



FIRST EDITION ACCREDITATION STANDARDS
of the
Commission on Accreditation of Medical Transport Systems Global

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(CAMTS Global)

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MISSION STATEMENT

CAMTS Global provides availability and focuses on international policies and practices.

The organisation was created
to better serve our international medical transport providers
recognizing not only cultural differences
but government restrictions and laws of other countries
while maintaining the integrity of the accreditation process worldwide.

VISION

Patients receive continuous, state of the art medical care
through every mode of transportation
while being provided with the utmost level of safety
to maximize the medical outcome.
Our accredited medical services act as
competent, professional, respectful and passionate advocates for patients.

VALUES



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PREAMBLE

The Commission on Accreditation of Medical Transport Systems Global Accreditation Standards (CAMTS Global) – First Edition - reflects the dynamic evolution in healthcare and the medical transport professions. Commitment to patient care and safety of the transport environment form the foundation of these voluntary standards. This first edition has been vetted by the medical transport profession in subsequent drafts over the past year. In Section 03.00.00, the Types of Care are defined by the qualifications of the medical team along with equipment, medications, interventions and quality metrics, all of which are determined as pertinent to the service’s mission and scope of service (which includes the scope of care). A service is not required to meet each criterion listed unless it is part of the service’s scope of care. The Board also recognizes that in some cases, a specific type of care may not be available, but the patient still needs transport. These classifications are not meant to prohibit any transport but are meant to serve as criteria for the best available care. It is also important to know that accreditation decisions are based on substantial compliance with the accreditation standards – not 100% compliance. The comprehensive nature of the standards may lead to various interpretations, but the emphasis is on outcomes, especially on standards that address education, safety, and Quality Management.

This First Edition addresses not only air medical transport but also other modes of medical transport. The term “surface vehicle” used throughout this document refers to vehicles such as ground ambulance, boat, snowmobile, all-terrain vehicle (ATV), etc. being used for patient care and transport. The standards apply to all such vehicles as appropriate to the type of service and limitations of the actual vehicle. Highly specialized vehicles may not meet all the standards, and the CAMTS Global Board will consider that as part of any accreditation decisions.

Due to the diversity of regulations that may govern services in Global and other countries outside of North America, the First Edition also addresses international medical transport services as appropriate to the country of residence and the specific regulator of that country as referenced by the term “Authority Having Jurisdiction” (AHJ).

The standards also recognize special medical operations in Section 8 that provide medical care and potential medical transport that do not necessarily fit within all the parameters of these standards. Some examples include medical coverage at sporting, concert or special events, special public safety operations (such as tactical rescue or “SWAT” call-outs) and citizen recovery from potentially unstable environments.

While CAMTS Global does not currently have specific standards that are unique to these types of services, the Board will entertain an Accreditation status in the category of “Special Operation” if it believes the service is in substantial compliance with the current CAMTS Global Standards as they apply to the program’s scope of services.

The Accreditation Standards will serve not only as a resource for site survey visits and as criteria for accreditation decisions but also can be used as a blueprint for organizational planning and by medical transport services on a worldwide basis. CAMTS Global recognizes and accepts its responsibility to review and evaluate the relevance and applicability of its standards. These standards are written by and for those involved in medical transport, and therefore, these standards belong to the entire medical transport community. As standards are dynamic and not static, CAMTS Global values its constituents’ comments and suggestions for future changes.

FIRST EDITION TABLE OF CONTENTS

VALUE, MISSION STATEMENT & GOALS

PREAMBLE

MEMBER ORGANISATIONS

01.00.00 MANAGEMENT AND STAFFING

01.01.00	Mission Statement and Scope of Care	1.3
01.02.00	Financial Commitment	1.3
01.03.00	Marketing and Education for the Public	1.4
01.04.00	Ethical Business Practices	1.5
01.05.00	Compliance	1.7
01.06.00	Management/Policies	1.7
01.07.00	Staffing	1.9
01.08.00	Physical Well-Being	1.11
01.09.00	Meetings/Records	1.12

02.00.00 QUALITY MANAGEMENT

Includes Performance Improvement, QM, Utilization Management and Safety Management

02.01.00	Quality Management Program	2.1
02.02.00	Utilization Management	2.6
02.03.00	Safety Management (includes SMS, Safety environment and Operations)	2.8

03.00.00 PATIENT CARE

03.01.00	Medical Mission Types and Professional Licensure	3.1
	03.01.01 – Basic Life Support	3.1
	03.01.02 – Advanced Life Support	3.3
	03.01.03 – Emergency Critical Care	3.4
	03.01.04 – Intensive Care	3.6
	03.01.05 – Specialty Care	3.8
03.02.00	Medical Direction	3.9
03.03.00	Clinical Care Supervisor	3.12
03.04.00	Program Manager	3.13
03.05.00	Orientation, Training and Continuing Education Program Requirements	3.14

03.06.00	Medical Configuration of the Aircraft/Ambulance	3.24
03.07.00	Infection Control	3.33

04.00.00 COMMUNICATIONS

04.01.00	The Aviation Certificate Holder	4.1
04.02.00	Communications Equipment	4.1
04.03.00	Communications Specialists	4.2
04.04.00	Communications QM Program	4.4
04.05.00	Shift Briefings	4.4
04.06.00	Post Transport Debrief	4.4
04.07.00	Formal Meetings	4.4
04.08.00	Communications Policies	4.4
04.09.00	Flight/Transport Following	4.7
04.10.00	Communications During a Transport	4.9
04.11.00	Communications Centre	4.10

05.00.00 ROTORWING STANDARDS

05.01.00	Operations	5.1
05.02.00	Aircraft	5.1
05.03.00	Weather	5.2
05.04.00	Pilots5.3	
05.05.00	Maintenance	5.7
05.06.00	Fuel Quality and Fuel Systems	5.10
05.07.00	Heliports	5.11

06.00.00 FIXED WING STANDARDS

06.01.00	Operations	6.1
06.02.00	Aircraft	6.2
06.03.00	Weather and Operating Altitudes	6.2
06.04.00	Pilots	6.3
06.05.00	Maintenance	6.7
06.06.00	Fuel Quality and Fuel Systems	6.10

07.00.00 SURFACE STANDARDS

07.01.00	Operations	7.1
07.02.00	Ambulance	7.2
07.03.00	Weather	7.4
07.04.00	Vehicle Operator	7.4
07.05.00	Ambulance Maintenance	7.4

08.00.00 SPECIAL OPERATIONS 8.1

MEDICAL ESCORT STANDARDS TABLE OF CONTENTS

ME 01.00.00 MEDICAL ESCORT MANAGEMENT AND STAFFING

ME 01.01.00	Mission Statement and Scope of Care	ME.1.3
ME 01.02.00	Financial Commitment	ME.1.3
ME 01.03.00	Marketing and Education for the Public	ME.1.4
ME 01.04.00	Ethical Business Practices	ME.1.4
ME 01.05.00	Compliance	ME.1.5
ME 01.06.00	Management/Policies	ME.1.5
ME 01.07.00	Staffing	ME.1.7
ME 01.08.00	Physical Well-Being	ME.1.7
ME 01.09.00	Meetings/Records	ME.1.8

ME 02.00.00 MEDICAL ESCORT QUALITY MANAGEMENT

ME 02.01.00	Quality Management	ME.2.1
ME 02.02.00	Utilization Management	ME.2.4
ME 02.03.00	Safety Management	ME.2.5
ME 02.04.00	Safety and Environment	ME.2.7
ME 02.05.00	Safety Education	ME.2.7

ME 03.00.00 MEDICAL ESCORT PATIENT CARE

ME 03.01.00	Mission Types and Professional Licensure	ME.3.1
ME 03.02.00	Medical Direction	ME.3.2
ME 03.03.00	Clinical Care Supervisor	ME.3.4

ME 03.04.00 Program Manager	ME.3.5
ME 03.05.00 Orientation and Continuing Education	ME.3.5
ME 03.06.00 Accommodations on the Vehicle	ME.3.10
ME 03.07.00 Infection Control	ME.3.13

ME 04.00.00 MEDICAL ESCORT COMMUNICATIONS

ME 04.01.00 Communications and Trip Planning	ME.4.1
ME 04.02.00 Training of the Designated Contact	ME.4.1
ME 04.03.00 Policies	ME.4.2
ME 04.04.00 Coordination and Mission Tracking	ME.4.3

ADDENDA

A	Education Matrix	1-4
B	Quick Reference	5-20
C	Glossary	1-28
D	References	29-38



FIRST EDITION ACCREDITATION STANDARDS
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Standards apply to each transport mode unless specifically designated as Rotorwing (RW), Fixed Wing (FW), Surface (S), or Special Operations (SOP)

— PREFACE —

The standards are as appropriate to the country of residence and the specific regulator of that country as referenced by the term “Authority Having Jurisdiction” (AHJ). CAMTS Global Accreditation Standards, as a measure of quality, are part of a voluntary process and frequently exceed the AHJ’s regulations.

The Term “Surface” as used throughout this document refers to any service other than air and the term “surface vehicle” includes ground ambulance, boat, snowmobile, all terrain vehicle (ATV) etc. used for patient care and transport. The term “ambulance” in this document is specific to a ground ambulance.

01.00.00 - MANAGEMENT AND STAFFING

01.01.00 MISSION STATEMENT AND SCOPE OF CARE

01.01.01 There is a Mission Statement written in the present tense that describes the purpose of the service, mode(s) of transport provided and its constituents. The Mission Statement directs employees toward the values the service was founded upon.

01.01.02 There is a written scope of service that describes the types of patients accepted (Scope of Care), transport modalities and exceptions (service that is not provided). Scope of Service includes range of each mode, response time, number of patients transported simultaneously and any exceptions to types of requests that are accepted.

The Scope of Care is commensurate with the qualifications and level of initial and ongoing education required for medical personnel. The Scope of Care should address, as applicable to the program, patient populations served, age groups and their definition.

Examples of evidence to meet compliance:

The Mission Statement describes what you do in a clear and concise manner. The vision and mission are strategic statements developed by and unique to each organization. Values statements are separate but key underpinnings of these statements. The modes of transport and constituents are not, and must not be part of these statements, but rather must be included under a “scope of service and care” statement.

01.02.00 FINANCIAL COMMITMENT

01.02.01 There must be evidence of financial commitment to the program by the administrative structure and through financial resources that provide excellence in patient care and safety of the transport environment.

Examples of evidence to meet compliance:

Transport vehicle is well kept – equipment and supplies are well maintained, accessible and adequate for patient population(s)/volume. Physical surroundings are well maintained. There are adequate management and staff personnel for transport volume. Education appropriate to the scope of care and to all aspects of the organisation (communications, transport crew, medical crew, etc.) is provided.

01.02.02 Insurance – The transport service must have and maintain insurance 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 businesses. The insurers must be financially sound and reputable, and they must be qualified to do business in the region(s) or country in which the transport service is located.

The following types of insurance must include but is not limited to the operational and regulatory environment:

1. Liability insurance for each operating aircraft.
 - a. Fixed Wing
 - b. Rotorwing
2. Auto insurance (for ground vehicles and ambulances owned by the service) and includes accidental death and disability
3. Medical professional liability
4. Worker's compensation or employer's liability – per region/national or equivalent government guidelines
5. Group life insurance or accidental death and disability – whether paid for by the employer or employee

01.03.00 MARKETING AND EDUCATION FOR THE PUBLIC

01.03.01 There is a professional and community education program and/or printed information with the target audience to be defined by the medical transport service.

1. Clear identification pertinent to the aviation authority of the company that is operating the aircraft is on the program's website, in marketing materials and on the aircraft. (RW/FW)
2. Website information and printed materials are accurate and consistent with program documents, practise and capabilities.
3. Evidence of licensure appropriate to the AHJ is provided for each transport vehicle.
4. Hours of operation, phone number, and access procedure are accessible to the public.
5. Capabilities of medical transport personnel—including current scope of care, a list of types of patients who are accepted based on personnel training, and configuration and equipment capabilities—are included.
6. Type of aircraft/ambulance(s) used and operational protocols specific to type are included.
7. Coverage area for the transport service is specified.
8. Preparation and stabilization of the patient prior to transport is outlined.
9. Patients considered appropriate for transport by the medical transport service are specified. An appropriate transport enhances patient outcome, safety and cost effectiveness over other modes of transport.

Examples of evidence to meet compliance:

Marketing materials are up to date, consistent with mission and scope, depict actual types of transport vehicles etc. and do not exaggerate the scope of care or transport vehicle capabilities.

01.04.00 ETHICAL BUSINESS PRACTISES

01.04.01 The transport service develops and demonstrates use of a written code of ethical conduct in all areas of business that demonstrate ethical practises in business, marketing and professional conduct.

1. The code of conduct guides the service when confronted with potential compliance or ethical issues.
2. The code of conduct outlines the service's standards for ethical behaviour as well as contact information and reporting protocols if a standard has been violated.
3. The code of conduct outlines ethical billing practises.
4. There is a policy that addresses privacy rights in regard to photographing and the use of photos or other media that includes prohibiting photos placed in social media that would compromise patient privacy.

Examples of evidence to meet compliance:

Policies may address such issues as proper/improper behaviour toward other programs' marketing materials, honesty in reporting data, personal cell phone use, use of social media sites, how ethical issues are addressed, conflicts of interest, phone etiquette, acceptable and unacceptable behaviours on the work-site/on transport, acceptance of gifts from patients/vendors, etc.

01.04.02 The Board of Directors, administrative and management staff are encouraged to complete an annual conflict-of-interest statement or form, disclosing any actual or potential conflicts.

01.04.03 Ethical business practises must be maintained in policy and practise and include specific guidelines for transport requests that are not performed directly by the CAMTS Global accredited service or service seeking accreditation as follows: (RW/FW/S)

1. Referring transport requests – Referring is defined as transferring the transport request to another program or service. There is no further involvement on the part of the original services, and there is no monetary exchange for the referral. If an accredited program refers a transport to another service, the accredited service/service seeking accreditation will attempt to refer a transport to another CAMTS Global accredited service whenever possible if unable to perform the transport.
2. Subcontracted transport requests – Subcontracted is defined as the occasion when another service is used to supply a portion of the transport, such as the vehicle or the medical team, if the service's vehicle or medical team is not available or is not appropriate.
3. Outsourcing transport requests – Outsourcing is defined as transferring a request to another service but retaining control of the coordination throughout the transport (which may include flight following, arranging for surface transport, hotels, medical direction etc.) The service may add a fee for coordinating the transport, but full disclosure of the name of both the medical provider and the vehicle provider must be made to the patient, his/her advocate and the payer source(s). Ten percent or less of the total number of transports is acceptable for transports or within the same continent and whenever possible should be done by CAMTS Global or CAMTS accredited services.
4. Brokering transport requests – Brokering is defined as arranging for transport and collecting a fee but not actually performing the transport. This is not an acceptable practise of an accredited service. If the accredited service or service seeking accreditation cannot fulfil a request for transport, the service may elect to subcontract or refer the request.

01.04.04 If an accredited service or CAMTS Global accreditation applicant subcontracts or outsources a request for transport, the following conditions are maintained in practise and policy: (RW/FW/S)

1. The other service shall be CAMTS Global or CAMTS accredited whenever possible unless there is not one in the service range, or the CAMTS Global or CAMTS accredited service is not available within an appropriate response time based on patient condition and needs.
2. If unable to subcontract or outsource to a CAMTS Global or CAMTS accredited service, the service must ensure that the patient and/or requesting agent is notified of the actual medical team, service or aviation operator conducting the transport through a written contract or other means of written notification.
 - a. Attempts to contact a CAMTS Global or CAMTS accredited service will be documented (which service and date and time of contact) along with reasons for not contracting with a CAMTS Global or CAMTS accredited service, such as a viable alternative based on time and proximity.
 - b. Transport requests that are outsourced to or subcontracted will be tracked and trended as part of the Quality Management process.
3. If an unfamiliar transport vehicle 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.
4. The accredited program will disclose through a signed agreement (that may be signed on site, faxed or electronically transmitted) with the requesting agent, patient and payer source whenever the transport is not performed by their program, medical teams and/or aircraft. (This does not apply to specialty teams that are listed as part of an accredited service.)

Examples of evidence to meet compliance:

Signed agreements reflect when part of the service is not provided by a CAMTS Global accredited entity, such as a subcontracted aircraft or medical team. All referred, subcontracted and/or outsourced requests are tracked and trended in the QM review process.

01.04.05 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 provided.

1. Whenever possible, services that respond directly to the scene will transport patients to the nearest appropriate hospital (i.e., major trauma to the nearest Trauma Centre, stroke patients to a hospital with specialized stroke care, acute myocardial infarction patients to a hospital with a staffed cardiac catheterization lab, major burns to a specialist burns centre, high-risk obstetric patients to a hospital with specialist obstetric services and a NICU, etc.).
2. 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.
3. Accurate estimated time of arrivals (ETA's) are always provided regarding arrival of the service to the patient for emergency requests.
4. Contractual relationships with public services or health care agencies do not reflect implied referrals.

5. Subscription services do not reflect implied referrals that could negatively impact expeditious transport of patients to the most appropriate facility.

Examples of evidence to meet compliance:

Contracts do not exceed current market value for goods and/or services or severely discount current market value with the intent to influence requests or referral patterns.

01.04.06 All patient care resources, including personnel and equipment, necessary to the program's mission must be readily available in the transport vehicle or available to place in the transport vehicle, and they must be operational prior to initiating the mission. This includes resources, personnel, and equipment provided by Specialty Care Providers.

01.05.00 COMPLIANCE

There is a corporate compliance officer or designated person responsible for ensuring that the service is in compliance with external laws and regulations, payer requirements and internal policies and procedures.

01.05.01 The compliance program includes:

1. Written policies and procedures
2. Designation of a compliance officer or assignment of responsibility to a specific individual or individuals
3. Effective training and education for staff documents both initial and continuing competency
4. Effective lines of communication
5. Enforced standards based on published disciplinary guidelines
6. Auditing and monitoring
7. Procedures for responding to detected offenses and taking corrective action

01.05.02 The program provides timely reporting on requested data to the agencies, in which it responds.

01.05.03 The program actively participates as an integrated part of the EMS and trauma system in which it responds. (RW, FW, and Surface ALS/BLS)

Examples of evidence to meet compliance:

Staff is knowledgeable about current compliance issues.

01.06.00 MANAGEMENT/POLICIES

01.06.01 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, agency or corporation.

2. For public or private institutions and agencies that contract with an aviation or ambulance company for transport, there must be a policy that specifies the lines of authority between the medical management team and the aviation/ambulance management team.
3. All personnel understand the chain of command. Medical personnel understand that the pilot in command has ultimate authority for the aircraft and safe operations. (RW/FW)
4. Managers are oriented to aviation regulations as pertinent to the authority having jurisdiction (AHJ) that apply to the medical transport service.
5. Managers are oriented to ambulance standards and regulations or AHJ pertinent to ambulance services. (S)
6. Managers require by policy that any encounter with an unmanned aerial system (UAS) while in flight require reports submitted to local law enforcement and ATC on a timely basis.
 - a. Policy defines who is responsible to notify and submit a written report to local authorities
7. Managers are trained to recognize real and perceived pressures that may influence unsafe acts by staff.
8. The program adheres to, national and/or local ambulance (air and surface) rules and regulations, including licensure requirements.
9. A policy must be in place that documents the employer's disciplinary process and protects employees from capricious actions.
10. There is a policy that addresses Do Not Resuscitate (DNR)/Limitation of Therapy Agreement (LOTA) orders as permitted.
11. There is a policy that addresses transfer and security of patient's personal property.
12. Management:
 - a. Demonstrates strategic planning that aligns with the mission, values and vision of the service.
 - b. Sets written guidelines for press-related issues and marketing activities.
 - c. Sets an Emergency Response Plan that includes a Post-Accident/Incident Plan (PAIP) and responses to unexpected occurrences involving personnel, vehicles and facilities to include helipads as appropriate to the base of operations.
 - d. Requires shift briefings be conducted at the beginning of each shift to assure continuity between shifts.
 - e. Requires a post-flight debrief be conducted after each flight. If there were issues involving the communications centre, the debriefing includes the communications specialists (RW/FW)
 - f. Requires a post-transport debrief be conducted after each transport or groups of transports as response readiness permits. (S)

g. Has a policy and a mechanism to track, investigate, disclose and close the loop on any medical incident reports including those classed as Serious Reportable Events or Never Events.

Examples of evidence to meet compliance:

Business plans demonstrate a needs and risk assessment when expanding the service or adding bases, and those plans include staffing, training and management restructuring for added responsibilities.

Examples of evidence to exceed compliance:

Management is educated to Just Culture and applies Just Culture principles throughout the organization.

01.06.02 Employment Policies

1. A policy addresses pre-employment background checks that include, at a minimum, criminal background, license verification, and previous employer.
2. A policy requires staff to self-report any investigation, arrests, or convictions.
3. A policy addresses pre-employment (whether or not it is required) drug screening.
4. A policy addresses criteria to require “for cause” drug screening.
5. A policy addresses a procedure for employee terminations that ensures protection of program information, physical and electronic data, property and security. This may include securing the individual’s badge/keys/other access devices, deactivating e-mail accounts/computer sign-ons/remote access/codes, remaining with employee until leaving the premises, inspecting items employee takes with him or her, providing prompt notification of relevant departments/vendors/contractors, procuring property that belongs to the program that the employee may have off site, etc.

01.06.03 Policy Manual (electronic or hard copy) is available and familiar to all personnel

1. Policies are dated and signed by the appropriate manager(s).
2. Policies are reviewed on an annual basis as verified by dated manager’s signature on a cover sheet or on respective policies.

Examples of evidence to meet compliance:

Policies can be broken out by department/division; however, there must be signatures and revision dates on each specific policy or a cover sheet that represents annual review with respective review dates and signatures.

01.07.00 STAFFING

The service must have written operational policies to address each of the areas listed below:

01.07.01 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. (See References for circadian rhythm, Fatigue Risk Management System (FRMS) and other fatigue studies.)

