.03.04	Work area should be well lit with the appropriate number of electrical outlets.
25.03.05	Floodlights should be available in the hangar or on the tarmac – fixed and/or portable. Luminescence level will be equal to the modern office environment.
25.03.06	Hand cleaners, disinfectants and eye wash bottles are to be available.
25.03.07	Tools are locked in a secured area when not in use to ensure tools are not left in the aircraft following maintenance procedures.

25.04.00	Storage of equipment, parts, and tools is orderly and clear of fire hazards and in compliance with OSHA and EPA regulations.

25.05.00	There is a system to periodically track timed parts and expiration dates on shelf items. 1. All parts are properly tagged and environmentally protected. a. Parts are wrapped or boxed in a manner that prevents damage or contamination. b. Open ends of fabricated and bulk lines and hoses are capped or covered. c. Serviceable parts are kept in a separate area from unserviceable parts. 2. Parts received are inspected to ensure an approved vendor provided them and that the required certification documentation is provided.

25.06.00	Airworthiness directives and service bulletins are coordinated to ensure they are accomplished on time.

25.07.00	There is a method to track all deferred maintenance items and coordinate all requirements to support closure.

25.08.00	There is a method to track tool calibration status.
25.08.01	Tools requiring calibration have documentation or tags on the tools that list the last calibration date and the next due date.
25.08.02	If employee-owned tools are permitted on the premises, there is a system to ensure that these tools are currently calibrated.

25.09.00	Maintenance Distractions—Policy should be written and implemented to reduce the likelihood of interruptions and distractions to the mechanic, such as:
25.09.01	The mechanic's phone should have voice mail or messaging.
25.09.02	Aircraft tours, public relations events, janitorial services, etc., should be postponed, if involving the aircraft, while maintenance is being performed.
25.09.03	Mechanic's work site (hangar) should not be used as a gathering place/social area by the flight team while maintenance is being performed.
25.09.04	All calls and inquiries regarding the aircraft status will be screened.

26.00.00 REFUELING

26.01.00	A policy clearly identifies who has responsibility for quality control checks on the fuel system. Policy should require that the pilot or designee stay with the aircraft when refueling and verify fuel type.

26.02.00	There is a procedure to ensure the fuel is free of contaminants upon dispensing into the aircraft.

26.03.00	Procedures clearly demonstrate safe practices and fire prevention considerations at the on-site refueling facility.

27.00.00 COMMUNITY OUTREACH

27.01.00	Integration into existing interfacility networks.
27.01.01	The medical service should be licensed/permitted/certified by the appropriate state agency if applicable.
27.01.02	The medical service must ensure continuity of care and expeditious treatment of patients. 1. Patients are only transferred to ground transport units (at sending and receiving destination) when care can be continued by the same level or higher level ground personnel as that provided by medical personnel and when ordered by the referring/receiving physician or medical director(s).
27.01.03	The service should promote timely feedback (to referring agents) as to patient outcome and treatment rendered before, during and after transport where appropriate.

GROUND INTERFACILITY STANDARDS

28.00.00 AMBULANCES—Vehicles must meet KKK 1822A guidelines or state licensure requirements in place at the time the ambulance was built.

28.01.00	Licensure - The ambulance will be licensed in accordance with the applicable state laws.
28.02.00	The ambulance must have adequate interior lighting equipment to ensure complete observation of the patient and monitoring equipment used on the patient.
28.03.00	The ambulance must have the capability of shielding the cab from light in the passenger compartment during nighttime use.
28.04.00	The ambulance must be equipped with a heater/air conditioner system capable of maintaining comfortable interior temperature during all temperature extremes of the coverage area.
28.05.00	The ambulance must have a fuel capacity to provide no less than a 175-mile range.
28.06.00	The ambulance must have ground clearance of at least 6 inches at gross ambulance weight.
28.07.00	The ambulance must be able to fully perform at ambient temperatures minus 30 degrees to 122 degrees F.
28.08.00	The ambulance must be marked clearly to show the name of the service in letters not less than 3 inches high, and to allow identification of the service from the sides and rear of the ambulance.
28.09.00	Lights and Sirens 1. The ambulance must be equipped with a siren capable of emitting sound that is audible under normal conditions from a distance of not less than 500 feet. 2. The ambulance must have at least one light capable of displaying red light (with a 360 degree capacity) or strobe lights that are visible under normal atmospheric conditions from a distance of 500 feet from the front of the ambulance.

28.10.00	The ambulance is equipped with road hazard equipment to be used in the event of a breakdown.
28.10.01	Road hazard equipment should minimally include: 1. Flashlight. 2. Road marking device – cones, flares or triangles, for example. 3. Tools, wrench, screwdriver, hammer. 4. Leather heavy-duty gloves. 5. Reflective vests. 6. Hatchet or band saw (in case of a fallen tree). 7. Equipment for dealing with snow as appropriate to the environment.

28.11.00	Communications—There is a means of communication other than a cell phone between:
28.11.01	The driver position and patient compartment.
28.11.02	The ambulance and medical control.
28.11.03	The ambulance and public safety.

29.00.00 QUALIFICATION OF DRIVERS—All persons who drive the ambulance should be at a minimum certified as an Emergency Medical Technician Basic (EMT-B) or have equivalent training. Drivers must have a minimum of 2 years experience as a licensed driver or operator. Drivers are required to complete defensive driving training program that is developed by the provider or outside agency. This training program should be repeated for each driver at least every 4 years and should include an Emergency Vehicle Operations Course (EVOC) or equivalent, which consists of at least 4 hours of reviewed ambulance driving under emergency conditions.

30.00.00 MAINTENANCE AND SANITATION

30.01.00	Each ambulance must be maintained in full operating condition and in good repair, and documentation of maintenance must be kept on file. In addition, there should be a regular documented preventive maintenance program in accordance with the requirements of the manufacturer and other regulatory agencies.

30.02.00	There should be no evidence of damage penetrating the body of the ambulance or holes that may allow exhaust gases to enter the patient compartment.

30.03.00	The interior of the ambulance, including all storage areas, must be kept clean, in compliance with OSHA (or equivalent) standards, so as to be free of dirt, grease and other biohazardous or offensive matter.

30.04.00	The ambulance must be cleaned after each patient transport as appropriate. All interior surfaces in the ambulance and medical equipment surfaces that came in contact with the patient must be immediately cleaned and disinfected or disposed of in a secure, biohazard container.

31.00.00 MECHANIC - The mechanic should have experience as a certified mechanic in a shop environment, or the maintenance should be done at a certified shop specific for the make and model of the chassis.

32.00.00 POLICIES

32.01.00	There is a policy that addresses speed limitations and all aspects of traffic law compliance that pertains to ambulance operations. When responding with lights and sirens, the ambulance should come to a complete stop at intersections as appropriate. Red lights and sirens should only be used when time is critical to the patient's outcome.

32.02.00	Policy that addresses a procedure to follow when the ground ambulance comes upon a scene of an accident that is consistent with state regulations.

32.03.00	Policy that outlines a procedure to follow when the ground ambulance is involved in an accident with damage and injuries.

32.04.00	Policy that outlines the procedure to follow when the ambulance breaks down.

32.05.00	Policy dealing with safety aspects of driving. 1. Driver duty and rest time. 2. Inclement weather and responsibility for aborting the transport if there is a safety concern.