1. On-site shifts scheduled for a period to exceed 24 hours are not acceptable under most circumstances. The following criteria must be met for shifts scheduled more than 12 hours.
 - 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 for uninterrupted rest after daily medical personnel duties are met.
 - c. The physical base of operations includes an appropriate place for uninterrupted rest.
 - d. 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 must be no adverse personnel action or undue pressure to continue in this circumstance.
 - e. Management must monitor transport volumes and personnel’s use of a “time out” policy.
2. Shifts extended over several days may be scheduled to address long commutes at programs with low volumes. The program must clearly demonstrate and document it meets the above criteria for shifts over 12 hours. In addition:
 - a. A program’s base averages less than 1 transport per day
 - b. The program provides at least 10 hours of rest in each 24-hour period
 - c. The location of the base or program is remote, and one-way commutes are more than 2 hours
 - d. A fatigue-risk management tool is utilised
3. A written policy addresses the scheduling of on-call shifts, and that policy addresses fatigue by requiring managers to monitor duty times, by tracking QM, and by using fatigue risk management.
4. Policies for long-range transports address rest during transport, after patient is at the destination and acceptance of back-haul missions. Medical personnel must have 10 hours free from all company-assigned duties before accepting another mission, or crews need to be swapped out. (FW)
 - a. Policies addressing overnight stays must not exceed more than 16 hours on duty in a 24-hour period OR a minimum of two medical team members are provided to allow one member rest during the transport and insure another attends the patient.
 - b. Missions extending beyond three days (i.e. international or multi-overnight mission) must allow crew members adequate rest periods using a fatigue-risk management tool to assess crew readiness.
5. Personnel (including communications specialists) must have at least 10 hours of rest (pilots must have 10 hours of rest as consistent with AHJ regulations) with no work-related interruptions prior to any scheduled shift of 12 hours or more or prior to any on-call shift of greater than 12 hours that is scheduled to precede or follow a scheduled on-duty 12-hour shift. 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.

6. The number of consecutive shifts and day-to-night rotations must be closely monitored by management for pilots, medical crews, communication specialists, surface vehicle operators and aircraft maintenance personnel.

7. Policies address crew interface so that team members are expected to stay alert on all legs of the transport, including at least one team member on empty legs, to assist the pilot in staying alert (especially in one-pilot operations) and the vehicle operator to stay alert for surface transports.

Examples of evidence to meet compliance:

Management monitors fatigue in terms of staffing patterns, patient outcomes and incidents or accidents with implementation to include Just Culture.

01.08.00 PHYSICAL WELL-BEING

01.08.01 Physical well-being is promoted through:

1. Wellness programs that promote healthy lifestyles (e.g. balanced diet, weight control, no smoking)

2. Evidence of an injury prevention program and ergonomic strategies to reduce employee injuries

3. Protective clothing and dress code pertinent to:

a. Mission profile, such as turn-out gear available at scene for medical personnel who assist with heavy extrication (RW)

b. Safe operations, which may include the following, unless specified as “required” below:

- Boots or sturdy footwear (required)
- Reflective material or striping on uniforms for night operations
- High-visibility reflective vests or appropriate approved clothing worn by flight and ambulance crews in accordance with AHJ national standard (required for medical crews and vehicle operators responding to night scene requests)
- Flame-retardant clothing (strongly encouraged for rotorwing services according to a risk assessment)
- Appropriate outerwear pertinent to survival in the environment (required)

4. Infection control – dress codes address jewellery, hair and other personal items of medical personnel that may interfere with patient care.

5. Written policies addressing:

a. Hearing protection requirements

b. Duty status during pregnancy

c. Duty status during acute illnesses, such as sinusitis or otitis

- d. Duty status while taking medications that may impair performance related to safety
- e. Weight/height and/or lifting ability as specified in pre-employment requirements

Examples of evidence to meet compliance:

Personnel are observed following the program's dress codes and are knowledgeable about policies regarding physical well-being. Pregnancy policies are consistent with current regional/national laws and may address notification to employer requirement, written documentation requirements to continue on duty, possible alternative duty assignments if team member is restricted from transport duty.

01.09.00 MEETINGS AND RECORDS

01.09.01 Meetings

1. There are formal, periodic staff meetings for which minutes are kept on file. Minutes will include who attended, base identification (if multiple bases), who is presiding and discussion (versus agenda/topics only). There are defined methods, such as a staff notebook or electronic mechanisms, for disseminating information between meetings.

- a. Meeting minutes (Staff, Safety, QM meetings etc.) are kept on file and maintained for a minimum of three years.
- b. Minutes are dated, and personnel present are clearly identified by title or function.

Examples of evidence to meet compliance:

Meeting minutes indicate attendance and representation by all disciplines. Action items, timelines and area of responsibility are well documented and demonstrate a flow of information that indicates tracking, trending and loop closure.

01.09.02 Records Management ensures that patient care records, meeting minutes, policies and procedures are stored according to hospital or agency policies, and privacy regulations are indicative of the individual medical transport service's sensitivity to patient confidentiality in accordance with local and national standards.

1. A record of patient care is completed, and a copy remains (electronic or other format) at the receiving facility for appropriate continuity of care.

- a. A policy outlines minimal requirements based on the transport service's scope of care.
 - Purpose of the transport
 - History of present illness/injury, physical exam, initial vital signs as well as periodic vital signs per patient needs assessment and program's guidelines
 - Treatments, medications, intake and output and patient's response to treatments, procedures, and medications
 - Ventilator settings and change in ventilator settings are recorded

- Documentation of pertinent radiologic and laboratory reports on interfacility transports
 - Signature of each care provider and clarity about what care was performed by each provider (administering medications and performing procedures) and indicates who actually documented patient information
 - Transport facilities (to and from) and to whom report was given to at the receiving facility
 - Patient condition at certain predetermined altitudes
- b. A policy outlines approved abbreviations for use in patient care records. Medication abbreviations are avoided.
- c. A stored permanent electronic patient care record is preferred, but scanned hard copies are acceptable.

Examples of evidence to meet compliance:

Patient records are signed and initialed by the crew member who performed the treatment or procedure. Records are stored in a secure area that is inaccessible to the public with accessibility limited according to applicable guidelines.

02.00.00 - QUALITY MANAGEMENT

This section includes Performance Improvement (PI or QM), Utilization Management and Safety Management.

02.01.00 The QM program has written objective evidence of actions taken in potential and identified problem areas and the evaluation of the effectiveness of that action.

02.01.01 A QM flow chart diagram or comparable tool is developed demonstrating organisational structure in the QM plan and linkage to the Safety Management System.

02.01.02 The QM program is linked with risk management so that concerns raised through the risk management program can be followed up through the quality management program:

1. There is a written policy that outlines a process to identify, document and analyse sentinel events, adverse medical events or potentially adverse events (near misses) with specific goals to improve patient safety and/or quality of patient care.
2. There is follow-up on the results of actions/goals for specific events until loop closure is achieved.
3. The process encourages personnel to report adverse events even if it is a sole-source event (only the individual involved would know about it) without fear of punitive actions for unintentional acts.

02.01.03 The QM program must be integrated and include activities related to patient care, such as:

1. Customer and staff satisfaction
2. Communications
3. Equipment maintenance
4. All aspects of transport operations pertinent to the service's mission statement

02.01.04 There is a written QM plan that should include but not be limited to the following components:

1. Responsibility/assignment of accountability
2. Scope of care
3. Important aspects of care and quality metrics that are identified, measured and compared to metrics/outcomes of evidence-based standards

4. Operational processes such as financial outcomes
5. Thresholds for evaluation that are appropriate to the individual service
6. Methodology – the QI process or QI tools utilised
7. Assembly of groups to address each identified area of quality concerns that represent all disciplines involved, ensuring optimal communications and problem-solving
8. Emphasis on the quality of services offered on a continuing basis with constant attention to developing new strategies for improving; maintaining the status quo or achieving arbitrary goals are not considered the end-measures
9. Evaluation of the improvement process

Examples of evidence to meet compliance:

The QM plan is current and describes the process with evidence of loop closure in subsequent reports. QM does not consist only of medical record reviews.

Examples of important aspects of care may be:

- *Response time on emergent transports*
- *Controlling life-threatening dysrhythmias*
- *Managing cardiac chest pain*
- *Managing respiratory distress*
- *Patient and user satisfaction*
- *Complete and accurate documentation of care delivered*
- *Efficient turnaround time in referring hospitals on emergent transfers*

Other criteria may include:

- *Communications among parties involved in transfer*
- *Facilitating transfer of patients for referring physicians*
- *Appropriateness of use of transport service (if an issue) and absence of patient/staff injuries incurred during transfer.*

Indicators may also be in regard to:

- *Meeting response time*
- *Advanced procedure success rate*
- *Patient, employee or referring/receiving staff satisfaction*
- *Periodic maintenance on medical equipment*
- *Communicating vehicle status*
- *Improving appropriate mode use*

Documentation requirements, policy/procedure compliance, etc.

Thresholds are appropriate for the indicator and may be based on published standards/results, program historical results/goals and/or intuitive appropriateness, i.e., 100% is desired for correct referring location. However, 100% is not realistic for success on first attempt of intubation. Examples of methodologies: these include sources of data such as questionnaires, databases, medical records, administrative reports, incident reports, how numerical results are calculated, fish-bone diagram, six sigma, control charts, Pareto charts, flowcharts, etc.

Examples of evidence to meet compliance:

Business indicators should be developed that allow the program to improve its processes and that focus on every aspect of the program (i.e. communications, clinical, aviation, safety, etc.). A flow chart should show the steps by which outliers are addressed and how loop closure for each outlier is assured. Subsequent action to trends in activity should be noted with constant evaluation of the performance improvement process (i.e., Deming Cycle; Plan Do, Study/Check, Act). The QM plan is current and describes the process with evidence of loop closure in subsequent reports.

02.01.05 There will be regularly scheduled QM meetings providing a forum for all disciplines involved in the medical transport service.

02.01.06 The monitoring and evaluation process has the following characteristics:

1. It is driven by important aspects of care and operational practises identified by the medical transport service's QM plan.
2. It has indicators and thresholds or other criteria – identified to objectively monitor the important aspects of care.
3. It provides evidence of QM studies and evaluation in compliance with written QM plan.
4. It provides evidence that action plans are developed when problems are identified through QM, and these plans are communicated to the appropriate personnel.
5. It includes an annual summary Quality Management report.
6. It provides evidence of ongoing re-evaluation of action plans until problem resolution occurs.
7. It provides evidence of performance data, tracking and trending and sharing with all members of the service.
8. It provides evidence of annual goals established prospectively for the QM program that provide direction for the work groups and results that are measurable.
9. It puts emphasis on loop closure and the resolution of problems within a finite time period.

Examples of evidence to meet compliance:

QM goals may be educational, such as developing a particular subject content, revising orientation, improving the process to carry out ongoing education/skills or record-keeping; operational, such as improving a process or policy that isn't working well, tracking of skills/advanced procedures, developing a system of how medical equipment is shared/returned among multiple bases, employee/patient/user satisfaction; clinical, such as improving medical record documentation forms/implementing or improving electronic medical records, evaluating and acquiring a new item of medical equipment, expanding medical capabilities, developing a reference or resource for team members/orienteers; communications, such as improving ongoing education, studying ergonomics or communications specialists' work stations.

02.01.07 Performance metrics must be multidisciplinary and reviewed at least quarterly (at a senior executive level). Based on the scope of care of the service, the performance metrics from the following groups (with examples) are required to be tracked and trended on an annual basis.

1. Patient safety
 - a. Interfacility patients not transported bedside to bedside

- b. Out-of-range cabin temperatures without risk mitigation
- c. Arrest during transport (i.e. CPR)
- d. Two-patient transports
- e. Single-medical-provider transports
- f. Transports of infectious-disease patients realized during/after transport
- g. Number of Serious Reportable Events or Never Events (see References)

2. Rotorwing Operations

- a. Fatigue-risk management (such as use of time-outs, utilization of fatigue-risk management tools)
- b. Adding unscheduled crew
- c. VFR to IFR
- d. Contact with Operational Control Centre (OCC) not performed as required by program's policy
- e. Deviation from program's policy on use or lack of use of night vision goggles.
- f. Deviation from flight plan
- g. Flight interruptions or delays due to weather or maintenance
- h. Flight data recorder device reviews

3. Fixed Wing Operations

- a. Fatigue risk management (such as use of time-outs, utilization of fatigue risk management tools)
- b. Adding unscheduled crew
- c. VFR to IFR
- d. Deviation from flight plan
- e. Flight interruptions or delays due to weather or maintenance
- f. Flight data recorder device reviews

4. Surface Operations (ground ambulance, marine or other transport vehicle)

- a. Lights and sirens use (tracking is required along with one additional metric)

b. Transport interruptions or delays

c. Diversion from original patient request to another request

d. Response to witnessed incident or an incident that was happened upon

e. Real-time feedback devices, event-recording cameras, speed governors and/or weather alert system reviews

5. Communications

a. ETA accuracy

b. Accuracy of coordinates (RW)

c. Weather at time of request and during transport if changes occur

d. Request times from acceptance to lift-off or departure times

e. Number of missed and aborted transports (Required)

f. Total number of auto launches and number of completed transports versus aborted transports as a result of the auto launch (RW)

g. Total number of stand-bys and number of subsequent responses versus cancelled responses. (RW) (Required)

6. Business and Customer Service

a. Referred, subcontracted or outsourced transports

b. Negative feedback from requesting/receiving agents

c. Negative feedback from patients (tracking is required along with 1 additional metric)

7. Maintenance

a. Foreign Objects Debris (FOD) incidents

b. Unscheduled maintenance rate

c. Missed/aborted transports for maintenance (tracking is required along with 1 additional metric)

8. Clinical – see section 03.00.00 Patient Care

02.01.08 Safety practises

1. Safety issues may be handled through the Safety Committee where a problem, incident, or accident must

be identified with detailed reporting and analysis of aircraft and vehicular accidents, 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.

02.01.09 For both QM and Utilization Management (UM) 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 UM programs, there is direct integration of the medical transport service's activities with the sponsoring institution or agency (if applicable).

Examples of evidence to meet compliance:

Outcomes from QM should drive education and training needs. Systems improvement tools are educational. The process is not punitive.

Tracking and trending lift-off times, response times and times on scene or at the referring/receiving hospital are evaluated in terms of benchmarks set by the program in order to evaluate the effectiveness of policies/procedures, training and/or equipment needs.

If transports are delayed, reasons for delays or referrals are tracked as are transport requests that are conducted by an alternative means of transport (within the same program) such as FW or surface vehicle is used although RW was requested.

02.02.00 UTILIZATION MANAGEMENT (UM)

Management ensures an appropriate utilization management process through trending and tracking requests. There is evidence of feedback to the requesting agents and feedback from the patients' receiving facilities. Utilization review may be prospective, concurrent, or retrospective.

02.02.01 The following are included in the Utilization Management program:

1. Medical denials or requests that should have been denied for a specific transport mode (such as RW when ground would have been appropriate) – tracked and evaluated specific to the program's scope of care and mission.
2. Specialized medical transport personnel expertise and/or equipment available during transport that would otherwise not be available
3. Cost of the transport
 - a. Emergency transports do not require a guaranteed payment prior to transport.
 - 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.

02.02.02 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 semi-annually and resulting in a written report.

1. The following criteria 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
- b. Who are transported without an IV line or oxygen (RW)
- c. Upon whom CPR is in progress at referring location
- d. Who are “scheduled transports” (RW)
- e. Who are transported more than once for the same illness or injury within 24 hours (RW/FW)
- f. Who are transported from the scene of injury that do not meet local/regional or national triage guidelines (RW)
- g. Who are treated at scene or referring hospital but not transported (RW)
- h. Who are transported interfacility, and the receiving facility is not a higher level of care than the referring facility (RW)
- i. Who are flown initially by fixed-wing and transported from the airport to the receiving facility by helicopter (RW/FW)
- j. Who are served by an inappropriate vehicle in consideration of time, distance, speed considerations, etc.
- k. Who are served by an inappropriate team, i.e., ALS team used but patient requires critical care skills
- l. Who are served by an inappropriate surface vehicle that met the aircraft to assume care of the patient and continue transport with the level of care, equipment and supplies appropriate to the patient’s specific needs (RW/FW)

02.02.03 Continuity of Care – The medical service must ensure continuity of care and expeditious treatment of patients.

1. Where appropriate, the service should promote a timely feedback to referring agency, facility, or physician about patient outcome and treatment rendered before, during, and after transport.
2. Patients are only transferred to surface vehicles (at sending and receiving destination) when care can be continued by the same level or higher qualified personnel as that provided by transport personnel (subject to rural capabilities and elective transport needs) and when ordered by the referring/receiving physician or medical director(s) to optimize the outcome of the patient. (RW/FW)

02.02.04 Management ensures that steps are taken to reduce those transports that are considered to be non-appropriate as identified by the program’s scope of service.

Examples of evidence to meet compliance:

UM reports indicate trending and loop closure of patient outcomes. Requesting agents are contacted if there are trends that indicate over-triage or under-triage. Continuous review of utilization review with applicable trending and loop closure of patient outcomes in the form of follow-up to receiving facility, documented

phone calls to patient/family, etc. may provide adequate information about patient outcome. Outliers should be presented to Case Review Committee or during regularly scheduled staff meetings to discuss specifics of transport.

Examples of evidence to exceed compliance:

There is written evidence that the program routinely provides feedback and education to requesting agents regarding inappropriate requests for the transport. Program regularly meets with representatives of the EMS region and trauma centre to discuss scene transports that were both under-triaged and over-triaged.

02.03.00 SAFETY MANAGEMENT (includes Safety Management Systems and Safety and Environment)

02.03.01 Safety Management System (SMS) – Management is responsible for an effective SMS, but management and staff is responsible for making operations safer.

02.03.02 The Safety Management System is proactive in identifying risks and eliminating injuries to personnel and patients and damage to equipment. A Safety Management System includes:

1. A statement of policy commitment from the accountable executive
2. A risk identification process and risk management plan that include a non-punitive system for employees to report hazards, risks and safety concerns
3. A system to track, trend and mitigate errors or hazards
4. A system to track and document incident root cause analysis
5. A safety manual (electronic or hard copy)
6. A system to audit and review organizational policy and procedures, ongoing safety training for all personnel (including managers), a system of pro-active and reactive procedures to insure compliance, etc.

02.03.03 There is evidence of management's decisive response to non-compliance in adverse safety or risk situations.

1. Senior management must establish a process to identify risk escalation to ensure that safety and risk issues are addressed by the appropriate level of management up to and including the senior level.
2. Operational Risk Assessment tools must include but not be limited to issues such as transport acceptance that includes tools for assessing vehicle operator and crew alertness and fatigue; aviation decision making; clinical, operational, and logistical considerations; country risk assessment for international operations; and surface transport weather/risk considerations. Risk assessment tool(s) are used for all patient transports, search and rescue, public relations, training, maintenance and repositioning events/transports.

02.03.04 The program has a process to measure its safety culture by addressing:

1. Accountability – employees are held accountable for their acts of commission and omission.
2. Authority – those who are responsible have the authority to assess and make changes and adjustments as necessary.
 - a. Standards, policies and administrative control are evident.
 - b. Written procedures are clear and followed by all.
 - c. Training is organized, thorough and consistent according to written guidelines.
 - d. Managers represent a positive role model promoting an atmosphere of trust and respect.
3. Professionalism – as evidenced by personal pride and contributions to the program’s positive safety culture
4. Organizational Dynamics
 - a. Teamwork is evident between management and staff and among the different disciplines regardless of employer status as evidenced by open bi-directional and inter-disciplinary communications that are not representative of a “silo” mentality.
 - b. Organization represents a practise of encouraging criticism and safety observations, and there is evidence of acting upon identified issues in a positive way.
 - c. Organization values are clear to all employees and embedded in everyday practise.

Examples of evidence to meet compliance:

The Safety Management System includes the criteria defined in the International Helicopter Safety Team (IHST) tool kit or equivalent. (RW/FW)

02.03.05 A Safety Management System includes all disciplines and processes of the organization. A Safety Committee is organized to solicit input from each discipline and must 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.
2. The committee will promote interaction between medical transport personnel, communications personnel, pilots, mechanics and vehicle operators addressing safety practise, concerns, issues and questions.
3. There is evidence of action plans, evaluation, and loop closure.
4. There must be a designated safety person for an air transport service. Surface transport services that are not affiliated with an air transports service must also have a designated safety person.
5. The Safety Committee is linked to QM and risk management.
6. Aviation and surface related events are identified and tracked to minimize risks. (See Glossary for definition of event.)
 - a. Medical transport services are required to report aviation and surface accidents to CAMTS Global and the appropriate government agencies as permitted.

02.03.06 Flight Data Monitoring Program – A flight data monitoring program is required if a flight data recorder is on the aircraft. The flight data monitoring program is a systematic method of assessing, analysing and acting upon information obtained from flight data to identify and address operational risks before they lead to incidents or accidents. (RW/FW)

Examples of evidence to meet compliance:

The IHST tool kit or similar criteria provides guidance for a flight data monitoring program for both rotorwing and fixed wing. (RW/FW)

02.03.07 Safety and Environment

1. There is evidence that the specific operational environment (i.e., weather, terrain, aircraft performance) safety issues are addressed.

Examples of evidence to meet compliance:

Helicopters operating at density altitudes of 5000 feet and above must have mission-appropriate lift capabilities in comparison to those operating at lower density altitudes.

a. The physical base of operations demonstrates an appropriate and safe work environment for all personnel with adequate lighting, ventilation, and equipment storage for patient care and care of the transport surface vehicle.

- Oxygen storage must be 3 metres from any open flame and 6 metres from combustibles in a well-ventilated area with no-smoking signs posted or in accordance with national regulations.
- Hangar or building facility under authority of the programme complies with government or national standard

b. Transport vehicle and personnel security – A policy addresses the security of the aircraft and/or vehicle and physical environment (i.e. hangar, fuel farm).

- Security of the aircraft or surface vehicle if left unattended on a helipad, hospital ramp or unsecured airport or parking lot
- Training for vehicle operators and medical personnel to recognise signs of transport vehicle tampering
- Plan to address aircraft or vehicle tampering

Examples of evidence to meet compliance:

Vehicle operators and medical personnel are able to identify signs of aircraft/surface vehicle tampering as outlined in an education program.

c. Personnel security – Medical team is required to carry photo ID security badge while on duty.

d. Patient security – Family members or other passengers who accompany patients must be properly identified and listed by name in the communications centre by the transport coordinator.

Examples of evidence to meet compliance:

Policy requires wearing or carrying ID's while on duty

2. Equipment and operations around the transport vehicle (For medical configuration see Section 03.06.01)

a. The transport vehicle configuration and patient placement allows for safe medical personnel egress.

- Doors must be fully operable from the interior.
- Doors must be capable of being opened fully and held by a mechanical device.

b. Transport vehicle operational controls and communications equipment are physically protected from any intended or accidental interference by the patient, medical transport personnel, or equipment and supplies.

c. Lighting, electric power sources and communications equipment

- In an aircraft, a means to protect the pilot's night adaptation vision must be provided for night operations, either through the medical configuration or by a dividing curtain. (RW/FW)
- In a surface vehicle, the interior lighting includes an overhead or dome light that is configured so as not to cause reflection and impair the vehicle operator's vision while driving.
- Electric power outlet and/or inverters required for specialized medical equipment must not compromise the operation of any electrical transport vehicle equipment.
- Medical or communications equipment will be functional without interfering with the avionics and the avionics must not interfere with function of medical equipment on the aircraft. Medical or communications equipment will be functional on the surface vehicle without interfering with the mechanical components of the vehicle or vice-versa.

d. Head-strike envelope:

- The interior modification of the aircraft is clear of objects/projections OR the interior of the aircraft is padded to protect the head-strike envelope of the medical personnel and patients as appropriate to the aircraft. (FW)
- The head-strike envelope in the surface vehicle must be clear of hard objects that could cause injury in the event of poor road conditions or sudden stops.
- Helmets are required for rotorwing operations. Helmets for crew members must be appropriately fitted and maintained according to the program's manufacturer's criteria or program's policy. (RW)
- Helmets are inspected on a regularly scheduled basis – at least annually at a minimum.

e. Securing equipment and supplies – All aircraft equipment (including specialized equip-

ment) and supplies must be secured according to national aviation regulations. (Use of bungee cords is not considered appropriate when securing equipment and supplies). Surface vehicle 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.

- If an engineered mount is provided for specific equipment, that equipment must be secured in the mount at all times during the transport.
- Softpacs and equipment bags are not to be stored with belts that loop through the handles (as these handles can easily tear and dislodge).

f. For long range transports – Diversion & Contingency Plans

- If patient's condition deteriorates
- For mechanical issues

g. For international transports

- An international checklist is available that includes information about specific locations, use of medical assistance companies, networking and, local handlers.
- Repatriation insurance, ICAO (International Civil Aviation Organization) regulations
- Controlled substances – International law states it is illegal to bring controlled substances onto foreign soil - they cannot be removed from the airplane.
- There must be a policy that details how controlled substances are secured when the medical crews depart the aircraft.
- Crew Safety – Policies address crew safety, including:
 - o Cultural intelligence
 - o Assess travel risk to other countries and immunisation recommendations using a reliable source (for example, the ECDC, CDC and WHO).

Examples of evidence to exceed compliance:

Policies addressing practises such as crews should never eat the same food; never leave the hotel alone – have a buddy system; have a specific time to be back at the hotel; behave and dress so as to blend in with locals; no high-risk activities, for example, bungee jumping.

h. Transport vehicle equipment

- Night vision goggles are strongly encouraged for programs conducting rotorwing night operations. If night vision goggles (NVG's) are used by the service, a policy addresses use by personnel on board, and training is documented.
 - o The certificate holder must have Operations Specifications approved by national aviation regulations indicating authorization for operations utilizing night vision devices.

- o The training program must be approved by the AHJ and will specify initial qualifications and currency requirements.
 - o If NVG's are used to the ground, the pilot must be trained and authorized to use the NVGs. In addition, it is strongly encouraged that one team member be trained and authorized to use the NVG's.
 - The helicopter must be equipped with a 180 degree controllable searchlight capable of at least 400,000 candle power. (RW)
 - The aircraft must either have a 406 MHz emergency locator transmitter (ELT) OR must be monitored at 3-minute intervals or less by a satellite tracking system. (RW)
 - o If using the satellite tracking system and the aircraft has not been upgraded to a 406 MHz ELT, a 121.5 MHz ELT must not be disarmed because it may be monitored by other aircraft.
 - The aircraft must be equipped with a radar altimeter. (RW)
 - o If the radar altimeter is inoperable, the Certificate Holder has policies and procedure that address operations with an inoperative radar altimeter.
 - It is strongly encouraged to install the following on helicopters : (RW)
 - o Helicopter Terrain Awareness and Warning System (HTAWS)
 - o Flight data recording devices
 - o Flight control stabilization system for single pilots operations
 - o Traffic Collision Avoidance System (TCAS)
 - o Crash Resistant Fuel Systems
 - A policy addresses how hypoxia risk is mitigated for RW pilots
- i. Vehicle conspicuity (reflectivity/chevron etc.) is strongly encouraged for ground ambulances. The ambulance is clearly identifiable during the night with reflective striping on all sides of the vehicle.
- Sides of the ambulance:
 - o A retroreflective stripe(s) shall be affixed to at least 50 percent of the cab and body length on each side.
 - o The stripe or combination of stripes shall be a minimum of 10cm in total width.
 - o The 10cm wide stripe or combination of stripes shall be permitted to be interrupted by objects (i.e., receptacles, door handles) provided the full stripe is seen as conspicuous when approaching the vehicle.

- o A graphic design shall be permitted to replace all or part of the required striping materials if the design or combination thereof covers at least the same perimeter length.
 - Back of the ambulance:
 - o The reflective striping must follow the same standards as for the vehicle sides.
 - Doors:
 - o Any door of the ambulance designed to allow persons to enter or exit the vehicle shall have at least 600cm² of retroreflective materials affixed to the inside of the door.
- j. It is strongly encouraged that ambulance be equipped with safety technology such as real-time feedback mechanisms, event-recording cameras, speed governors and/or weather alert systems. (S)

Examples of evidence to exceed compliance:

All in-service helicopters are equipped with NVG's, TAWS, flight data recorders and autopilots. (If collecting FOQA, Flight Operations Quality Assurance, data is reported to the air medical program.) All in service surface vehicles are equipped with real-time feedback mechanisms or video recorders.

- k. The transport vehicle must be equipped with survival gear appropriate to the coverage area and the number of occupants.
- Survival gear will be maintained appropriately per written policy and must be available to personnel on board.
 - A written policy must be in place regarding checking survival kit contents and expiration dates on timed supplies.
- l. A fire extinguisher must be accessible (meaning one of the medical personnel must be able to reach a fire extinguisher) to medical transport personnel and vehicle operator while in motion.
- m. "No smoking" signs are prominently displayed inside the cabin or vehicle.
- n. There is a policy and an operations risk profile that addresses back-up transport vehicle to include:
- Checklists for medical configuration pertinent to the program's scope of care and patient population
 - Clarification on which personnel are responsible for checking and ensuring the transport vehicle is ready for patient transports before the transport vehicle is put into service
 - Realistic time frames for performing a maintenance check before the transport vehicle is put into service

o. Staff is oriented to the back-up transport vehicle (including communications equipment), and appropriate competencies are assured and documented.

p. Use of occupant restraint devices:

- Air medical personnel must be in seat belts (and shoulder harnesses if installed) that are properly worn and secured for all take-offs and landings according to national aviation regulations. A policy defines when seat belts/shoulder harnesses can be unfastened. (RW/FW)
- Surface vehicle personnel must be seat-belted when the vehicle is in motion unless emergent patient condition precludes it.
 - o Front seat occupants must always be belted.
 - o Overhead grab rails must be present in the patient care area.
 - o In a surface vehicle it is strongly encouraged to have forward and aft facing individual seats. Side facing bench seats are not recommended. If the ambulance has side facing bench seats, seat belt mountings must be situated at the pelvic level in order to restrain personnel/passengers. Use of shoulder harnesses on side-facing bench seats is discouraged.

q. A written policy describing patient loading and unloading procedures for medical transports as follows: (RW/FW)

- Specific policies concerning circumstances for rapid patient loading or unloading if practised
- An established policy to ensure that the pilot is notified of any add-on equipment for weight and balance considerations

r. Refuelling policies for normal and emergency situations (for fuel systems see 05.10.00 and 06.10.00): For transport vehicle, refuelling with the engine running (prohibited for ambulances), rotors turning, and/or passengers on-board is not recommended. However, emergency situations of this type can arise. Specific and rigid procedures must be developed by the certificate holder to handle these occurrences. Such “rapid refuelling” procedures will be covered by the certificate holder’s training program. Refuelling policies must address (RW/FW):

- Refuelling with engine(s) running or shut down
- Refuelling 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 refuelling or stopover
- Rapid refuelling only if the location of the refuelling port does not block patient and crew egress in the event of a fire or other emergency while refuelling. (Strongly encouraged)
- Fire hazard policies pertinent to refuelling procedures as addressed in the certificate holder’s Operation Specifications Manual (electronic or hard copy)

- Pilot's responsibility to test, verify, or validate fuel quality before refuelling and stay with the aircraft at all times during refuelling.
- Wearing proper PPE when refuelling. Gloves used for refuelling are prohibited for use during transport. PPE potentially contaminated with fuel may not be worn in the transport vehicle

s. The Program/Certificate Holder has policies that govern operational limitations with specific equipment inoperative (for example, if the searchlight is not functioning). If night vision goggles are used, the policy must be appropriate to that specific mode of operation. (RW)

t. Specific policy to address the combative patient

- Additional physical and/or chemical restraints must be available and used for combative patients who potentially endanger themselves, the personnel, or the transport vehicle.
- A policy must 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.

u. Written policy to address response to hazardous materials requests or unanticipated contact with hazardous materials

- There is an outlined plan of action according to pre-established policies with appropriate training of the medical transport team.
- There is 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.
- The medical transport team must be fully informed about the nature of the hazardous materials.
- There is a readily available list of hazardous materials, which could pose a threat to the medical transport team or render transport inappropriate.
- The LZ or aircraft operational area must be a safe distance to avoid any downwind danger when approaching or departing. (RW)
- A policy addresses carry-on baggage of patient or passenger that must be physically inspected for hazardous materials that could endanger the medical transport team or compromise safety (such as weapons, sharp objects, chemicals, and obvious hazardous materials) before loading on the transport vehicle.
- A policy addresses the presence of firearms on the transport vehicle.

03.00.00 - PATIENT CARE

03.01.00 MEDICAL MISSION TYPES AND PROFESSIONAL LICENSURE

Mission Types – Staffing must 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. A well-developed position description for each discipline is written. All Equipment, Medications and Interventions listed below are pertinent to the program's mission and scope of service (which includes scope of care). Equipment, Medications, Interventions and Quality listings in each type of care build on each other starting with BLS to ALS to Emergency Critical Care, Intensive Care and Specialty Care.

03.01.01 Basic Life Support (BLS)

Preface – appropriate Authority Having Jurisdiction (AHJ) applies

1. Scope of Care – Capability to deliver pre-hospital basic life support care.
2. System – Recognised AHJ with a medical director who meets requirements listed below.
3. Clinical Crew
 - a. At a minimum, one crew member is an ambulance technician (paramedic preferred) or equivalent national training.
 - b. Vehicle operator is trained in emergency response driving according to the AHJ and keeps training properly updated.
4. Medical Director
 - a. The medical director should be certified in emergency medicine, but if he or she is not, it is strongly recommended that the medical director be certified in family medicine, internal medicine, surgery, or paediatrics with demonstrated EMS education or 5 years of experience in emergency medicine.
5. Equipment
 - a. Oral/pharyngeal airway
 - b. Pulse oximeter

- c. Automatic external defibrillator
- d. Bag-valve mask
- e. Glucometer
- f. Adequate oxygen source
- g. Haemorrhage control equipment
- h. Depends on local/regional or national requirements, or medical director requirements (e.g., auto-injector)

6. Medications

- a. Ambulance technician may assist patient taking own medication
- b. Depends on local/regional or national requirements, or medical director requirements

7. Interventions

- a. Bag-valve mask ventilation and oxygenation
- b. Selective spinal immobilization
- c. Non-invasive vital sign measurement (e.g., blood pressure, pulse-oximetry)
- d. Control of bleeding
- e. Exposure (Infection) control
- f. Depends on local or national requirements, medical director requirements

8. Quality – Ground and Air Quality Transport (GAMUT) metrics that must be measured (the actual GAMUT metrics are much more descriptive – see References) include:

- a. Blood glucose for altered mental status
- b. Serious reportable event
- c. Medical equipment failure
- d. Near miss or precursor
- e. Reliable pain assessment

In addition:

- a. Number of intercepts with ALS (Denominator = total number of BLS calls)

9. Volume

- a. Total number of BLS transports

03.01.02 Advanced Life Support (ALS)

Preface – appropriate Authority Having Jurisdiction (AHJ) applies – also includes all aspects of BLS

1. Scope of Care – Capability to deliver pre-hospital advanced life support care
2. Clinical Crew
 - a. A minimum of two medical personnel who are licensed/certified according to regional and/or national requirements. The vehicle operator may be the second crew member for surface ALS if he/she is at minimum an ambulance technician and is trained in emergency response driving according to the AHJ and his/her training is kept current.
 - b. One is a paramedic with regional/national registration
3. Medical Director
 - a. The medical director should be certified in emergency medicine, but if he or she is not, it is strongly recommended that the medical director be certified in family medicine, internal medicine, surgery, or paediatrics with demonstrated EMS education or 5 years of experience in emergency medicine.
4. Equipment – includes all equipment in BLS plus:
 - a. Ventilation: Non-invasive ventilators (CPAP / Bilevel Positive Airway Pressure)
 - b. Cardiac monitoring (e.g., pacemaker/defibrillator)
 - c. Non-invasive monitoring (e.g., waveform capnography, pulse-oximetry)
5. Medications – include all medications in BLS plus:
 - a. Resuscitative medications by national EMS education and practise standards.
6. Interventions – includes all interventions in BLS plus:
 - a. Advanced airway management (Endotracheal intubation, Supraglottic airway)
 - b. Needle thoracostomy
 - c. Intraosseous placement
 - d. Non-invasive CO2 monitoring
 - e. Peripheral IV
 - f. Waveform capnography for ventilated patients
7. Quality – GAMUT metrics are required to be measured and include those in BLS and in addition:
 - a. Ventilator use in patients with advanced airways

- b. Scene transports
- c. First attempt tracheal tube success
- d. Definitive airway “sans” hypoxia/hypotension on first attempt (encouraged)
- e. Verification of tracheal tube placement
- f. Over-triage in mode of transportation (RW per GAMUT description – encouraged)
- g. Medication errors on transport
- h. Rapid sequence intubations protocol compliance
- i. Unplanned dislodgements of therapeutic devices
- j. Incidence of hypoxia during transport
- k. ECG interpretation for STEMI patients
- l. Adverse drug event during transport

8. Volume

- a. Number of total surface transports (does not include those in support of air medical transports)
- b. Number of surface ALS transports (does not include those in support of air medical transports)
- c. Number of air ALS transports
- d. Number of surface BLS transports
- e. Number of air BLS transports

03.01.03 Emergency Critical Care

Preface – appropriate Authority Having Jurisdiction (AHJ) applies – also includes all aspects of BLS and ALS

1. Scope of Care – Capability to deliver out-of-hospital care during the acute resuscitation phase before definitive care is provided (e.g. comparable to emergency department stabilizing care or an ICU transfer to more definitive care)

2. Clinical Crew

- a. A minimum of two medical personnel (who are licensed according to regional and/or national requirements) who provide direct patient care plus a vehicle operator
 - One crew member is a licensed nurse with appropriate regional/national certification within 2 years of employment (required) OR a physician with minimum

critical care experience (signed off by the medical director) and ICU rotation and FCCS preferred. Primary care provider may also be a Physician, Advanced Nurse Practitioner, Physician Assistant, or a Paramedic. Nurses, Advanced Nurse Practitioners, Physician Assistants and Paramedics who are the primary care providers must have 3 years of critical care experience. (Critical care experience is defined as no less than 4000 hours experience in an ICU or an emergency department.) In addition, nurses, physician assistants and paramedics in the primary-care-provider role must have pre-employment experience in the medications and interventions listed below as well as higher level interventions specific to the scope of care (e.g. ventilator management, ECMO, IABP).

- If crewmember is a paramedic, then FP-C or CCP-C is strongly encouraged within 2 years of employment along with 3 years (minimum of 4000 hours) of ALS experience.

b. Additionally, medical directors and clinical leadership must have direct responsibility to qualify the experience and competencies of applicants for a primary care provider role and set the minimums as they pertain to the autonomous care required for their specific scope of service.

3. Medical Director – Certified based on the program scope of care. Additional specialty and/or subspecialty physician liaison(s) as required.

Examples of compliance:

- *A paediatric transport program has a paediatric certified physician with education in transport medicine.*
- *A rotorwing program that responds to scene and interfacility requests has an emergency medicine certified physician. If not emergency medicine certified, then family medicine, internal medicine, surgery, or paediatrics certified with demonstrated EMS education and/or experience (5 years).*

4. Equipment – Includes all equipment in BLS and ALS plus:

- Ventilation: Multimodality ventilators capable of invasive ventilation (pressure, volume, ventilator appropriate to all age groups transported)
- Invasive hemodynamic monitoring (e.g. transvenous pacemakers, central venous pressure, arterial pressure)

5. Medications – Includes all medications in BLS and ALS plus:

- Maintenance of continuous infusions (e.g., vasopressors, anti-hypertensives, anti-dysrhythmics, bronchodilators, neuromuscular blockade and sedation).

6. Interventions – Includes all interventions in BLS and ALS plus:

- Rapid sequence induction (medication facilitated)
- Surgical airway
- Ability to manage tube thoracostomy
- Ability to manage central line
- Blood product infusion

f. Continuous temperature management (i.e., therapeutic hypothermia)

7. Quality – GAMUT metrics that must be measured include those in BLS and ALS.

a. Scene and/or interfacility bedside times for STEMI activation

b. Appropriate management of blood pressure for aortic emergencies

c. Management of hypertension in haemorrhagic stroke

d. Appropriate management of haemorrhagic shock

8. Volume

Volume requirements: Number of transports in this category versus total number of transports will be tracked by the program. CAMTS EU will track, trend and analyse averages from all programs to determine a volume requirement in the future.

03.01.04 Intensive Care

Until we have sufficient data, we will not accredit at this level, but on the checklists you receive when applying for accreditation, you will be instructed to check off the crew requirements along with the number of times the equipment, medications and interventions listed in this Type of Care are used or performed.

1. Scope of Care – Capability to deliver out-of-hospital care comparable to tertiary ICU care during interfacility transport to a higher level tertiary ICU.

2. Clinical Crew – is composed of a minimum of two medical personnel (who are licensed according to regional/national requirements) attending to the patient at all times plus a vehicle operator.

a. One crew member is a licensed nurse with appropriate regional/national certification within 2 years of employment (required). The primary care provider may also be a physician with minimum critical care experience (signed off by the medical director) and ICU rotation and FCCS preferred. Nurses who are the primary care providers in this level must have 3 years of critical care experience (critical care experience is defined as no less than 4000 hours' experience in an ICU or an emergency department that is part of an academic or tertiary care centre*).

b. If second crewmember is a paramedic, then FP-C or CCP-C is strongly encouraged within 2 years of employment with 3 years (or a minimum of 4000 hours) of critical care experience as a flight/surface transport paramedic or in-hospital experience.

3. Medical Director

a. Certified in emergency medicine with demonstrated competency in intensive care medicine with active experience in a tertiary centre; OR Critical Care certified with demonstrated experience and competency in Transport Medicine and experience with training in EMS if this is part of the program's scope of practise.**

b. If the program's scope of practise encompasses a specialty outside the experience of the medical director(s), additional sub-specialty physician liaison is required with obvious com

mitment, knowledge and involvement with the operations of the transport program (SMS, QM, initial and ongoing education/training, etc.)

*Absent Tertiary Care experience, the program must maintain documented pre-employment testing standards to insure knowledge and skills are consistent with Intensive Care scope.

**Medical directors certified in non-critical care are required to have appropriate additional certifications at the time of accreditation.

4. Equipment – Includes all equipment in BLS, ALS and Emergency Critical Care plus:

a. Ventilation: Multimodality ventilators appropriate to all patient age categories being transported (APRV, reverse I:E)

b. Invasive monitoring including hemodynamic (e.g., pulmonary artery catheters), cardiac (e.g., IABP), and neurological (e.g., intracranial pressure monitors)

5. Medications – Includes all medications in ALS and Emergency Critical Care plus:

Critical Care formulary and medication infusion with capability to deliver at least 4 continuous infusions

6. Interventions – Includes all interventions in BLS, ALS and Emergency Critical Care plus:

a. Ability to perform tube thoracotomy (if in scope of care)

b. Point-of-care testing appropriate for long distance transports (if in scope of care)

7. Quality

a. GAMUT metrics (all metrics to be included)

b. Quality Indicators listed in Emergency Critical Care to also include:

- Plateau pressure > 31

8. Volume requirements*

a. Number of transports admitted to an ICU directly or admitted to a critical care unit or other acute care (such as OR, cardiac catheterization lab, etc.) versus total number of transports.

b. Number of newborn transports (newborn defined as infants not requiring mechanical thermoregulation and/or respiratory support) versus total number of transports

c. Number of high risk obstetric transports versus total number of transports (A transport that is directly related to pregnancy that may endanger the mother or foetus of a gestational age greater than 20 weeks. This does not include pre-existing conditions or trauma in the pregnant patient.)

d. Number of IABP transports versus total number of transports

e. Number of transports to a PICU versus total number of transports

*Volume requirements: Number of transports in this category versus total number of transports will be tracked by the program. CAMTS EU will track, trend and analyse averages from all programs to determine a volume requirement in the future.

3

PATIENT CARE

03.01.05 Specialty Care

1. Scope of Care – Capability to deliver out-of-hospital care at a specialty or subspecialty level during interfacility transport (e.g., comparable to that of a tertiary or quaternary such as an ICU, PICU, NICU, or tertiary perinatal centre).

a. A neonatal transport is defined as the ability to support the care of infants that continue to need mechanical thermoregulation and/or respiratory support. Respiratory support should include the capability to provide blended gases. Neonatal Transport includes both preterm and term infants who require critical care or any infant under 5kg.

b. Specialty high risk obstetric transports are defined as transports that include the use and interpretation of external foetal monitor, foetal doppler and tocolytics.

c. A specialty care paediatric transport is defined as the ability to support an infant or child with life-threatening physiologic derangement, including respiratory, cardiac and/or central nervous system, and meeting criteria for admission to a Paediatric ICU.

2. Clinical Crew (as appropriate to the specialty)

3. Medical Director - Certified based on the program scope of care. Additional specialty and/or subspecialty physician liaison(s) as required by the scope of care.

4. Equipment - Includes all equipment in BLS, ALS, Emergency Critical Care and Intensive Care plus:

a. Transcutaneous ventricular assist devices (e.g. LVAD, BiVAD, RVAD)

b. Extracorporeal membrane oxygenation (ECMO) therapies and devices

c. Inhaled gases (e.g., nitric oxide, helium oxygen, aerosolized prostacyclin)

d. Neonatal incubator with heart rate monitoring device and size appropriate ventilator (with blender for adjustable oxygen delivery), thermoregulation control and infusion devices (syringe pumps).

e. Foetal doppler/foetal heart rate monitoring device (if transporting high risk obstetrics). For long range transports, external cardiotocography monitoring device is required.

5. Medications Includes all interventions in BLS, ALS, Emergency Critical Care, Intensive Care plus:

a. Maintenance of tertiary/quaternary critical care formulary (tocolytics for high risk obstetric)

6. Interventions - Includes all interventions in BLS, ALS, Emergency Critical Care and Intensive

Care plus:

- a. Ability to perform tube thoracostomy (if in scope of care)
- b. Ability to place central line (if in scope of care)
- c. Managing cardiac assist device
- d. Managing extracorporeal oxygenation device
- e. Ability to place endotracheal tube and maintain oxygenation and ventilation on a multi modality ventilator with capabilities for all age populations transported, including the capability to deliver inhaled specialty gases.

7. Quality

- a. GAMUT metrics (all metrics to be included)

8. Volume requirements – Number of patients as pertinent to the following:

- a. Number of neonatal transports to a NICU versus total number of transports
- b. Number of back transports to a lower level of care versus total number of transports
- c. Number of Specialty high risk obstetric transports versus total number of transports
- d. Number of ECMO transports versus total number of transports
- e. Number of IABP transports versus total number of transports
- f. Number of transports to a PICU versus total number of transports
- g. Number of transports requiring VADS
- h. Number of transports requiring inhaled gases
- i. Number of central lines inserted
- j. Number of arterial lines inserted
- k. Number of tube thoracotomies performed
- l. Number of intubated patients

03.02.00 MEDICAL DIRECTION

The medical director(s) ensures the competency and currency of all medical personnel working with the service. He or she does so by working with the clinical supervisor and by being familiar with the scope of practise of the transport team members and the regulations in which the transport team practises.

03.02.01 The medical director(s) must be licensed and authorized to practise in the location 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, paediatric, neonatal transport, etc.) or utilize specialty physicians as consultants when appropriate. neonatal transport, etc.) or utilize specialty physicians as consultants when appropriate.

03.02.02 The medical director(s) must have experience in both air and surface emergency medical services and must have education as a medical director (see Section 03.01.00 for each type) as appropriate to the mission statement and be familiar with the general concepts of appropriate utilization of air and surface interfacility services. In addition, the medical director must be current and demonstrate competency or provide documentation of equivalent educational experiences directed by the mission statement and scope of care. Certifications are required as pertinent to the program's scope of care. If a physician is certified in an area appropriate to the mission and scope of the service, certifications #1., 2., 11., and 13. are optional.

1. Advanced Life Support (ALS) according to the current standards of the European Resuscitation Council or approved equivalent
2. European Trauma Course according to the current standards of the European Resuscitation Council or approved equivalent
3. Altitude physiology/stressors of flight if involved in rotor wing or fixed wing operations (RW/FW)
4. Appropriate utilization of medical/surface interfacility services
5. Emergency Medical Services
6. Ambulance rules/regulations (S)
7. Hazardous materials recognition and response
8. Human Factors – Crew Resource Management – ACRM (Aeromedical Crew Resource Management). (See References)
9. Infection control
10. “Just Culture” and “Informed Culture” or equivalent education is strongly encouraged. (See References)
11. Neonatal Life Support (NLS) according to the current standards of the European Resuscitation Council or approved equivalent.
12. Patient care capabilities and limitations (i.e., assessment and invasive procedures during transport)
13. European Paediatric Advanced Life Support (EPALS) according to the current standards of the European Resuscitation Council or approved equivalent
14. Stress recognition and management
15. Sleep deprivation, sleep inertia, circadian rhythms and recognizing signs of fatigue
16. The medical director must demonstrate continuing education in transport pertinent to the pro-

gram's mission and scope of care.

03.02.03 The medical director(s) is actively involved in the quality management (QM) program for the service.

03.02.04 The medical director(s) is actively involved in administrative decisions affecting medical care for the service.

03.02.05 The medical director(s) sets and annually reviews medical guidelines for current accepted medical practise, and medical guidelines are in a written format.

03.02.06 The medical director(s) is actively involved in the hiring process, training and continuing education of all medical personnel for the service

03.02.07 The medical director(s) is actively involved in the care of critically ill and/or injured patients

03.02.08 The medical director(s) receives safety and risk management training on an annual basis (strongly encouraged)

Examples of evidence to meet compliance:

There is evidence of the medical director's involvement with the program through meeting attendance records, education records, chart reviews etc.

Examples of evidence to exceed compliance:

Medical director(s) attends Just Culture training and achieves advanced transport management certifications.

03.02.09 The medical director(s) is actively involved in orienting physicians providing on-line (in-transport) medical direction according to the policies, procedures and patient care protocols of the medical transport service.

03.02.10 Specific policies must 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 must also be addressed. Policies will be consistent with principles of aeromedical physiology. (RW/FW)

03.02.11 The medical director(s) ensures that surface 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 surface, but in some geographic locations, the distance would be prohibitive for surface transport.)

03.02.12 The medical director(s) must set a policy that insures compliance with regional/national disaster management regulations. This policy must address bedside-to-bedside care for ALS and Critical Care providers to prevent any diminution in level of care. The policy must also address situations where it may not be necessary to proceed from bedside to bedside with the patient. These incidents must be examined by the QM process.

03.02.13 The medical director(s) should maintain open communications with referring and accepting physicians and be accessible for concerns expressed by referring and accepting physicians regarding controversial issues and patient management.

03.02.14. Medical Control

1. Medical Control Physicians – On-line medical control physicians who are trained and identified by

the service must 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.

2. If the medical control physician's experience is lacking in a clinical area, he or she must 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.

3. Written policies and procedures indicate what therapies can be performed without on-line medical direction.

4. Medical control physicians are provided with triage guidelines to determine appropriate transport mode and team composition and on-scene triage guidelines developed and accepted by the specific EMS region. See References. (RW)

a. Triage guidelines may include provisions for auto launch if part of the scope of service

5. There is a policy that prohibits "freelance responses" (responding without being specifically requested)

Examples of evidence to meet compliance:

There is a formal outline and names and dates of medical control physicians who have completed this training. There is a formal medical control schedule in place and crews are aware of who to call and how to call (i.e., through Communications Centre, etc.) in the event Medical Control is required. Additionally, formal names and documentation of respective training for all physicians considered medical control should be on file at the program with evidence of said training readily available for review.

Examples of evidence to exceed compliance:

The medical director is involved in EMS on a regional and/or national basis. The medical director participates in peer-reviewed published research regarding medical transport.

03.03.00 CLINICAL CARE SUPERVISOR

Clinical Care Supervisor – Responsibility for supervision of patient care provided by the medical personnel must be defined by the service. All medical 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.

03.03.01 If transport nurses are part of the medical team, they must report to a nurse or physician on clinical issues.

03.03.02 The clinical supervisor is actively involved in the Quality Management/Quality Assurance/Performance Improvement of the program.

03.03.03 The clinical supervisor is actively involved in all administrative decisions affecting patient care.

03.03.04 The clinical care supervisor is actively involved in hiring, training and continuing education for all personnel who work for the service.

03.03.05 The clinical care supervisor must ensure adequate mechanisms for the evaluation of clinical practise of patient care providers.

03.03.06 The clinical care supervisor must demonstrate currency in the following or equivalent educational experiences as appropriate to the mission statement and scope of care and/or the clinical care supervisor must have immediate access to personnel with appropriate knowledge and experience as consultants.

1. Advanced Life Support (ALS) – documented evidence of current ACLS according to the European Resuscitation Council (not required for neonatal teams who do not provide adult care)
2. European Trauma Course according to the European Resuscitation Council or equivalent (not required for neonatal teams who do not provide paediatric/adult care) (See Education Matrix for equivalent criteria)
3. Human Factors – Crew Resource Management – ACRM (Aeromedical Crew Resource Management). (See References)
4. “Just Culture” or equivalent education – strongly encouraged
5. Neonatal Life Support (NLS) course or equivalent according to the current standards of the European Resuscitation Council – a required certification if medical personnel care for high-risk obstetric patients and/or neonatal patients (See Education Matrix for equivalent criteria)
6. Paediatric Advanced Life Support (PALS) or according to the current standards of the European Resuscitation Council for neonatal team members transporting patients greater than 28 days
7. Patient care capabilities and limitations during transport (i.e., assessment and invasive procedures)
8. Infection control and prevention
9. Stress recognition and management
10. Altitude physiology/stressors of flight if involved in rotorwing or fixed wing operations (RW/FW)
11. Appropriate utilization of medical/surface interfacility services (S)
12. Emergency Medical Services
13. Hazardous materials recognition and response
14. Sleep deprivation, sleep inertia, circadian rhythms and recognizing signs of fatigue
15. Safety and risk management training on an annual basis (strongly encouraged)

Examples of evidence to exceed compliance:

The clinical supervisor attends Just Culture training and achieves advanced certifications

03.04.00 PROGRAM MANAGER

The program manager may have overall responsibility for a program or for a specific base with or without

additional clinical responsibilities. (Follow criteria above if clinical responsibilities are part of the position description.)

03.04.01 The program manager must demonstrate currency in the following or equivalent educational experiences as appropriate to the mission statement and scope of care. Didactic education initially and on an annual basis must include but not be limited to:

1. Human Factors – Crew Resource Management – ACRM (Aero Medical Crew Resource Management) See References
2. “Just Culture” or equivalent education – strongly encouraged
3. Sleep deprivation, sleep inertia, circadian rhythms and recognizing signs of fatigue
4. Stress recognition and management
5. Safety and risk management training on an annual basis (strongly encouraged)
6. Quality Management, QM/QA/PI of the program and its implication to best practises
7. Knowledge of national aviation authority’s regulations as well as local and regional ambulance regulations as appropriate to scope of care
8. Specific transport management certification is strongly encouraged.

Examples of evidence to exceed compliance:

The program manager attends Just Culture training and achieves advanced certifications.

03.05.00 ORIENTATION, TRAINING, AND CONTINUING EDUCATION PROGRAM REQUIREMENTS

A planned and structured program must be required for all regularly scheduled critical care and ALS providers. Competency and currency in these competencies must be ensured and documented through relevant continuing education programs/certification programs or their equivalent listed in this section.

03.05.01 Patient Care Education (See Education Matrix for determining education needed per type of care.) The orientation, training and continuing education must be directed and guided by the transport program’s scope of care and patient population, mission statement and medical direction. A written education plan is required and updated on an annual basis. There is an education coordinator or an employee designated to track and trend education requirements.

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.
 - a. Pre-employment qualifications must include requiring experience relevant to the program’s scope of care and patient population(s).
 - b. Initial and ongoing training need not be absolutely equivalent depending on roles in

patient care for different providers as defined by the program 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 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.)

c. Didactic component of initial education must 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. The transport program will provide a basic outline of initial education that is not limited to, but must include:

- Advanced airway management
- Altitude physiology/stressors of flight (RW/FW)
- Anatomy, physiology and assessment for adult, paediatric and neonatal patients as outlined within the program’s scope of care and patient population. (For example, if the program’s scope of care includes all age groups of patients, then the anatomy, physiology and assessment of neonates, paediatric and adult patients must be included.)
- Cardiac emergencies and advanced cardiac critical care
- Didactic education that is mission specific and specific to scope of care and patient population, for example:
 - o Burn emergencies (thermal, chemical and electrical)
 - o Compliance issues and regulations
 - o Disaster and triage
 - o EMS radio communications
 - o Environmental emergencies
 - o Equipment education – airway, breathing and circulation equipment, defibrillators, pacemakers, monitors, IABP etc.
 - o Hemodynamic monitoring devices (such as 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) as appropriate to program’s scope of care
 - o High risk obstetric emergencies defined as “A transport that is directly related to pregnancy that may endanger the mother or foetus of a gestational age greater than 20 weeks. This does not include pre-existing conditions or trauma in the pregnant patient.”(Specific training guidelines can be found in References.)
 - o Road traffic collision safety management (RW)

- o Human Factors – Crew Resource Management (CRM)– Aeromedical Crew Resource Management (ACRM)
- o Infection control and prevention
- o “Just Culture” or equivalent education – strongly encouraged
- o Mechanical ventilation and respiratory physiology for adult, paediatric and neonatal patients as appropriate to the mission statement and scope of care of the medical transport service specific to the equipment
- o Metabolic endocrine emergencies
- o Multi-trauma (chest, abdomen, facial)
- o Neonatal emergencies (respiratory distress, surgical, cardiac) (Reference definitions and specific training guidelines.)
- o Oxygen quality controls include: hazard awareness, how to read cylinder levels, basic understanding of Compressed Gas Association (CGA) connections; how to safely transport liquid oxygen cylinders (if utilised) and knowledge of cylinder durations as per local and national regulations.
- o Paediatric medical emergencies
- o Paediatric trauma
- o Pharmacology
- o Quality Management – didactic education that supports the medical transport service’s mission statement and scope of care
- o Respiratory emergencies

Examples of evidence to exceed compliance:

**TEAMSTEPPS and LEAN are examples of processes that provide teamwork, root cause analysis and problem solving. (See References)*

- o Safety and risk management training (strongly encouraged). See specific Safety Education – 03.05.02
- o Scene management/rescue/extrication
- o Sleep deprivation, sleep inertia, circadian rhythms and recognizing signs of fatigue
- o EMS rules and regulations (Province or Government) rules regarding surface and air transport
- o Stress recognition and management
- o Toxicology

- o Transport vehicle orientation/safety and in-transport procedures/general vehicle safety including all types of vehicles the team may be exposed to including depressurization procedures for fixed wing (as appropriate) (See Safety Education 03.05.02)

*(See References for in-flight fire warnings from laptop battery failures and other high-energy batteries.)

d. Clinical Component of Initial Training – Clinical experiences will be based on the program’s mission, scope of care and patient population. Measurable objectives need to be developed and documented for each experience listed below reflecting hands-on experience versus observation only.

If simulation teaching/learning modalities are used as an adjunct to or substitution for clinical experiences, there must be documentation that the learning objectives were met. A four step process (found in the Education Matrix) provides guidelines to submit simulation education for approval by CAMTS EU (if simulation is the only training used to comply with ongoing clinical experiences). Simulation modalities may include the use of dynamic human patient simulators, standardized patients (trained medical actors), computerized interactive devices, virtual reality and serious gaming. Examples can be found in references. The following areas will be included for the scope of practise areas in which the team transports.

- Critical care (adult, neonatal, paediatric)
- Emergency care (adult, neonatal, paediatric)
- Invasive procedures on mannequin equivalent for practising invasive procedures. An approved mannequin or simulator may be used. (See Education Matrix for guidelines for use of a mannequin and HPS.)
 - o Neonatal intensive care
 - o Obstetrics
 - o Paediatric critical care
 - o Pre-hospital care
 - o Tracheal intubations
- Since airway management is an essential life-saving measure, no less than 5 successful live, (animal labs are also acceptable), cadaver, or HPS endotracheal intubations required for each age group in scope of care. Supraglottic, nasal and other airway measures may be practised on static mannequins
- Alternative airway management will be included for all transport team members. Alternative airways must be selected and utilised based on the mission and scope of practise of the transport team. For example, a combitube is not appropriate for a neonatal team, but a laryngeal mask airway (LMA) may be.

2. Continuing education/staff development must be provided and documented for all full-time and part-time Critical Care and ALS Providers. These must be specific and appropriate for the mission

statement and scope of care of the medical transport service.

a. Didactic continuing education must include an annual review of:

- Human factors – Crew Resource Management - ACRM
- Infection control
- “Just Culture” or equivalent education – strongly encouraged.
- Safety and risk management training on an annual basis (strongly encouraged)
- Sleep deprivation, sleep inertia, circadian rhythms and recognizing signs of fatigue
- EMS rules and regulations regarding surface and air transport
- Stress recognition and management

b. Clinical and laboratory continuing education must be developed and documented on an annual basis as pertinent to scope of care to follow. If simulation teaching/learning modalities are used as an adjunct to or substitution for clinical experiences, there must be documentation that the learning objectives were met. Simulation may include the use of dynamic human patient simulators, standardized patients (trained medical actors), computerized interactive devices, virtual reality and serious gaming. Examples can be found in references.

- Critical care (adult, paediatric, neonatal)
- Emergency/trauma care
- Invasive procedure labs
- Labour and delivery
- 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)

o Since airway management is an essential life-saving measure, no less than 1 successful live, cadaver, HPS or mannequin airway management experience per quarter is required for each Critical Care or ALS provider, for each type of airway listed within the program protocols (endotracheal, supraglottic, nasal, etc.) and for each age group in scope of care.

3. Competencies – 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 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 other courses that have been developed by programs, hospitals, agencies that may be used to meet used to meet educational requirements. 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 be submitted to CAMTS EU as an attachment to the PIF application and must include primary and secondary assessment, advanced physiology and advanced skills. Trauma competency equivalents are noted in the Education Matrix. Education developed by the program as an equivalent must be submitted to the CAMTS Education Committee for pre-approval. Courses offered outside Europe should mirror the courses below and must be submitted with an accreditation application.

- a. Basic Life Support (BLS) – documented evidence of current BLS certification according to the European Resuscitation Council provider course
- b. Advanced Life Support (ALS) – documented evidence of current ALS according to the European Resuscitation Council (not required for neonatal teams who do not provide adult care)
- c. European Trauma Course according to the European Resuscitation Council or equivalent (not required for neonatal teams who do not provide paediatric/adult care) (See Education Matrix for equivalent criteria)
- d. Paediatric Advanced Life Support (PALS) according to the European Resuscitation Council or national equivalent required for neonatal team members transporting paediatric patients greater than 28 days old.
- e. Neonatal Life Support (NLS) or equivalent (see Education Matrix for equivalent criteria) according to the current standards of the European Resuscitation Council or equivalent – NLS required if medical personnel care for high-risk obstetric and/or neonatal patients
- f. Current nursing certifications pertinent to scope of care and patient population required for nurses who have been employed for more than 2 years. Specialist transport qualifications strongly encouraged for teams that transport paediatric (requiring specialized care in a PICU) and/or neonatal patients
- g. Current paramedic certifications pertinent to scope of care and patient population required for paramedics who have been employed for more than 2 years and are conducting ALS/BLS and critical care transports.

Examples of evidence to meet compliance:

Initial and ongoing education is tracked and documented that includes certifications, currencies and clinical experiences. If education and clinical experiences are obtained outside the program (or by the same employer, but different department) these are documented.

Examples of evidence to exceed compliance:

Just Culture courses are completed by more than 50% of the staff. Nursing and paramedic certifications are required and current for all staff.

4. Independent Specialty Care Providers

- a. Independent Specialty Care Providers 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. paediatric).

b. Continuing education must be provided and documented for specialty care providers and must 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 maintained by currency in specialty education required by position description

03.05.02 Safety Education

1. Education Specific to the In-Flight and Surface Transport Environment – Completion of all the following educational components must be documented for each of the medical personnel. These components must 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. Altitude physiology
- 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: (RW/FW)
 - Aircraft evacuation procedures (exits and emergency release mechanisms) to include emergency shutdown – engines, radios, fuel switches, electrical and oxygen shutdown
 - Aviation terminology and communication procedures to include knowledge of emergency communications knowledge of emergency communications frequency
 - In-flight and surface fire suppression procedures (use of fire extinguishers)
 - In-flight emergency and emergency landing procedures (i.e., position, oxygen, securing equipment)
 - Safety in and around the aircraft, including national aviation rules and regulations pertinent to 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)

- Minimal safety requirements on ground support ambulances used away from base for fixed wing operations, for example, adequate number and functioning seat belts for all team members, no loose equipment

f. Ground operations (RW)

- Landing sites
 - o On-scene requirements
 - o Hospital landing site changes or special needs review
- Patient loading and unloading – policy for rapid loading/unloading procedures
- Refuelling policy for normal and emergency situations

g. Hazardous materials recognition and response (Even if not part of the service's mission statement, personnel must be able to recognise a hazardous materials situation if encountered.)

h. Road traffic collision safety management (See References)

i. Medical patient transport considerations (assessment/treatment/preparation handling/equipment)

j. Survival training/techniques/equipment that is pertinent to the environment/geographic coverage area of the medical service (Includes water egress survival training if en route travels are routinely over large bodies of water such as rivers, lakes, bay areas based on the program risk assessment)

- Smoke in the cockpit/cabin, firefighting in the cockpit/cabin
- Emergency evacuation of crew(s) and patient(s)
- Hands-on practise of survival techniques and the use of the items contained in the survival kit are conducted at least once every two years

Examples of evidence to meet compliance:

Water egress survival training should include: hazards to aircraft and personnel during over-water operations; pre-ditching, considerations and procedures; emergency ditching and evacuation procedures; upright emergency evacuation; emergency evacuation; surface water survival and rescue water skills. Fixed wing services that are required to carry emergency equipment, such as inflatable rafts, should provide this training.

Examples of evidence to exceed compliance:

For underwater escape training, use full immersion/inversion dunker capable of inducing disorientation and accurately replicating the aircraft interior if traversing rivers or larger bodies of water on a regular basis. Rescue/recovery training – helicopter at sea simulation should be provided if traversing rivers or larger bodies of water on a regular basis.

2. Completion of all the following educational components must be documented for each of the surface transport personnel. These components must be included in initial education as well as

reviewed on an annual basis 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 surface interfacility service. (S)

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 surface vehicle physically present when providing this training.) This training addresses:

- Evacuation procedures (exits and emergency release mechanisms)
- Fire suppression procedures (location and use of fire extinguishers)
- Patient loading and unloading procedures
- Refuelling procedure with patient(s) on board
- Use of road or marine hazard equipment
- Specific capabilities, limitations and safety measures for each surface vehicle used, which includes specific training for backup or occasionally used surface vehicles

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.

3. Specialty personnel

a. Specialty personnel who are added to the regularly scheduled transport team (as for neonatal, paediatric, perinatal or IABP transports) must follow the criteria listed below:

- Specialty care personnel must have appropriate licensure or certification requirements by appropriate agencies or governing bodies and have relevant specialty experience as described by program policy.
- Liaison roles with the host medical transport service ensure cohesive and safe operational relationships, and well-defined roles and policies.
- Specialty care personnel must be accompanied by one regularly scheduled medical personnel.
- Pre-transport safety briefings are performed prior to each transport.
- Specialty care personnel are familiar with the program's policies, safety and survival techniques as they relate to the specific aircraft or surface vehicle.

b. Specialty personnel who contract with a transport service but are not accompanied by regularly scheduled team members must follow the criteria listed below. Training is docu-

mented and verified on an annual basis.

- Specialty care personnel must be educated in in-flight and surface treatment modalities, altitude physiology, general aircraft and ambulance safety, and emergency procedures as listed in Section 03.05.02

03.05.03 Community Outreach Safety Program

1. The medical service must facilitate integration of all emergency services and transport modalities by supporting joint continuing education programs and operational procedures. These integration efforts must include but are not limited to the following:

- a. Staff from varied teams are trained in hazardous materials recognition.
- b. Staff from varied teams are trained in disaster response and triage.
- c. The medical transport service must 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 that include an integrated response to terrorist events.
- d. There is a response plan to all types of disaster, including weapons of mass destruction, terrorist events and natural disasters.
- e. There is a policy that prohibits “freelance responses” (responding without being specifically requested) to disasters.
- f. All personnel are familiar with the plan to respond to disasters.
- g. Emergency Management classes are provided for scene and disaster response.
- h. Interface of the medical team with response teams from other regional organizations

2. 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: (RW)

- a. Identifying, designating and preparing an appropriate landing zone (LZ)
- b. Personal safety in and around the helicopter for all ground personnel
- c. Procedures for day/night operations, conducted by the medical team, specific to the aircraft
- d. High and low reconnaissance
- e. Two-way communications between helicopter and ground personnel to identify approach and departure obstacles and wind direction
- f. Approach and departure path selection
- g. Procedures for the pilot to ensure safety during ground operations in a LZ with or without engines running

h. Crash recovery procedures specific to the aircraft make and model must minimally include: (RW)

- Location of fuel tanks
- Oxygen shut-offs in cockpit and cabin
- Emergency egress procedures
- Aircraft battery – stay away from it
- Emergency shut-down procedures

i. Education regarding “weather shopping” must be included. (RW) (See References)

3. Records are kept of initial and recurrent safety training of pre-hospital, referring and receiving ground support personnel. (RW)

03.06.00 MEDICAL CONFIGURATION OF THE TRANSPORT VEHICLE

(See 03.00.00 for determining equipment needed specific to each Medical Mission Type)

03.06.01 Any in-service aircraft/ ambulance must 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. Patient care issues are considered when choosing the aircraft or surface transport vehicle.

1. Configuration of the transport vehicle interior must not compromise the ability to provide appropriate care or prevent providers from performing emergency procedures if necessary.

2. Medical transport personnel have access to the patient in order to begin and maintain basic and advanced life support treatment. If there is an unusual configuration, crew must be able to demonstrate optimal methods of airway and other interventions and management

3. The transport vehicle configuration allows for stabilizing the patient’s airway and childbirth procedures if that is part of the service’s mission.

4. The service’s mission and ability to transport two or more patients must not compromise the airway or stabilization or the ability to perform emergency procedures on any on-board patient.

a. The transport vehicle must have access for simultaneous airway management if there is a two-patient configuration.

b. For all transports, there are written guidelines describing types of patients that can be transported in a two patient stretcher configuration if the transport vehicle configuration does not allow for full access to the second patient.

c. For all transports, strict policies will address weight limitations, patient condition based on anticipated needs, and patient position in the transport vehicle.

d. Policies will be written and adhered to for one or more patient transports if the interior configuration of the transport vehicle does not allow for uninhibited access to one or more

patients while en route. Policies will address under what circumstances two critical patients may or may not be transported, including staffing and equipment.

e. A policy prohibits dual patient transport inside the same incubator unless the situation is conjoined twins or twins are transported with full complements of equipment for each and show no evidence of infection in one or different infections in both. In the event that one twin arrests, there must be mitigation, i.e., additional warming method that can be applied to the non-arresting twin. (RW/FW/S)

5. Airway and alternate airways – There must 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.

a. In an ambulance it is strongly encouraged that seating be designed in the ambulance so that patient care can be rendered from a seat-belted position. Use of shoulder harnesses on side facing bench seats are discouraged based on peer reviewed studies regarding front end collisions. (See References) (S)

b. Cuff pressure manometer (unless the cuff is filled with saline and not air (RW/FW)

c. There is a policy addressing that patients who are on a ventilator are maintained on a ventilator throughout the transport

6. Delivering Oxygen – Oxygen is installed according to national and national aviation and ground ambulance regulations. Medical transport personnel can determine how oxygen is functioning by pressure gauges mounted in the patient care area.

a. Each gas outlet is clearly identified.

b. Oxygen flow can be stopped at or near the oxygen source from inside the aircraft or ambulance. The following indicators are accessible to medical transport personnel while en route:

- Quantity of oxygen remaining
- Measurement of litre flow

c. A variety of oxygen delivery devices consistent with the service's scope of care must be available.

d. Adequate amounts of oxygen for anticipated litre flow and length of transport with an emergency reserve must be available for every mission.

e. For those flights meeting the definition of "long range" (any patient leg in excess of 3 hours measured in time, not distance, because of winds, where there are no alternative capabilities for patient care needs or aviation operations) additional policies must be in place to address the following

- Ability to obtain oxygen when away from the base
- Adequate/required fittings, connections, tools, and appliances for servicing the oxygen

- Adequate crew training to meet EASA or AHJ regulations

f. An appropriately secured portable oxygen tank with a delivery device must be carried on the transport vehicle 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 or immediately adjacent to the patient while aircraft or ambulance is in motion.

g. 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 flights. For those flights meeting the definition of "long range," additional policies must be in place to address how additional portable oxygen can be obtained if planned surface transport times are exceeded.

h. There is appropriate storage of oxygen in the facility according to national health and safety standards.

i. Oxygen flow meters and outlets must be padded, flush mounted, or so located to prevent injury to medical transport personnel, patients or passengers.

7. Maintaining IV Fluids

a. IV supplies and fluids are readily available.

b. Hangers/hooks are available that secure IV solutions in place or a mechanism to provide high flow fluids if needed.

c. 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 stop/manoeuvre of the ambulance.

d. Glass IV containers are not used unless required by specific medications and are properly secured.

e. A minimum of three IV infusion pumps (may be in the same device if individually metered lines) are on the transport vehicle or immediately available for critical care transports and as appropriate to the scope of care. IV infusion pumps that have a customizable medication formulary and dosage calculations are encouraged.

8. Medications consistent with the service's scope of care are accessible.

a. 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.

b. Medications are easily accessible.

c. Controlled substances are in a locked system and kept in a manner consistent with local and national regulations.

- Controlled substances are logged in and out in manner consistent with local and national regulations.
- For services that transport medications between bases, a policy exists that assures safe and secure transport of medications between bases that is consistent with state and/or national laws.
- If program's transports involve team members lodging overnight with controlled substances, there is a policy to address securing/storage.
- Policies include requirements for accounting for and disposing of unused controlled substances.

d. Storage of medications allows for protection from extreme temperature changes if environment deems it necessary.

e. If there is a refrigerator on the vehicle for medications, a temperature monitoring and tracking policy is required, and the refrigerator is used and labelled "for med use only".

f. There is a method to check expiration dates of medications and supplies on a regular basis.

9. Pressure Ulcers – Policies and procedures are written and followed to prevent pressure ulcers for transports longer than 2 hours and/or reduce the impact of pressure ulcers during transport.

a. Patient assessment and documentation of pressure ulcers is done prior to, during and following each transport, according to program policy

b. Pressure reducing devices and/or methods are used when needed.

10. 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 transport vehicle and available per Type of Care.

a. Cardiac monitoring capabilities: A cardiac monitor capable of performing defibrillation, external cardiac pacing and 12 lead capture is secured and positioned so that the display is visible.

b. Extra batteries or power source are available for cardiac monitor/defibrillator or external pacemaker.

11. Defibrillator:

a. Defibrillator is secured and positioned for easy access.

b. Semiautomatic or automatic external defibrillator is required for some BLS Providers (where permitted as scope of care for an ambulance technician).

c. Paediatric paddles/pads are available if applicable to the scope of care of the medical transport service.

d. A defibrillator with appropriate size pads and settings must be available for neonatal

transports (if neonatal transports are conducted).

12. External pacemaker on-board or immediately available as a carry-on item.

13. Advanced airway and ventilatory support equipment:

a. Laryngoscope and tracheal intubation supplies, including laryngoscope blades, bag-valve-mask, endotracheal cuff pressure manometer (for air transport if cuff is air filled) and oxygen supplies, including PEEP valves; appropriate for ages and potential needs of patients transported

b. A mechanical ventilator, with CPAP and BiPAP (Bi-Level) capabilities, and circuit appropriate to age and scope of care on-board for critical care transports as pertinent to the scope of care of the medical transport service.

c. Equipment for alternative airways on-board transport vehicles at all times and protocol for management of missed airway attempts

d. Two suction units, one of which is portable and both of which must be required to deliver adequate suction

e. Pulse oximetry on-board for critical care missions or immediately available for ALS

f. End-tidal CO₂ continuous wave-form monitoring capabilities available

g. If inhaled nitric oxide or other inhaled gases are used, policies address the following:

- Monitoring
- Cylinder safety
- Transportation regulations
- Occupational exposure
- Equipment issues
- Weight
- Mounting in the vehicle
- Delivery of the drug
- Emergency procedures (for example troubleshooting for battery failure, delivery fault, system failure)

14. Automatic blood pressure device, sphygmomanometer, doppler or arterial line monitoring capability on-board or immediately available

15. Haemorrhage control equipment

16. Devices for decompressing a pneumothorax and performing an emergency cricothyroidotomy

available if applicable to scope of care of the medical transport service

a. Foetal doppler heart rate monitoring required for high risk OB transports

b. Blood Products

- For services who administer blood, there must be a policy addressing:
 - o The program has a written agreement with a certified blood bank.
 - o Determination of when the blood product was released from the Blood Bank. Blood must be maintained at a controlled temperature of 2-8 degrees C during transport and must be infused within 4 hours of removal from thermal control. The temperature of the cooling mechanism is monitored and recorded.
 - o How the blood will be verified to match the patient including at least two health care providers in the process
 - o Documentation of type of blood product, type, quantity, time it was started and stopped, Unit #, amount infused during the transport and whether or not a reaction occurred
 - o Procedure to follow if a suspected or actual transfusion reaction occurs
 - o Policy on disposition of unused blood
- If blood products are stored by the service, policy addresses:
 - o Proper storage conditions (Red blood cell products 1-6 degrees Centigrade)
 - o Continuous monitoring and documentation of refrigerator temperature readings to ensure it is in range, including an audible alarm mechanism if temperature falls out of range
 - o Daily checks and documentation of the monitoring equipment and automatically recorded temperature readings
 - o Procedure to follow if temperature falls out of range

17. Incubator (within the scope of the program)

a. Incubator must regulate temperature and oxygen while allowing visibility and easy access to the neonate.

b. There is a capability to mix oxygen with air within the range of 21% to 100%

c. Corrected gestational age is an acceptable trigger for use of an incubator versus a portable infant transport unit. For example, a 24 week gestation at one month of age may still need consistent servo heat versus a warming pad.

d. Ventilator must be specific to age and size of the patient

18. The transport vehicle design and configuration must not compromise patient stability in loading, unloading or transport operations.

a. The transport vehicle must have an entry that allows loading and unloading without excessive manoeuvring (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.

b. There is a written policy on conducting CPR during transport.

c. A minimum of one stretcher must be provided that can be carried to the patient.

- Aircraft stretchers and the means of securing it in-flight must be consistent with national aviation regulations. Ambulance stretchers must comply with state and national laws.
- Policy indicates the maximum gross weight allowed on the stretcher (inclusive of patient and equipment) as consistent with manufacturer's guidelines.
- The stretcher must be large enough to carry the 95th percentile adult patient, full length in the supine position.
- The stretcher must 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.
 - o The head of the stretcher is capable of being elevated at least 30 degrees for patient care and comfort.
 - o 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.
 - o The stretcher mattress must be sealed to prevent absorption of blood and other body fluids, easily cleanable. The stretcher must have adequate padding for comfort and prevention of potential skin breakdown.

d. Securing the patient:

- Patients transported by air are restrained with a minimum of three cross straps. Cross straps are expected to restrain the patient at the chest, hips and knees.
- Patients that are loaded head forward must additionally be restrained with a shoulder harness restraint. (RW/FW)
- Belt locations must be adjustable along the length of the stretcher to accommodate patients' specific medical situations, for example, pregnant patients or specific injury locations.
- Patients under 20kg. must be provided with an appropriately sized restraining de-

vice (for patient's height and weight), which is further secured by a locking device.

- o All patients from 5 - 20kg) 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.
- o For infants up to 5 kg, a baby pod, car bed or heated bed may be used.
- o If a car seat is used, it must have a nationally approved safety sticker, such as applies to AHJ regulation.

e. Securing Equipment

- Incubator:
 - o There must be some type of restraining device within the incubator to protect the infant (under 5 kg) in the event of air turbulence or poor road conditions.
 - o Incubator 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 incubator becomes necessary.
- Medical equipment will at no time share a seat belt intended for patient being secured to the stretcher. (head, side rails, or between/beneath/top of the patient's legs).
- Ancillary equipment (chargers, battery packs, etc.) must be secured to prevent becoming a projectile in the event of turbulence or a crash.
- Velcro is not to be used as a primary or exclusive securing device for medical equipment or ancillary devices.
- If straps or belts are used to secure equipment, they must be rated to keep the weight and configuration in place to a minimum of 5G's.
- Rated cargo nets are strongly preferred over individual straps or belts to secure equipment bags.

19. Supplemental lighting system will be installed in the transport vehicle 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. There must be adequate lighting for patient care: Use of red lighting or low intensity lighting in the patient care area is acceptable if not able to isolate the patient care area from effects on the cockpit or on a vehicle operator.
- c. For those flights meeting the definition of "long range," additional policies must be in place to address how adequate cabin lighting will be provided during fuelling and or technical

stops to ensure that proper patient assessment can be performed and adequate patient care provided.

19. Supplemental lighting system will be installed in the transport vehicle 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. There must be adequate lighting for patient care: Use of red lighting or low intensity lighting in the patient care area is acceptable if not able to isolate the patient care area from effects on the cockpit or on a vehicle operator.
- c. For those flights meeting the definition of “long range,” additional policies must be in place to address how adequate cabin lighting will be provided during fuelling and or technical stops to ensure that proper patient assessment can be performed and adequate patient care provided.

20. A minimum of four (4) electric power outlets is strongly encouraged with an inverter or appropriate power source of sufficient output to meet the requirements of the complete specialized equipment package without compromising the operation of any electrical transport vehicle equipment. Extra batteries are required for critical patient care equipment.

- a. The electrical load is reviewed to minimize use of additional power cords and power strips.
- b. Fixed wing aircraft are required to have two inverters in the aircraft, independent of each other (if conducting international transports)

21. 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 transport vehicle.

- a. Equipment must be periodically tested and inspected by a certified clinical engineer.
- b. Equipment inspections and records of inspections are maintained according to the program’s guidelines.
- c. For long range transports, adequate back-up battery supply must be available to ensure all medical equipment remains functional during technical stops, should a power failure exist, etc.

22. 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 national health and safety regulations with the appropriate disinfectant. Non-fabric sides/ceilings are strongly encouraged. Floors are not carpeted.

23. The interior of the aircraft must be climate controlled to avoid adverse effects on patients and personnel on board. (RW/FW/S)

- a. Cabin temperatures must be measured and documented every 15 minutes during a patient transport until temperatures are maintained within the range of 10-35 degrees C for

aircraft and range of 20-25 degrees C for ground vehicles. Thermometer is to be mounted inside the cabin.

b. The program has written policies that address measures to be taken to avoid adverse effects of temperature extremes on patients and personnel on board.

c. In the event cabin temperatures are less than 10 degrees C or greater than 35 degrees C, the program will require documentation be red flagged for the QM process to evaluate what measures were taken to mitigate adverse effects on the patient and crew and what outcomes resulted.

d. For those flights meeting the definition of “long range,” additional policies must be in place to address how adequate cabin temperature will be maintained during fuelling and/or technical stops to ensure patient, crew and passenger comfort.

24. It is strongly encouraged that crews have life preservers easily accessible on helicopter flights operated over water that is beyond autorotational distance from the shoreline – from take off until no longer over water. (RW)

Examples of evidence to meet compliance:

Cabin temperatures, tracking, trending and measures to mitigate adverse effects are expected to be documented as part of the QM process – not necessarily part of the patient’s record.

03.07.00 INFECTION CONTROL

03.07.01 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 or national standards as published by the European Centre for Disease Prevention and Control (ECDC), Centers for Disease Control and Prevention (CDC), and World Health Organization (WHO).

1. Policies and procedures must be written and readily available to all personnel of the medical transport service.

2. There is an Exposure Control Plan (ECP) consistent with national standards. The ECP includes at a minimum:

a. A reference for work restrictions for personnel exposed to or infected with an infectious disease

b. A list of the risks associated with EMS system responders and medical teams as well as diseases prevalent in coverage areas specific to the program such as pertinent national risks.

c. A blood-borne pathogen program.

3. Additional medical and agency resources pertinent to infection control must be identified and made available in policies to all medical transport personnel, for example, isolation precautions for specific diseases/conditions.

4. Education programs will include the institution’s/service’s infection control resources, programs,

policies and equivalent national guidelines. In addition, initial and annual education regarding identification, management and safety related to patients with potentially infectious pathogens is documented.

5. Infection control policies and procedures will be reviewed on an annual basis.

6. Education programs and policies regarding latex allergies may include:

- a. Patients and employees at risk for latex sensitivities and symptoms manifested by an allergic reaction
- b. Maintaining a latex-safe environment
- c. Methods to minimize latex exposure to lessen risks of allergic reactions in medical personnel

7. Preventive measures – Medical transport teams transporting patients must practise preventive measures lessening the likelihood of transmission of pathogens. Policies and procedures address:

a. Personnel health concerns and records of:

- Pre-employment and annual physical exams or medical screening to include:
 - o History of acute or chronic illnesses
 - o Illnesses requiring use of medications that may cause drowsiness, affect judgment or coordination
 - o Immunisation history appropriate to the scope of practise – transport team members encouraged to have tetanus immunisation (measles, mumps, and rubella (MMR) immunisations are encouraged for those born after 1957.) Hepatitis B vaccine must be offered and if the employee has not previously had the vaccination or does not have adequate titres and declines, the program must have a signed declination form
 - o Weight and lifting/strength/agility testing as appropriate to policies of the service
 - o Determination of whether individual is fit for duty
- Provide annual tuberculosis testing (purified protein derivative) as consistent with current regional/national guidelines. This includes medical personnel, pilots and mechanics. (The ECDC, CDC or WHO may deem the localized region low risk and annual testing not necessary, but this applies only if the service does not operate or respond outside of the local region)
- International immunisation history of the transport team is documented if appropriate to the scope of care and per ECDC, CDC or WHO recommendations.

b. Management of communicable diseases and infection control in the transport environment is outlined in policies.

- Use of gloves, eye and mouth protection. Personal protective equipment is readily accessible in the transport vehicle or issued to the medical transport team.
 - Use of safety needles and blunt or other type system to lessen the risk of needle sticks to those who come in contact.
 - Sharps disposal container for contaminated needles and collection container for soiled disposable items on the transport vehicle. Policy will promote proper disposal of sharps as well as tracking and investigation of sharps that are not properly disposed.
 - Cleaning and disinfecting with appropriate disinfectant of the patient cabin/compartment area, equipment, and personnel's soiled uniforms.
 - Mechanism for identifying those at risk for exposure to an infectious disease.
- c. A plan for communication, as soon as possible (verbal, electronic), between the medical transport service personnel, EMS providers, and hospital when exposure is suspected/confirmed to include what follow-up is necessary.
- Follow-up is documented.
- d. A policy for special precautions when transporting patients with known infectious diseases.
- There is also a method to verify patient's immunization history for international transport.
 - Blood specimens or other potentially infectious materials must be placed in a leak proof, sealed container during transport.
 - Disposal of hazardous materials from the aircraft or ambulance meets federal AHJ regulations.
- e. Proper cleaning or sterilization of all appropriate instruments or equipment
- f. Hand washing before and after each invasive patient intervention and after removing gloves
- When hand washing facilities are not available, alcohol-based hand rub must be used.
 - Alcohol based hand rubs are the preferred method of routine hand hygiene. Soap and water must be used if hands are contaminated with blood and/or body fluids, after using the restroom and after contact with a patient diagnosed with *C. difficile*.
- g. Management maintains documentation related to any potentially infectious pathogens including confidential records of exposure incidents and post-exposure management. (Post exposure management includes identification and testing of source patient, baseline and follow-up testing of exposed employee, making counselling resources available, and offering Hepatitis B vaccination.) All transport team vaccination records are kept appropriately.
- h. A policy addresses access to post exposure prophylaxis (PEP) medications for HIV,

meningococcal infections, etc. The PEP medications must be available in a timely manner for all team members.

i. Where there is likelihood of occupational exposure, the following are prohibited: eating, drinking, applying cosmetics or handling contact lenses.

j. 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 must be a policy to address the nutritional needs of patients and personnel.

04.00.00 - COMMUNICATIONS

04.01.00 THE AVIATION CERTIFICATE HOLDER

The AHJ Certificate Holder has the responsibility and authority to make all flight release decisions. (RW/FW)

04.01.01 The certificate holder must have procedures established for locating each flight for which flight plan is not filed.

04.02.00 COMMUNICATIONS EQUIPMENT

04.02.01 Communications equipment on the aircraft and ambulance – 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) must be capable of transmitting and receiving the following:

1. Medical direction
2. Communications centre
3. Air traffic control (aircraft)
4. Emergency Services (EMS, law enforcement agencies, fire, etc.) (Surface, RW and FW responding to EMS).

04.02.02 Pilot is able to control and override radio transmissions from the cockpit in the event of an emergency situation. (RW/FW)

04.02.03 Medical team must be able to communicate with each other during flight. Helmets with communications capabilities are required on RW.

04.02.04 If mobile phones are part of the on-board communications equipment, they are to be used in accordance with AHJ regulations. (See References) (RW/FW)

1. For aircraft, mobile phones must be shut off or placed in airplane mode whenever required by the AHJ and the notice according to AHJ regulations must be posted in the aircraft. (RW/FW)
2. A policy prohibits mobile phone or other communications devices without an acceptable integrat-

ed hands free system use while the vehicle is in motion or while refuelling except for vital communications or as compliant with or national regulations. Texting is strictly prohibited. (RW/FW/S)

3. Surface providers whose medical director(s) has established the requirement for transmission of biomedical telemetry may utilize the mobile telephone system for such communications.

04.03.00 COMMUNICATIONS SPECIALISTS

A Communication Specialist must be assigned to receive and coordinate all requests for the medical transport service.

04.03.01 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. (Programs must be able to demonstrate how they assign staffing levels, for example, number of communication specialists on duty per shift relevant to the number of vehicles and teams in service.)

b. There are relief personnel with the appropriate training available for periodic breaks.

c. Personnel must have at least 10 hours of rest with no work-related interruptions prior to any scheduled shift of 12 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.

d. On-site shifts are routinely scheduled for a period not to exceed 12 hours. Shifts in excess of 18 hours are not acceptable. In addition:

- 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 must be no adverse personnel action or undue pressure to continue in this circumstance.
- Management must monitor transport volumes and personnel’s use of the “time out” policy to ensure that personnel utilize the right to call “time-out” appropriately.
- A risk assessment that addresses fatigue and focuses on volume and other distractions in the communications centre.

2. Communications personnel are provided with an opportunity to join wellness programs offered by the medical transport service.

04.03.02 Training of the designated person must be commensurate with the scope of responsibility of the Communications Centre personnel.

1. Initial training, which must include:

- a. Assistance with the hazardous materials response and recognition procedure using appropriate reference materials.
 - b. Computer literacy and software training.
 - c. Crew Resource Management (CRM) pertinent to communications.
 - d. Customer service/public relations/phone etiquette.
 - e. Familiarization with equipment used in the field and inter-facility settings.
 - f. General safety rules and emergency procedures pertinent to medical transportation and transport following procedures.
 - g. Knowledge of EMS – roles and responsibilities of the various levels of training –BLS/ALS ambulance technician/paramedic.
 - h. Knowledge of national aviation regulations and Federal Communications Commission or AHJ regulations or equivalent as pertinent to medical transport service. (RW/FW)
 - i. Medical terminology and obtaining patient information.
 - j. Navigation techniques/terminology, transport following and map skills – including an understanding of GPS navigation and approaches. (RW/FW)
 - k. Post Accident/Incident Plan (PAIP).
 - l. Quality management.
 - m. Sleep deprivation, sleep inertia, circadian rhythms and recognizing signs of fatigue.
 - n. Local regulations regarding EMS.
 - o. Stress recognition and management to include resources for Critical Incident Stress Debriefing or other type of post critical incident counselling.
 - p. Types of radio frequency bands used in medical and ground EMS.
 - q. Understanding weather interpretation and how to retrieve current and forecasted weather to assist the pilot during a transport if other means are not in place within the organization. (RW/FW)
2. There is evidence of annual training and of training as policies and equipment changes occur and also includes:
- a. ACMRM or Crew Resource Management (CRM) pertinent to communications.
 - b. Post Accident/Incident Plan (PAIP).
 - c. Sleep deprivation, sleep inertia, circadian rhythms and recognizing signs of fatigue.
 - d. Stress recognition and management to include resources for Critical Incident Stress De-

briefing or other type of post critical incident counselling.

Examples of evidence to meet compliance:

If the AHJ Certificate Holder is not the employer of communications centre staff, there is evidence of interface with training and policies that meet the Certificate Holder's operational control specifications.

3. Specific communications certifications are strongly encouraged, and if required by position description, must be current. This is particularly relevant if the service receives emergency requests for transport from the general public.

4

COMMUNICATIONS POLICIES

04.04.00 COMMUNICATIONS QM PROGRAM

Communications is part of the program's QM program (and there are QM criteria specific to Communications), and communications personnel are involved in staff, safety and QM meetings

04.05.00 SHIFT BRIEFINGS

There are shift briefings conducted at the beginning of each shift to assure continuity between shifts that include communications personnel.

04.06.00 POST TRANSPORT DEBRIEF

A post transport debrief is conducted after each transport that includes the communications specialist when communications issues are involved. (RW/FW/S)

04.07.00 FORMAL MEETINGS

Formal periodic meetings (separately held or part of the program's staff meetings) are strongly encouraged for which minutes are kept on file. Minutes will include who is presiding, discussion and who was present. There are defined methods, such as a communications book or electronic mechanisms, for disseminating minutes and information between meetings.

04.08.00 COMMUNICATIONS POLICIES - must be in writing and include the following:

04.08.01 Transport requests are accepted from authorized personnel with sensitivity to cultural differences and without discrimination due to race, creed, sex, colour, age, religion, national origin, ancestry or handicap. "Emergency calls" or other requests that 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.

04.08.02 There is a written policy that at the time of a request, the pilot is not informed of the patient condition or age unless there are operational considerations (for example: weight, extra equipment etc.)(RW/FW)

04.08.03 There is a written policy designed to discourage “shopping” by first responders and other requesting agents that specifically addresses how the program interfaces with other air medical services in the same coverage area to alert them of a weather turn-down. It is recognised that programs in a common geographic area may experience differing weather conditions and that programs may have differing capabilities. Programs (RW/FW that respond locally to small clinics – essentially scene flights) should:

1. Ask the requesting agent if another flight program had turned down the request.
2. Notify the requesting agent that the programs in their coverage area share weather information and turn-downs for safety reasons.
3. Notify other programs within their coverage area of the turn-down as soon as possible.
4. Provide the on duty pilot with contact information from other programs for questions about the weather concerns and details (fog, precipitation, wind, etc.).
5. Inform the on-duty pilot immediately if notified of a weather turn-down by another program.
6. Have written evidence of tracking the requests turned down for weather and of participation in regional notification systems as described in 1 through 5 above.

04.08.04 A readily accessible post accident/incident plan must be part of the transport following protocol so that appropriate search and rescue efforts may be initiated in the event the aircraft or surface ambulance is overdue, radio communications cannot be established nor location verified. There must be a written plan to initiate assistance in the event the ambulance is disabled.

1. Post accident/incident 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 surface). This list must 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, health department and other team members.
 - b. Notification plans include appropriate family members and support services to family members following a tragic event. There must be timely notification of next of kin. It is strongly recommended that:
 - Family assistance includes coordination of family needs immediately after the event e.g. transportation, lodging, memorial/burial service, condolences, initial grief support services/referrals, (usually through appointment of a family liaison).
 - Continuity includes follow through with the family after the event (e.g. submission of crew to memorial services, the continuation of grief counselling and support referrals, the inclusion of families in decision-making on anniversaries/memorials, and check-ins following release of accident investigation reports).

c. Consecutive guidelines to follow in attempts to:

- Communicate with the aircraft or ambulance.
- Initiate search and rescue or ground support.
- Develop a back-up plan for transporting the ambulance patient in the event of an incident or accident and/or the aircraft or ambulance is inoperable.
- Identify an individual from the program as the scene coordinator to coordinate activities at the crash site. (RW/FW)

d. Preplanned time frame to activate the post accident/incident plan for overdue aircraft or ambulance.

e. A method to insure accurate information dissemination.

f. Coordination of transport of injured team members to higher level of care if needed and/or back to local area.

g. Procedure to document all notifications, calls, communications and to secure all documents and tape recordings related to the particular incident/accident.

h. Procedure to deal with releasing information to the press.

i. Resources available for CISD, Psychological First Aid (PFA) or other counselling alternatives.

j. Process to determine whether the program and/or component of the program (RW/FW/S) 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. A drill is conducted semi-annually (one in daytime and one at night) to exercise the post accident/incident plan. This drill must include pilots, medical personnel, communications personnel, mechanics and administrative personnel. Written debriefing and critique of PAIP drills must be shared with all staff members.

a. A full drill must test each of the modes of transport (if the program has RW, FW and S or combination thereof) within a three year time frame.

b. An actual incident may be used as appropriate if documented and documentation includes loop closure. A table top drill – defined as a drill where there are position challenges between the pilot and the communications specialist only and not covering all the components and disciplines listed in the PAIP is not considered a full drill.

04.08.05 An annual test of emergency procedures in the communications centre that includes an evacuation drill and capability to re-establish communications in the event of a fire drill, intruder on premises, catastrophic failure of the communications centre, helipad mishaps, forces of nature etc.

04.08.06 Program is encouraged to participate in regional disaster preparedness drills.

Examples of evidence to meet compliance:

The PAIP and drills to test the plan include all modes of transport performed by the program. Results of the drill are disseminated to the entire staff. A drill to test other emergency procedures as they apply to the facility is planned and documented.

04.09.00 FLIGHT/TRANSPORT FOLLOWING

04.09.01 Emergency service call centres (112, 999, 911 etc.) emergency service dispatch centres or any other agency, hospital or service, must contact the program's communications centre directly to request a transport. A specific base must not be contacted directly for a patient/victim response.

04.09.02 Satellite tracking systems are strongly recommended for all aircraft and required for aircraft that do not have a 406 MHz ELT. Initial coordination must be documented and continuous flight/transport following (or initiating and following surface transport) must be monitored and documented and must consist of the following:

04.09.03 Initial coordination 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.
6. Destination airport, refuelling stops (if necessary), location of transportation exchange and hours of operation. (RW/FW)
7. For those flights meeting the definition of "long range", flight planning must include the need for Auxiliary Power Unit (APU), Ground Power Unit (GPU), catering, oxygen servicing, etc. if any technical stops are required/anticipated including contingency planning for alternative stops as well as safety and security for landings abroad. (RW/FW)
8. Weather checks prior to departure and during mission as needed.
9. Previous turn-downs of the mission (i.e. helicopter shopping) (RW/FW services that respond locally to small clinics – essentially scene flights).
10. Transportation coordination at sending and receiving areas. (RW/FW)
11. Time of dispatch (Time medical personnel notified transport is a go, post pilot/vehicle operators' OK).

12. Time depart base (Time of lift-off or departure from base or other site).
13. For interfacility transports, number and names of persons on board, including the patient and any family members.
14. Amount of fuel on board. (RW)
15. Estimated time of arrival (ETA).
16. Pertinent LZ information. (RW)
17. Time arrive location (time transport vehicle arrives at landing zone, helipad, airport or referring area).
18. Time depart location (time transport vehicle lifts off from landing zone, helipad, or airport or leaves referring area).
19. Time arrive destination (time patient transferred to receiving clinical team; in unusual circumstances, this may not be at a healthcare facility).
20. Time depart destination (time left patient destination. This will be recorded for transports not ending at base).
21. Time arrive base (time arrive base after call completed).
22. Time aborted (time authorized transport is aborted/cancelled after dispatch).

04.09.04 Concluding documentation for all modes of transport may include calculation of:

1. Call received (by Communications Centre).
2. Dispatch (time interval between call received and confirmed to depart).
3. En route (time interval between confirmation to depart and actual departure).
4. At referring (time interval between departure and arriving at scene or referring facility).
5. At patient (time interval between arriving at scene or referring facility and initial patient contact).
6. Bedside time (time interval between initial patient contact and completing packaging ready to move with the patient to the ambulance or aircraft).
7. Leave referring (time interval between departing scene or hospital bedside with the patient and driving or lifting off).
8. At receiving (time between driving or lifting off from scene or referring facility to arriving at receiving facility).
9. Transfer of care (time between arriving at receiving facility and completing turnover of care).
10. Available (time between turnover of care and return to aircraft or ambulance and back in service).

04.09.05 Additional criteria for fixed wing: operations must be conducted using VFR flight plans minimally and IFR flight plans whenever feasible.

1. Procedures ensure that pilots use Air Traffic Control (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 centre 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 must 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 mobile numbers.

d. Guidelines of timely notification (less than 30 minutes) must 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.

04.10.00 COMMUNICATIONS DURING A TRANSPORT

04.10.01 The medical transport service must 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 must be established whenever possible as follows: (This also applies to Surface)

1. Direct or relayed communications to communications centre (while in motion) specifying locations and ETA's, and deviations, if necessary.

- 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 by the medical team and no patient information is transmitted at this time unless radios for medical report are isolated. (RW/FW)
 - b. There is a policy/procedure for diversions from original destinations (airports, hospital landing sites, alternative scene LZ's) (RW/FW)
2. There is a written policy that addresses direct or relayed communications to the communications centre to specify all take-off and arrival times.
3. For long range transports there are policies that outline plans for communications between crew members who may be separated while transporting the patient by surface or by hotel stays.
4. Time between each communication.
- a. Time between each communication must not exceed 15 minutes while in flight unless a system of continuous automatic position tracking is utilised. (RW)
 - b. There is a policy to address continuous automatic position tracking, if utilised, to ensure there are also verbal communications at predetermined times. (RW/FW)
 - c. If an IFR or VFR flight plan has not been filed, time between communications must not exceed 15 minutes if a means to communicate, directly or indirectly, is available. (RW/FW)
 - d. Time between communications must not exceed 45 minutes while on the ground (RW/S) unless ground ambulance continuous tracking software is used.
 - e. Alternate agencies are used to relay communications when direct contact is not possible.
5. There is a written policy that while the aircraft is on a mission, a dedicated communicator assigned to flight follow will be present in the communications centre at all times. (RW)

04.11.00 THE COMMUNICATIONS CENTRE

04.11.01 Equipment and capabilities

1. At least one dedicated phone line for the medical transport service.
2. A system for recording all incoming and outgoing telephone and radio transmissions with time recording and immediate playback capabilities. Recordings must be kept for a minimum of 90 days but it is strongly encouraged to keep recordings for a minimum of two years.
3. Capability to immediately notify the medical transport team and on-line medical direction (through radio, pager, telephone, etc.).
4. A status display with information about pre-scheduled flights/patient transports, the medical transport team on duty, weather and maintenance status.

5. Current local aircraft service area maps and navigation charts must be readily available for aviation operations. Mapping software could supplement current charts. Road maps or GPS software must be available for ground transports services.
6. Seating and workstations are ergonomically appropriate for each communications specialist on duty.
7. Backup emergency power source for communications equipment, or a policy delineating methods for maintaining communications during power outages and in disaster situations.

04.11.02 Policies and plans

1. Communications policy and procedures manual.
2. A method to keep noise and other distractions (traffic) from the communications area while the communications specialist is involved with a medical transport mission.
3. An evacuation plan that provides for continuous communications with transport personnel in the event there is a need to evacuate the communications centre.

05.00.00 - ROTORWING STANDARDS

PREFACE – The standards below are as appropriate to the country of residence and the specific aviation regulator of that country as referenced by the term “Authority Having Jurisdiction” (AHJ). However, European Aviation Safety Authority (EASA) are considered the minimal regulations that all other national regulations are measured against. CAMTS Global Accreditation Standards, as a measure of quality, are part of a voluntary process and frequently exceed the AHJ’s aviation regulations.

05.01.00 OPERATIONS

05.01.01 Certificate holder must meet all Authority Having Jurisdiction (AHJ) regulations specific to the operations of the medical service in the country of residence, as applicable. This includes an AHJ regulator’s Certificate (public service medical transport agencies are included in this requirement) and Ambulance Operations Specifications specific to EMS operations. The transport service demonstrates compliance with the legal requirements and regulations of all local, regional and national agencies under whose authority it operates.

05.01.02 All “patient transport flights”^{*} must be conducted under AHJ regulations for weather minimums, flight crew duty time limitations and weight and balance requirements.

^{*}Patient transport flight is defined as any flight segment conducted by rotor or fixed wing equipment that is necessary for transporting patients and the medical teams required to care for such patients. Flight segments included in this definition are: flights for refuelling and repositioning for a specific patient transport (including organ donor transports); picking up and returning medical teams to an assigned base; the actual flight segment involving patient movement; and any time medical teams are on board.

05.01.03 There is an established written policy to ensure that the pilot is notified of all carry-on baggage and/or equipment for weight and balance considerations (so that carry-on baggage/equipment is weight and placement acceptable).

05.01.04 There is a written policy and outline of passenger safety briefings in accordance with AHJ national equivalent.

05.02.00 AIRCRAFT

Reference Section 03.06.00 Medical Configuration of the Transport Vehicle.

05.03.00 WEATHER

05.03.01 Visual weather minimums must be specified for day and night local, and day and night cross country.

05.03.02 The “local flying area” must be well defined by geographic or man-made features and limited to those areas as defined by the certificate holder and as consistent with AHJ regulations as applicable in the respective country if the same level of safety is verifiably achieved.

05.03.03 Cross country flights are those outside of the local flying area.

05.03.04 There is a system for obtaining pertinent weather information. The pilot in command (PIC) is responsible for obtaining weather information according to policy that must address at a minimum:

1. Routine weather checks
2. Weather checks during marginal conditions
3. Weather trending

05.03.05 Communication between pilots, medical personnel, and communication specialists at shift change regarding the most current and forecasted weather is part of a formal briefing.

05.03.06 VFR “response” weather minimums must meet or exceed “National Regulations” as applicable to the certificate holder or operator.

1. Minimums are never to be considered as mandatory launch criteria. All factors are to be considered by the pilot who has final authority over a “go, no-go” decision. However, any team member who is uncomfortable with launching on or continuing flight into conditions perceived as hazardous has the absolute right to request the pilot return to safer conditions immediately or as soon as possible under Instrument Meteorological Conditions (IMC) conditions.
2. Policies include provisions for patient care and transport alternatives in the event that the aircraft must use alternate landing facilities due to deteriorating weather.

05.03.07 Higher weather minimums are strongly encouraged for new and relief pilots.

05.03.08 When transitioning to an off-airport site after an instrument approach, the following must apply:

1. Local VFR weather minimums must be followed if within a defined local area and if the route and off-airport site are familiar.
2. Cross country VFR weather minimums must be followed if not in defined local area or if the pilot is not familiar with route and off-airport site.
3. For Point-In-Space (PINS) helicopter instrument approaches comply with AHJ procedures.

05.04.00 PILOTS

05.04.01 There must be a minimum of four flight-ready pilots permanently assigned per single-pilot aircraft

that 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 meets crew rest requirements of the AHJ. 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 pilots or four 2-pilot crews for two-pilot operations at a service that is available 24 hours a day. This will be adjusted pro-rata for services that fly less than 24 hours per day.

1. Scheduling practises reflect consideration for minimizing duty-time fatigue, length of shift, number of shifts per week, and day-to-night rotation. The implementation and maintaining of an operator-specific fatigue risk management system (FRMS), based on a scientific analysis, is strongly encouraged.
2. Physical well-being is promoted by the employer wellness programs to include but not be limited to balanced diet, weight control, no smoking.
3. Operations facilities must include a quiet area for flight planning, training, record-keeping and rest.

Examples of Evidence to Exceed Compliance:

Two-pilot crews at night or both day and night shifts

05.04.02 The pilot determines that the aircraft is in airworthy condition (and that appropriate pre-flight, take off and landing procedures are followed.)

1. Prior to the first flight or shift of duty, the pilot:
 - a. Verifies that maintenance is not due on the aircraft
 - b. Performs a pre-flight inspection according to the manufacturer's checklist
2. Operational practises also include:
 - a. A walk-around inspection of the aircraft prior to each take-off
 - b. Establishing contact (when possible) between the pilot and ground units securing an unprepared landing site before the landing occurs
 - c. Coordinating arrangements for the pickup or delivery of a patient at private or hospital helipads at least 15 minutes prior to landing

05.04.03 Pilot in command (PIC) qualification:

1. The pilot must possess at least a commercial rotorcraft-helicopter and instrument helicopter rating.
2. If not exceeded by applicable national AHJ regulations, the pilot in command must possess 2000 total flight hours (or total flight hours of at least 1500 hours and recent experience that exceeds the operator's pre-employment qualifications such as current air medical and/or search and rescue experience or ATP rated) prior to an assignment with a medical service with the following stipulations:
 - a. A minimum of 1200 helicopter flight hours

- b. At least 1000 of those hours must be as PIC in rotorcraft
 - c. 100 hours unaided (if pilot is not assigned to an NVG base/aircraft)
 - d. 50 hours unaided as long as the pilot has 100 hours aided (if assigned to an NVG base/aircraft)
 - e. A minimum of 500 hours of turbine time 1000 hours of turbine time strongly encouraged
 - f. Additional training and experience in specialised operations to include geographical and/or mission challenges
3. ATP certificate and instrument currency is strongly encouraged.

Examples of Evidence to Exceed Compliance:

All pilots are ATP rated.

05.04.04 Pilot training requirements

1. The certificate holder will maintain a national approved training program, as applicable, in accordance with AHJ regulations. The training program must contain a procedure for evaluating previous experience and training to determine what specific training a new flight crew member will require to satisfactorily meet all required training and checking standards. The certificate holder will also have a process in place to properly track experience levels of new PICs that must comply with the higher weather minimums as required under AHJ regulations.

2. Initial training must, at a minimum, consist of the following and be verified by written criteria, outlines curriculum. Use of AHJ regulations approved training devices and simulators (aircraft appropriate) are strongly encouraged along with mission specific scenario-based training.

- a. Terrain and weather considerations specific to the program's geographic area
- b. Orientation to the health care providers.
- 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. Inadvertent Instrument Meteorological Conditions (IIMC) recovery procedures conducted solely by reference to instruments or IFR currency
- f. IFR currency encouraged
- g. Controlled Flight Into Terrain (CFIT) prevention training for day or night operations that includes Authority Having Jurisdiction regulations for acceptable vertical and lateral deviation limits from the proposed en route course and altitude based on terrain and obstructions
- h. 50% of the recommended training hours must be conducted at night or in night conditions in a flight training device (FTD) or FFS. Full flight simulation is strongly encouraged.
- i. Minimum requirements for specific training in aircraft type:

- Factory school or equivalent (ground and flight). Training must include normal, abnormal and emergency procedures as specified by the Original Equipment Manufacturer (OEM).
- 5 hours as pilot in command or at the controls prior to EMS missions if transitioning from a single; from a twin to a single (only outside of EASA countries); from a twin to a single (only outside of EASA countries); 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

j. Minimum requirements for area orientation:

- 5 hours area orientation of which two 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

k. Aeromedical Crew Resource Management (ACRM), consistent with AHJ (Interactive courses strongly encouraged). Specific content of ACRM training and organization of topics must reflect an organization's unique culture and specific needs, such that curriculum topics may include, but not be limited to:

- Aeronautical Decision Making
 - o Information processing
 - o Stress and performance
 - o Task Complexity
- Communications Processes and Decision Behaviour
 - o Briefings
 - o Inquiry/advocacy/assertion
 - o Crew self-critique re: decisions and actions
 - o Conflict resolution
 - o Communications and decision making
- Team Building and Maintenance
 - o Leadership/followership/concern for tasks
 - o Interpersonal relationships/group climate
- Workload Management and Situation Awareness

- o Preparation/planning/vigilance
- o Workload distribution/distraction avoidance
- o Individual factors/stress reduction

3. Annual recurrent training minimally includes the following and is verified by written criteria, outlines or curriculum. Use of AHJ regulations' approved training devices and scenario-based simulators are strongly encouraged along with mission specific scenario-based training for recurrent training cycles.

a. AHJ regulations training requirements

b. Inadvertent Instrument Meteorological Conditions (IIMC) recovery procedures conducted solely by reference to instruments every six months at a minimum or IFR currency if operating IFR. It is strongly recommended that quarterly IIMC training be implemented.

c. CFIT prevention training for day or night operations that includes AHJ regulations guidelines or pertinent national guidelines for acceptable vertical and lateral deviation limits from the proposed en route course and altitude based on terrain and obstructions

d. Annual recurrent training must 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

e. Aeromedical Crew Resource Management (ACRM), consistent with AHJ regulations. Specific content of ACRM training and organization of topics must reflect an organization's unique culture and specific needs, such that curriculum topics may include, but not be limited to:

- Aeronautical Decision Making
- Information processing
- Stress and performance
- Task complexity
- Communications Processes and Decision Behaviour
- Briefings
- Inquiry/advocacy/assertion

- Crew self-critique re: decisions and actions
- Conflict resolution
- Communications and decision making
- Team building and maintenance
- Leadership/followership/concern for tasks
- Interpersonal relationships/group climate
- Workload management and situation awareness
- Preparation/planning/vigilance
- Workload distribution/distraction avoidance
- Individual factors/stress reduction

f. Annual review of infection control, medical systems and installations on the aircraft, patient loading and unloading procedures and altitude physiology to include signs and symptoms of hypoxia.

3. The certificate holder must have a policy or procedure to address proficiency. This is in reference to pilots who are on-duty but have not flown recently due to weather or call volume.

Examples of evidence to exceed compliance:

All pilots undergo initial and annual scenario-based simulator training.

05.04.05 A planned and structured orientation must be provided to the relief pilot with criteria to be based on the mission statement. The relief pilot must have the same qualifications and limitations as a new pilot.

1. The orientation must, at a minimum, contain:

- a. Role responsibilities
- b. Area, weather, terrain, aircraft and program-specific orientation

2. Currency must be determined prior to the beginning of operations, and there is a risk assessment tool to identify the risks at a specific base such as area and terrain, weather and program-specific idiosyncrasies.

05.05.00 MAINTENANCE

05.05.01 Training – There must be a mechanic primarily assigned to each specific aircraft who must be appropriately qualified to maintain the aircraft operated by the medical service and who possesses two years of rotorcraft experience as a certified airframe and power plant 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 and appropriately certificated by AHJ regulations on the type specific airframe, the power plant 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 must receive formal training on human factors and maintenance error reduction. (See References)

3. A policy is written that grants the mechanic permission without fear of reprisal to decline 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. There must be an 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.

6. Training related to the interior modification of the aircraft:

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

b. Includes supplemental training on service and maintenance of medical oxygen systems and a policy as to who maintains responsibility for refilling the medical oxygen systems

05.05.02 Staffing – A single mechanic on duty or on call 24 hours a day must be relieved from duty for a period of at least 24 hours during any seven consecutive days, or the equivalent thereof, within any one calendar month. In addition:

1. It is strongly encouraged that mechanics must not be permitted to work more than 14 continuous hours.

2. Following extended maintenance such as 12-14 continuous hours, the mechanic is scheduled for ten hours of uninterrupted rest.

3. 1.5 mechanic full-time equivalents are encouraged for one 24-hour aircraft. For more than one aircraft, staffing must be appropriate to the hours the aircraft are in service, the availability of back-up or on-call mechanics and the number of bases necessitating travel time or an agreement and/or contract be in place for an operator to provide maintenance services in the absence of the operator's maintenance staff.

4. Back-up personnel must 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.

05.05.03 Maintenance Facilities

1. The maintenance operation is certificated by the AHJ regulator or meets standards included in 05.05.04 through 05.05.07.

2. There must be a mechanism/procedure for alerting flight and medical personnel when the aircraft is not airworthy.
3. A hangar or similar-type facility must be available during inclement weather and for the mechanic to perform heavy maintenance. (Heavy maintenance is generally described as removal and installation of any component that requires a lift device or inspections that require five or more hours).
4. Specific workshop area criteria. Workshop area must 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.
 - a. Workshop area must be climate-controlled, heated and cooled, to avoid adverse effects of temperature extremes.
 - b. Appropriate ventilation will be installed to clear the facility of hazardous fumes (such as those from fuels, solvents, oils, adhesives, cleaners) common to the aviation environment.
 - c. Workshop area must be well lit with the appropriate number of electrical outlets.
 - d. Floodlights must be available on the helipad – fixed and/or portable. Luminescence level will be equal to the modern office environment.
 - e. Hand cleaners, disinfectants and eye wash bottles are to be available.
 - f. Tools are locked in a secured area when not in use.
 - g. There is a policy to address the control of foreign object debris (FOD).
 - h. There is a tracking system for the mechanic to account for tools and parts after performing maintenance.
 - i. All consumables must be labelled and have current expiration dates listed on the can, bottle, tube, etc.
5. Storage of equipment, parts, and tools is orderly and clear of fire hazards and in compliance with national health and safety standards.
6. There is a system to periodically track timed parts and expiration dates on shelf items.
 - a. All parts are properly tagged and environmentally protected.
 - Parts are wrapped or boxed in a manner that prevents damage or contamination.
 - Open ends of fabricated and bulk lines and hoses are capped or covered.
 - Serviceable parts are kept in a separate area from unserviceable parts.
 - b. Parts received are inspected to ensure an approved vendor provided them and that the required certification documentation is provided.
 - c. Maintenance operation/provider has a Suspected Unapproved Parts System (SUPS) to

verify all parts are properly documented, by appropriate means (such as a 8130 form). All parts must be traceable and overhauled or repaired by properly certificated organizations

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

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

9. There is a method to track tool calibration status.

a. Tools requiring calibration have documentation or tags on the tools that list the last calibration date and the next due date.

b. If employee-owned tools are permitted on the premises, there is a system to ensure that these tools are currently calibrated.

05.05.04 The certificate holder will have a system in place to track all scheduled inspections as required by its AHJ regulations approved maintenance program. This system will include all Airworthiness Directives (AD) and applicable Instructions for Continued Airworthiness (ICA) or the national equivalent.

05.05.05 If the certificate holder has been issued AHJ regulations specific to maintenance item, then there must be a method to track all deferred maintenance items and coordinate all requirements to support closure, as well as trends tracked to determine repetitive failures.

05.05.06 The certificate holder has a policy and/or program in place to track and trend maintenance issues such as part failures, items deferred under an MEL, and engine trend data. The program should contain a process to collect, analyse, and use data collected. Suspected issues should be addressed when determined and appropriate.

05.05.07 Maintenance Distractions – A policy must be written and implemented to reduce the likelihood of interruptions and distractions to the mechanic, such as:

1. The mechanic's phone must have voice mail or messaging.
2. Aircraft tours, public relations events, janitorial services, etc., must be postponed or cancelled if involving the aircraft while maintenance is being performed.
3. Mechanic's work site (hangar-helipad) must 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.

05.06.00 FUEL QUALITY AND FUEL SYSTEMS

05.06.01 A policy must require that the pilot or designee stay with the aircraft when refuelling to verify fuel type and quantity received during on-site and off-site refuelling.

05.06.02 On-site refuelling

1. If a certificate holder maintains and operates its own fuel farm, then there must be a written policy that clearly identifies who has responsibility for quality control checks on the fuel system.
 - a. Daily, monthly, quarterly and annual checks are required.
 - b. Documentation is consistent with national aviation guidelines or national standard.
 - c. If using a vendor's fuel farm, verify QA fuel quality compliance.
2. There is a procedure to ensure the fuel is free of contaminants before dispensing into the aircraft.
3. Procedures clearly demonstrate safe practises and fire prevention considerations at the on-site refuelling facility.
 - a. At least one B&C fire extinguisher is located no less than 20m 75 feet from the fuel dispensing station.
 - b. There is a minimum of one remote fuel shut-off device.
4. There is a policy regarding on-site handling and disposal of waste fuel, oil and any other hazardous materials.
5. Fuelling equipment shall be located 7.5m from hangars and fixed fire protection equipment. (refer to AHJ regulations)
6. Fuelling equipment shall not hinder or obstruct access to exits or firefighting equipment. (refer to AHJ regulations)
7. Any above ground storage tanks must be 15m from the edge of the final approach and take-off area (FATO). (refer to AHJ regulations)
8. The fuel system is approved by the AHJ regulations.
9. If fuel is purchased routinely from a specific Fixed Base Operator (FBO), it is strongly encouraged to request and receive a quarterly fuel quality report from the FBO

05.07.00 HELIPORTS (see references)

05.07.01 Primary and receiving hospital heliports(s) should:

1. Be marked as a guide with:
 - a. A painted H or similar landing designation
 - b. A cross to designate a hospital heliport if appropriate
 - c. Maximum size capacity information for all heliports

d. Maximum weight restriction information for all elevated heliports

2. Be identified by a correctly coloured heliport beacon or strobe. A beacon may not be necessary when the location of the hospital can be readily apparent by the lights(s) on a prominent building or landmark near the heliport.

3. Have appropriately coloured TLOF (Touchdown and Lift Off area) or FATO (Final Approach and Take Off area) perimeter lighting set at the appropriate spacing for night operations which do not extend greater than 5cm 2" above the TLOF or FATO horizontal plane, AHJ guidelines.

4. Have a device to identify wind direction and velocity (i.e., windsock) of the appropriate size and design located in an unobstructed area near the heliport environment which does not constitute a potential strike hazard for helicopters. For night operations the indicator shall be illuminated either externally or internally. A red obstruction light should be incorporated on the wind indicator as dictated by AHJ obstruction standards.

5. Have at least one clear Final Approach and Take Off area (FATO) appropriately sized for the largest design helicopter that will potential land at the site using criteria as a guide.

a. The Touchdown and Lift-off area (TLOF) size (length, width, or diameter) must be:

- Ground Based: Equal to the rotor diameter (RD) of the largest design helicopter that will utilised the heliport but not less than 12m and must provide adequate room for patient, staff and equipment ground movement. The TLOF shall have a non-skid surface which consist of a material that meets AHJ compliance standards.
- Elevated/Rooftop Based: If the FATO outside the TLOF is non-load bearing, increase the minimum width, length or diameter of the TLOF to the overall length of the largest design helicopter. All elevated TLOFs shall have an appropriate constructed safety net consisting of nonflammable materials as per AHJ criteria.

b. Surface of the TLOF and FATO must be clear of all objects, including parked helicopters.

c. A parking area must be provided if more than one helicopter at a time is to be accommodated at one heliport unless there are provisions made for two separate FATO and TLOF areas of the appropriate size to accommodate two aircraft as indicated in AHJ criteria.

6. Have at least two unobstructed approach and departure paths that conform to AHJ criteria, oriented to be separated at least 90-135 degrees apart and oriented to take full advantage of the local and prevailing wind conditions.

7. Have adequate fire retardant chemicals of the correct quantity and type for the largest design helicopter and be readily available and located within the specified distance and location per AHJ criteria – at least one portable fire extinguisher of the correct category and rating shall be provided for each take-off and landing area, parking area, aircraft tug and fuel storage and dispensing areas. All foam fire suppression system pull stations shall be correctly located and marked in a manner to distinguish them from fire alarm pull stations.

8. Heliport is designed so that fuel spills are directed away from access/egress points

9. Heliport has two access points oriented at least 90 degrees apart from one another and with unrestricted access for fire-fighting personnel

10. Smoking is not permitted within 15m of the TLOF edge
11. Heliport signage must include:
 - a. No smoking signs
 - b. Heliport warning signs, posted at access/egress points to the helipad
 - c. High noise environment signs
 - d. Eye protection required signs
12. Have a documented and integrated emergency response plan which is practised at least on an annual basis.
13. Have documented, ongoing safety and training programs for those personnel responsible for loading and unloading patients or working around the helicopter on the helipad which follows the guidance found in AHJ criteria.
 - a. Annual training includes:
 - The emergency response plan
 - Foreign Object and Debris (FOD) Identification and Elimination Procedures
 - Operations of the heliport
 - Safety procedures around the helicopter
 - Communication systems
 - Procedures for reporting inoperable equipment
 - Operation of the fire protection system and equipment
14. 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 non-hazardous fencing, ornamental vegetation, 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 (a video recording system is strongly encouraged).
15. There must be a policy to address more than one running aircraft at any one time and a policy to address permission to land or take off from the heliport.
 - a. Communications policies will include:
 - Procedures that coordinate arrivals and departures with referring and receiving hospital heliports – specific contact arrangements are pre-arranged for each frequently used location
 - Procedures that coordinate arrivals and departures from hospital heliports with

other air medical services in the region

- Staging if more than one aircraft is expected
- Air-to-air communications
- Hosting common frequencies
- Procedures that require communications specialists to ask if more than one aircraft is incoming to the same hospital heliport or scene
- Written agreements with local, regional or agencies that incoming aircraft will announce in the blind on a common frequency when operating into hospitals and scenes where no common communication frequency has been pre-established – at 10 minutes from ETA, any inbound aircraft must communicate on a commonly agreed-upon frequency.

b. Crew Coordination:

- Strict enforcement of sterile cockpit
- One medical crew member taking active part in watching for obstructions during the critical stages of flight
- Before departing from a scene or a sending institution, the medical crew and the pilot must discuss any alternative hospitals that they might need to divert to if the patient's condition changes or weather deteriorates along the intended route. The pilot and medical crew are encouraged to pre-program any radios or navigation equipment for this alternative destination to minimize the workload required to effect this change, should the need arise as coordinated with the communications centre.

c. It is strongly encouraged that the program develops designated landing sites for scene coordination with ground agencies where possible.

16. There is limited distance from the heliport to the hospital (positioned at the closest, safe location) in order to minimize any negative effects to the patient.

a. The stretcher transition area between the heliport and the hospital should be as smooth as allowable with as level a surface as possible while still adhering to AHJ criteria and have minimal spacing for structural seams

b. Patient monitoring must continue without interruption between the helipad and the hospital.

c. The medical crew is continuously supplied and equipped so that emergent patient interventions can be performed as needed between helipad and hospital.

17. Hearing protection is provided for and used by all personnel who assist with patient rapid loading/ unloading.

18. Evidence of a system to communicate changes (construction, additions, obstructions, etc.) to

the heliport for users of the primary TLOF must be available and may include a pilot's memo book or a database in the communications centre. A system to record acknowledgment must be in place.

a. There is a system of photos used to familiarize pilots with helipad locations and conditions as a baseline for noting changes in conditions as well as providing a training aid for new pilots.

b. There needs to be approval by the appropriate AHJ regulations for programs that own or operate their own helipad.

05.07.02 For rooftop helipads

For rooftop helipads

1. The egress points shall be remotely located from each other, not less than 10m apart.
2. The rooftop landing pad surface shall be constructed of approved non-combustible nonporous materials.
3. Two means of egress from the rooftop landing pad to the building's egress system shall be provide.
4. The egress points shall be located at least 90 degrees from each other as measured from the centre of the landing pad (TLOF).
5. An evacuation plan is in place and personnel involved in securing, loading and off-loading are tested through annual drills.

05.07.03 Temporary scene landing sites (see References) must be:

1. Secured
2. Illuminated at the perimeter with hand-held floodlights, emergency vehicles or other lighting source that do not constitute a hazard to define the designated landing area at night
3. Free of overhead and/or ground obstructions
4. Free of debris
5. Appropriate to the size of the helicopter
6. As level as possible

06.00.00 - FIXED WING STANDARDS

PREFACE – The standards below are as appropriate to the country of residence and the specific aviation regulator of that country as referenced by the term “Authority Having Jurisdiction” (AHJ). However, European Aviation Safety Authority (EASA) is considered the minimal regulations that all other national regulations are measured against. CAMTS EU Accreditation Standards, as a measure of quality, are part of a voluntary process and frequently exceed the AHJ’s aviation regulations.

06.01.00 OPERATIONS

06.01.01 Certificate holder must meet all Authority Having Jurisdiction (AHJ) regulations specific to the operations of the medical service in the country of residence, as applicable. This includes an AHJ regulator’s Certificate (public service medical transport agencies are included in this requirement) and Ambulance Operations Specifications specific to EMS operations. The transport service demonstrates compliance with the legal requirements and regulations of all local and federal agencies under whose authority it operates.

06.01.02 All “patient transport flights”^{*} must be conducted under AHJ regulations for weather minimums, flight crew duty time limitations and weight and balance requirements.

^{*}Patient transport flight is defined as any flight segment conducted by rotor or fixed wing equipment that is necessary for transporting patients and the medical teams required to care for such patients. Flight segments included in this definition are: flights for refueling and repositioning for a specific patient transport (including organ donor transports); picking up and returning medical teams to an assigned base; the actual flight segment involving patient movement; and any time medical teams are on board.

06.01.03 Long range fixed wing transports are defined as any patient leg in excess of 3 hours (measured in time, not distance because of winds) where there are no alternative capabilities for patient care needs or aviation operations.

06.01.04 There is an established written policy to ensure that the pilot is notified of all carry-on baggage and/or equipment for weight and balance considerations (so that carry-on baggage/equipment is weight and placement acceptable)

06.01.05 There is a written policy and outline of passenger safety briefings in accordance with AHJ regulations and/or requirements.

06.02.00 AIRCRAFT

06.02.01 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 and listed on the air carrier's Operations Specifications.

06.02.02 Pressurized aircraft with air conditioning are strongly preferred for medical transports. A physician familiar with altitude physiology must be consulted or written policies address altitude limits for specific disease processes of the patient to be transported in an unpressurized cabin.

06.02.03 Evidence of adequate security at the base of operations – 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 or be located at an airport certificated to operate under AHJ regulations.

06.02.04 Reference Section 03.06.00 Medical Configuration of the Transport Vehicle

06.03.00 WEATHER AND OPERATING ALTITUDES

06.03.01 VFR or IFR flight plans are filed or communications center does flight following with every takeoff through post landing.

1. There is a system of obtaining pertinent weather information.
 - a. The pilot in command (PIC) is responsible for obtaining weather information according to policy, which must address at a minimum:
 - Routine weather checks.
 - Weather checks during marginal conditions
 - Weather trending
2. Communication between pilots, medical personnel, and communication specialists regarding the most current and forecasted weather is part of a formal briefing.
3. Weather Minimums – If flying under VFR -weather minimums must meet the applicable national standard or exceed 14CFR Part 135.203 and 135.205 as follows:
 - a. Visibility requirements
 - If the ceiling is less than 1000 feet (304 meters), visibility must be at least 2 miles.
 - b. Operating VFR requires that the program provide flight following according to the criteria listed in 03.10.00
4. Minimum operating altitudes:
 - a. Day – 1500 feet (457 meters) above the surface or less than 2000 feet (608 meters) horizontally from any obstacle.

- b. Night – an altitude less than 1500 feet (457 meters) AGL above the highest obstacle of 5 miles from the course intended to be flown

06.04.00 PILOTS

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

1. Scheduling practices reflect consideration for minimizing duty-time fatigue, length of shift, number of shifts per week and day-to-night rotation. The implementation and maintaining of an operator-specific fatigue risk management system (FRMS) based on a scientific analysis is strongly encouraged

- a. The certificate holder has a written policy regarding pilots on call with the use of remote paging devices, cell phones or other electronic communication device. The policy indicates how the use of pagers impacts duty-time limitations.

Examples of evidence to exceed compliance:

Two-pilot operations are required even when the aircraft is legally flown with a single pilot.

2. Physical well-being is promoted by the employer wellness programs to include but not limited to balanced diet, weight control, and no smoking.

3. Certificate holder's operations facilities must include a quiet area for flight planning, training, record-keeping and rest.

06.04.02 Pilot determines that the aircraft is in airworthy condition.

1. Prior to the first flight of shift of duty, the pilot:

- a. Verifies that maintenance is not due on the aircraft
- b. Performs a pre-flight inspection according to the operator's checklist, as approved by the applicable AHJ.

2. A walk-around inspection of the aircraft is performed prior to each takeoff.

06.04.03 The pilot-in-command (PIC) qualifications.

1. Must possess airplane flight hours, as outlined in the tables below, prior to assignment with a medical service. If the aircraft is to be operated using a single Pilot in Command, with no Second in Command the following applies:

Cat/Class of Aircraft	Total Flight Exp. (hrs.)	Multi-Engine Exp. (hrs.)	PIC Exp. (hrs.)	Type (hrs.)
Single Engine Turbo-prop	2500	N/A	1000	50
Multi-engine Piston	2500	500	1000	50
Multi-engine Turbo-prop	2500	500	1000	100

2. Must possess airplane flight hours as outlined in the table below if the aircraft is to be operated with two, fully trained and qualified pilots:

Cat/Class of Aircraft	PIC Total Flight Exp. (hrs.)	Multi-Engine Exp. (hrs.)	PIC Exp. (hrs.)	SIC Total Exp (hrs.)
Single Engine Turbo-prop	2000	N/A	1000	500
Multi-engine Piston	2000	500	1000	500
Multi-engine Turbo-prop	2000	500	1000	800
<i>Multi-engine Turbo-jet</i>	3000	500	1500	1000

3. PIC must be ATP rated; SIC is strongly recommended to be ATP rated and must complete a certificate holder's approved SIC training program.

4. In aircraft that require two pilots, both pilots must be type-rated for that make and model, and both pilots must hold first class medical certificates if the certificate holder operates internationally. Both pilots must have training on Crew Resource Management (CRM) or Multi-pilot Crew Coordination (MCC)

5. When operating with two pilots, there should be a policy to avoid a "green on green" situation, ; where a lower experienced PIC is paired with a lower experienced SIC. The two pilots together must have a minimum combined flight experience of 250 hours in make and model.

Examples of evidence to exceed compliance:

All PIC's and SIC's are ATP rated, or both pilots hold a PIC Type Rating for the aircraft being operated.

06.04.04 Pilot training requirements

1. The certificate holder will maintain a national approved training program, as applicable, in accordance with AHJ. The training program must contain a procedure for evaluating previous experience and training to determine what specific training a new flight crewmember will require to satisfactorily meet all required training and checking standards. The certificate holder will also have a process in place to properly track experience levels of new PICs that must comply with the higher weather minimums as required by AHJ.

2. Initial training must, at a minimum, consist of the following and be verified by written criteria, outlines or curriculum. Use of AHJ approved training devices and simulators along with mission specific scenario based training must be encouraged at initial and recurrent training cycles. Full motion simulator training strongly encouraged for all aircraft.

Examples of evidence to exceed compliance:

All pilots undergo initial and annual scenario-based simulator training.

- a. Terrain and weather considerations specific to the program's geographic area
- b. Orientation to the health care provider
- c. Orientation to infection control, medical systems installed on the aircraft and patient loading and unloading procedures
- d. Aeromedical Crew Resource Management (ACRM), consistent with national aviation

regulations. Specific content of ACRM training and organization of topics must reflect an organization's unique culture and specific needs, such that curriculum topics may include, but not be limited to:

- Aeronautical Decision Making
 - o Information processing
 - o Stress and performance
 - o Task Complexity
- Communications Processes and Decision Behavior
 - o Briefings
 - o Inquiry/advocacy/assertion
 - o Crew self-critique re: decisions and actions
 - o Conflict resolution
 - o Communications and decision making
- Team Building and Maintenance
 - o Leadership/followership/concern for tasks
 - o Interpersonal relationships/group climate
- Workload Management and Situation Awareness
 - o Preparation/planning/vigilance
 - o Workload distribution/distraction avoidance
 - o Individual factors/stress reduction

e. Training in infection control, medical systems and installations on the aircraft, patient loading and unloading procedures

f. Minimum requirements for specific training in aircraft type:

- 25 hours in specific make and model of aircraft before flying as PIC on patient missions or completion of an established training program for the specific make and model aircraft and the successful completion of the check ride

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

a. Instrument proficiency check as required by AHJ aviation regulations for operations that conduct IFR flights

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

c. Aeromedical Crew Resource Management ACRM consistent with Authority Having Jurisdiction regulation. Specific content of ACRM training and organization of topics must reflect an organization's unique culture and specific needs, such that curriculum topics may include, but not be limited to:

- Aeronautical Decision Making
 - o Information processing
 - o Stress and performance
 - o Task Complexity
- Communications Processes and Decision Behavior
 - o Briefings
 - o Inquiry/advocacy/assertion
 - o Crew self-critique re: decisions and actions
 - o Conflict resolution
 - o Communications and decision making
- Team Building and Maintenance
 - o Leadership/followership/concern for tasks
 - o Interpersonal relationships/group climate
- Workload Management and Situation Awareness
 - o Preparation/planning/vigilance
 - o Workload distribution/distraction avoidance
 - o Individual factors/stress reduction

4. The certificate holder must have a policy or procedure to address proficiency. This is in reference to pilots who are on-duty but have not flown recently due to weather or call volume.

06.04.05 A planned and structured orientation must be provided to the relief pilot with criteria to be based on the mission statement. The relief pilot must have the same qualifications and limitations as a new pilot.

1. The orientation must, at a minimum, contain:

- a. Role responsibilities
- b. Area, weather, terrain, aircraft and program-specific orientation

2. Currency must be determined prior to the beginning of operations, and there is a risk assessment tool to identify the risks at a specific base such as area and terrain, weather and program-specific idiosyncrasies.

06.05.00 MAINTENANCE

06.05.01 The mechanic primarily assigned to a specific aircraft must possess a minimum of two years of airplane experience as a certified airframe and power plant mechanic prior to assignment with a medical service, or, in the case of a repair station, the Maintenance Repair Organization (MRO) will hold the ratings and/or limitations within its AHJ authorizations and approvals for the make/model for which it is performing scheduled maintenance upon.

1. The primary mechanic performing scheduled maintenance to a specific aircraft must be factory schooled or equivalent in an approved program on the type-specific airframe, the power plant and all related systems within 18 months of employment by the operator.
2. All mechanics must receive formal training on human factors and maintenance error reduction. (See References)
3. If not working for a maintenance organization certificated under AHJ there is a written policy that grants the mechanic permission, without fear of reprisal, 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.
4. There is an annual review of infection control, medical systems and installations on the aircraft, patient loading and unloading procedures for all mechanics.
5. There will be at least one technician or MRO available for each service with formal training on the aircraft electrical system and formal training on avionics.
6. Training related to the interior modifications of the aircraft:
 - a. Training must prepare the mechanic for inspection of the installation as well as the removal and reinstallation of special medical equipment.
 - b. There is supplemental training on service and maintenance of medical oxygen systems and a policy as to who maintains responsibility for refilling the medical oxygen system.

06.05.02 A single mechanic on duty or on call 24 hours a day must be relieved from duty for a period of at least 24 hours during any seven consecutive days, or the equivalent thereof, within any one calendar month. In addition:

1. It is strongly encouraged that mechanics must 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 must be scheduled for 10 hours of uninterrupted rest.
3. For more than one aircraft, maintenance staffing must be appropriate to the hours the aircraft are in service, the complexity of the aircraft, and the number of bases necessitating travel time. Backup

personnel must be provided to the mechanic during periods of extensive scheduled or unscheduled maintenance or inspection, or an agreement and/or contract should be in place for a vendor to provide maintenance services in the absence of the operator's maintenance staff.

06.05.03 Maintenance facilities:

1. The maintenance operation is certificated under AHJ, OR meet standards 06.05.04 through 06.05.07.
2. There must be a mechanism/procedure for alerting flight and medical personnel when the aircraft is not airworthy.
3. The maintenance facilities are large enough to accommodate the aircraft, adequately lighted and properly equipped for required maintenance.
4. Specific workshop area criteria:
 - a. Workshop area must be in close proximity to the hangar. A workshop area is defined as an area where a desk, shelves, workbench, storage and telephone are available.
 - b. Workshop area must be climate controlled (heated and cooled) to avoid adverse effects of temperature extremes.
 - c. There is appropriate ventilation to clear the facility of hazardous fumes (such as fuels, solvents, oils, adhesives, cleaners) common to the aviation environment.
 - d. Work area must be well lit with the appropriate number of electrical outlets.
 - e. Floodlights must be available in the hangar or on the tarmac, fixed and/or portable. Luminance level will be equal to the modern office environment.
 - f. Hand cleaners, disinfectants and eye wash bottles must be available.
 - g. Tools are locked in a secured area when not in use.
 - There is a policy to address the control of foreign object debris (FOD).
 - There is a tracking system for the mechanic to account for all of the tools and parts, after performing maintenance.
5. Storage of equipment, parts, and tools is orderly and clear of fire hazards and in compliance with AHJ regulations.
6. There is a system to periodically track timed parts and expiration dates on shelf items.
 - a. All parts are properly tagged and environmentally protected.
 - Parts are wrapped or boxed in a manner that prevents damage or contamination.
 - Open ends of fabricated and bulk lines and hoses are capped or covered.

- Serviceable parts are kept in a separate area from unserviceable parts.
- All consumables must be labeled and have current expiration dates listed on the can, bottle, tube, etc.

b. Parts received are inspected to ensure an approved vendor provided them and that the required certification documentation is provided.

c. Maintenance operation/provider has a Suspected Unapproved Parts System (SUPS) to verify all parts are properly documented, by appropriate means in accordance with AHJ requirements and regulations. All parts must be traceable and overhauled or repaired by properly certificated organizations.

7. There is a method to track tool calibration status.

a. Tools requiring calibration have documentation or tags on the tools that list the last calibration date and the next due date.

b. If employee-owned tools are permitted on the premises, there is a system to ensure that these tools are currently calibrated.

06.05.04 The certificate holder will have a system in place to track all scheduled inspections as required by its Authority Having Jurisdiction regulations approved maintenance program.

06.05.05 If the certificate holder has been issued AHJ regulations specific to maintenance item, then there must be a method to track all deferred maintenance items and coordinate all requirements to support closure, as well as trends tracked to determine repetitive failures.

06.05.06 The certificate holder has a policy and/or program in place to track and trend maintenance issues such as part failures, items deferred under an MEL, and engine trend data. The program should contain a process to collect, analyze, and use data collected. Suspected issues should be addressed when determined and appropriate.

06.05.07 Policy must be written and implemented to reduce the likelihood of interruptions and distractions to the mechanic, such as:

1. The mechanic's phone must have voice mail or messaging.
2. Aircraft tours, public relations events, janitorial services, etc., must be postponed, if they involve the aircraft while maintenance is being performed.
3. Mechanic's work site (hangar) must 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.

06.06.00 FUEL QUALITY AND FUEL SYSTEM

06.06.01 A policy requires that the pilot or designee stay with the aircraft when refueling to verify fuel type and quantity dispensed when refueling at any location.

1. If fuel is purchased routinely from a specific Fixed Base Operator (FBO) , it is strongly encouraged to request and receive a quarterly fuel quality report from the FBO

06.06.02 On-site refueling

1. If a certificate holder maintains and operates its own fuel farm, then there must be a written policy that clearly identifies who has responsibility for quality control checks on the fuel system.

- a. Daily, monthly, quarterly and annual checks are required.
- b. Documentation is consistent with national aviation guidelines.
- c. If using a vendor's fuel farm, verify QA fuel quality compliance.

2. There is a procedure to ensure the fuel is free of contaminants before dispensing into the aircraft.

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

- a. At least one B&C fire extinguisher is located no less than 25m from the fuel dispensing station.
- b. There is a minimum of one remote fuel shut-off device.

4. There is a policy regarding on-site handling and disposal of waste fuel, oil and any other hazardous materials.

5. Fueling equipment shall be located 7.5m from hangars and fixed fire protection equipment according to AHJ.

6. Fueling equipment shall not hinder or obstruct access to exits or firefighting equipment. (AHJ regulation)

7. Any above-ground storage tanks must be 15m from the edge of the FATO. (applicable AHJ regulations)

8. The fuel system is approved by the AHJ regulations.

07.00.00 - SURFACE STANDARDS

PREFACE – The term “ambulance” in this section refers only to ground ambulance being used for patient care and transport. The term “surface vehicle” refers to all vehicles that are not helicopters or airplanes such as ground ambulance, boat, snowmobile, all-terrain vehicle (ATV), etc. The standards apply to all such vehicles as appropriate to the type of service and limitations of the actual vehicle. Highly specialized vehicles may not meet all the standards, and the CAMTS Global Board will take that into consideration as part of any accreditation decisions. All other standards still apply.

The standards below are as appropriate to the country of residence and the specific regulator of that country as referenced by the term “Authority Having Jurisdiction” (AHJ). CAMTS Global Accreditation Standards, as a measure of quality, are part of a voluntary process and frequently exceed the AHJ’s regulations.

07.01.00 OPERATIONS

07.01.01 The surface vehicle will be licensed in accordance with the applicable authority having jurisdiction (AHJ) laws.

07.01.02 There is a written policy that addresses speed limitations and all aspects of traffic law compliance that pertain to ambulance operations.

07.01.03 There is a written policy that describes the appropriate use of operating with lights and sirens. The policy includes who can initiate use and under what circumstances, such as only when time is critical to the patient’s outcome. The ambulance must come to a complete stop at intersections as appropriate (where the traffic light is red or there is a stop sign) including when operating with lights and sirens. Transports using red lights and sirens are tracked and trended in the QM process (see Quality sections of 02.01.07).

07.01.04 There is a written policy that addresses a procedure to follow when the ambulance comes upon an accident scene.

07.01.05 There is a written policy that outlines a procedure to follow when the surface vehicle is involved in an accident with damage and/or injuries.

07.01.06 There is a written policy outlining the procedure for a mandatory drug test of the surface vehicle operator after any accident.

07.01.07 There is a written policy outlining the procedure to follow when the surface vehicle breaks down.

07.01.08 There is a written policy dealing with safety aspects of operating a vehicle:

1. Vehicle operator duty and rest time
2. Inclement weather and responsibility for aborting the transport if there is a safety concern
3. Driving and operator records (speeding and other traffic violations) are reviewed by management minimally on an annual basis

07.01.09 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.

1. License for each surface vehicle is accessible as appropriate to local/regional or national guidelines.
2. If mutual aid relationships are developed the following apply:
 - a. The service has written agreements specifying the circumstances under which mutual aid would be used.
 - b. A mutual aid agreement addresses reciprocity, liability, and cost sharing/billing issues, hours of operation, phone number, and access procedure.
3. Contracts with municipalities indicate realistic response times.
4. The medical transport service must be integrated with and communicate with other public safety agencies. This may include participation in regional quality improvement reviews, regional disaster planning and mass casualty incident drills.
5. The transport service demonstrates compliance with the legal requirements and regulations of all local/regional and federal agencies under whose authority it operates.
6. The transport service demonstrates environmental integration with the local community with “drive friendly” procedures.

Examples of evidence to meet compliance:

Licenses to operate each ambulance are available and current.

07.02.00 Surface Vehicle

07.02.01 The surface vehicle must have adequate interior lighting equipment to ensure complete observation of the patient and monitoring equipment used on the patient.

07.02.02 The surface vehicle must have the capability of shielding the cab from light in the passenger compartment during night time use.

07.02.03 Inside of the surface vehicle must be capable of maintaining temperature ranges to prevent adverse effects on the patient and crew. The temperature must be between (20C – 25C) There is a procedure to monitor inside cabin temperatures.

07.02.04 The ambulance must have a fuel capacity to provide no less than a 280km range.

07.02.05 The ambulance must have ground clearance of at least 15cm at gross ambulance weight.

07.02.06 The ambulance must be able to fully perform at ambient temperatures minus -30C to 50C.

07.02.07 The ambulance must be marked clearly to show the name of the service in letters not less than 7.56cm high and to allow identification of the service from the sides and rear of the ambulance.

07.02.08 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 150m.

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 150m from the front of the ambulance.

07.02.09 The ambulance is equipped with road hazard equipment to be used in the event of a breakdown.

1. Road hazard equipment must minimally include:

a. Torch

b. Road marking device – cones, flares or triangles, for example

c. Tools, wrench, screwdriver, hammer

d. Leather, heavy-duty gloves

e. Reflective vests

f. Equipment for dealing with snow as appropriate to the environment

07.02.10 Rescue equipment is on the surface vehicle according to AHJ requirement.

07.02.11 There is a means of communication other than a cell phone between:

1. The surface vehicle operator position and patient compartment

2. The surface vehicle and medical control

3. The surface vehicle and public safety agencies

07.02.12 Radio frequencies are consistent with the local/regional EMS radio communications plans.

07.02.13 There is a public address amplifier with two exterior-mounted speakers on the ambulance

1. There is a power output of at least 45 watts

2. The amplifier is independent of the mobile radio unit.

07.02.14 A policy prohibits mobile phone or other communications devices without an acceptable integrated hands-free system to be used while the ambulance is in motion or while refuelling except for vital com-

munications or as compliant with AHJ regulations. Texting is strictly prohibited.

07.03.00 WEATHER

07.03.01 There must be a written policy addressing weather/environmental conditions that prohibit transport, such as zero/zero visibility and highway patrol road closures.

07.04.00 VEHICLE OPERATOR

07.04.01 All persons who drive the ambulance must be at a minimum certified as an ambulance technician or have equivalent training.

07.04.02 Surface vehicle operator must have a minimum of 2 years' experience as a licensed driver or operator.

07.04.03 Ambulance operators are required to complete defensive driving training program that is developed by the provider or outside agency. The training must include an emergency response driving course which consists of at least 4 hours of reviewed ambulance driving under emergency conditions.

07.04.04 Operators of boats or other surface vehicles must demonstrate completion of initial training.

07.04.05 The emergency response driving course training program must be repeated for each surface vehicle operator at least every 2 years or more frequently if involved in an "at fault" accident.

07.04.06 Surface vehicle co-pilot responsibilities and duties:

1. Surface Vehicle co-pilot will have assigned duties to support the vehicle operator
 - a. In navigation – setting/verifying GPS input
 - b. Lights and sirens response
 - c. Monitoring vehicle operator fatigue/impairment – the vehicle co-pilot is expected to stay alert on all legs of the transport
 - d. Mobile phone and computer use not essential to transports are prohibited

07.05.00 VEHICLE MAINTENANCE

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

1. There are documented daily checks of the vehicle for damages and equipment failure.
2. Major fluid and tire pressure checks are completed twice a week at a minimum for surface vehicle.

07.05.02 There must be no evidence of damage penetrating the body of the surface vehicle ambulance or holes that may allow exhaust gases to enter the patient compartment.

07.05.03 The interior of the surface vehicle, including all storage areas, must be kept clean in compliance with AHJ standards, that is free of dirt, grease and other biohazardous or noxious matter.

07.05.04 The surface vehicle must be cleaned after each patient transport as appropriate. All interior surfaces in the vehicle 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.

07.05.05 The mechanic must have experience as a certified mechanic in a shop environment, or the maintenance must be done at a certified shop specific for the make and model of the surface vehicle

08.00.00 - SPECIAL OPERATIONS

The Commission on Accreditation of Medical Transport Systems EU has been asked on several occasions to provide standards and accreditation for special medical operations that provide medical care and/or potential medical transport that do not necessarily fit within the previous sections of these Standards. Some examples include medical coverage at sporting, concert or special events, special public safety operations, such as tactical rescue or “SWAT” call-outs, and citizen recovery from potentially unstable environments.

While CAMTS EU does not currently have specific Standards that are unique to these types of services, the Board will entertain an Accreditation status in the category of “Special Operation” if it believes the service is in substantial compliance with the current CAMTS EU Standards as they apply to the service as outlined within the program’s scope of services.

Accreditation in this area is not intended for single events, but for programs that routinely provide such services or for larger events that may spread over several days and/or venues.

If you are interested in the potential for accreditation under “Special Operations” and you believe your program is in substantial compliance with the current standards, as they would apply to your service, send a letter requesting consideration to the CAMTS EU Executive Director. The letter should include the locations(s), type and frequency of services provided, a description of the staff providing services (paramedics, nurses, physicians, etc.) and any other information that clearly explains the services provided. The Board will then consider the request and, if approved for application, a customized application, program information form, and standards compliance tool will be developed. The Board will then consider the request. If it is approved, a customized application, program information form, and standards compliance tool will be developed. The program will then be considered as part of the normal blinded accreditation process.



FIRST EDITION MEDICAL ESCORT STANDARDS
of the
Commission on Accreditation of Medical Transport Systems Global

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ME 01.00.00 - MEDICAL ESCORT MANAGEMENT AND STAFFING

ME 01.01.00 MISSION STATEMENT AND SCOPE OF CARE

ME 01.01.01 There is a Mission Statement written in the present tense that describes the purpose of the service, mode(s) of transport provided and its constituents. The Mission Statement directs employees toward the values the service was founded upon.

ME 01.01.02 There is a written scope of care that describes the types of patients accepted. The scope of care is commensurate with the qualifications and level of initial and ongoing education required for medical personnel.

The Scope of Care should address, as applicable to the program, patient populations served, age groups and their definition, range of each mode, response time, number of patients transported simultaneously and any exceptions to types of requests that are accepted.

Examples of evidence to meet compliance:

The Mission Statement describes what you do. The scope of care describes what type of services you perform, what patients you transport and what type of medical teams you provide, etc. Both are clear, concise and understood by all. The vision and mission are strategic statements developed by and unique to each organization. Values statements are separate but key underpinnings of these statements.

ME 01.02.00 FINANCIAL COMMITMENT

ME 01.02.01 There must be evidence of financial commitment to the program by the administrative structure and through financial resources that supports excellence in patient care and safety.

ME 01.02.02 Insurance - The transport service must have and maintain insurance 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 businesses. The insurers must be financially sound and reputable and they must be qualified to do business in the region(s) or country in which the transport service is located. The types of insurance must include but are not limited to the following:

1. Medical malpractice
2. Worker's compensation – follow government guidelines
3. Travel and repatriation insurance whether paid for by employer or employee

ME 01.03.00 MARKETING AND EDUCATION FOR THE PUBLIC

ME 01.03.01 Transport requests for a medical escort are accepted from authorized personnel with sensitivity to cultural differences and without discrimination due to race, creed, sex, colour, age, religion, national origin, ancestry, or disability.

ME 01.03.02 There is printed and/or website information that is accurate and consistent with the program's practises and capabilities that includes:

1. Hours of operation, phone number, and access procedure
2. Capabilities of medical transport personnel including current scope of care listing types of patients that are accepted based on personnel training, configuration and equipment capabilities
3. Specific availability on mode of transport (commercial airlines, train, ground ambulance, cruise ship etc.)
4. Coverage area for the transport service
5. Preparation and stabilization of the patient
6. Patients considered appropriate for transport by the medical transport service - an appropriate transport enhances patient outcome, safety and cost effectiveness over other modes of transport

Examples of evidence to meet compliance:

Marketing materials are up to date, consistent with mission and scope, and do not exaggerate the scope of care or personnel capabilities.

ME 01.04.00 ETHICAL BUSINESS PRACTISES

ME 01.04.01 The transport service develops and demonstrates use of a written code of ethical conduct in all areas of business that demonstrates ethical practises in business, marketing and professional conduct.

1. The code of conduct guides the service when confronted with potential compliance or ethical issues.
2. The code of conduct outlines the service's standards for ethical behaviour as well as contact information and reporting protocols if a standard has been violated.
3. The code of conduct outlines ethical billing practises.
4. There is a policy that governs taking photos and use of photos regarding privacy.

ME 01.04.02 The Board of Directors, administrative and management staff completes an annual conflict of interest statement or form, disclosing any actual or potential conflicts.

Examples of Evidence to Meet Compliance:

Policies may address such issues as proper/improper behaviour toward other programs' marketing materi-

als, honesty in reporting data, personal mobile phone use, use of social media sites, how ethical issues are addressed, conflicts of interest, phone etiquette, acceptable and unacceptable behaviours on the work-site/on transport, acceptance of gifts from patients/vendors, etc.

ME 01.05.00 COMPLIANCE

There is a corporate compliance officer or designated person responsible for ensuring that the service is in compliance with external laws and regulations, payer requirements and internal policies and procedures.

ME 01.05.01 Compliance issues may include but are not limited to and must be included in formal education to the staff:

ME 01.05.02 The compliance program includes:

1. Written policies and procedures
2. Designation of a compliance officer or assignment of responsibility to a specific individual or individuals
3. Conducting effective training and education for staff with documented initial and ongoing competency
4. Developing effective lines of communication
5. Enforcing standards through well-published disciplinary guidelines
6. Auditing and monitoring
7. Responding to detected offenses and developing corrective action

Examples of Evidence to Meet Compliance:

Staff is knowledgeable about current compliance issues.

ME 01.06.00 MANAGEMENT/POLICIES

ME 01.06.01 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, agency or corporation.
2. A policy should be in place that documents the employer's disciplinary process and protects employees from capricious actions.
3. Management demonstrates strategic planning that aligns with the mission, vision and values of the service.
4. Management sets written guidelines for press-related issues and marketing activities.

ME 01.06.02 Written policies and procedures indicate what therapies can be performed without on-line medical direction.

ME 01.06.03 The program adheres to national and/or local rules and regulations including licensure requirements.

ME 01.06.04 Policies address:

1. Preparation for transport based on an available patient report and distance of transport (including international transports) to appropriately assess staffing, equipment and supplies needs.
2. Preparation of medical team according to destinations/stops for appropriate clothing, climate, cultural considerations, food consumption safety, safety of the medical team, etc. as appropriate
3. Preparation of accompanying passengers including baggage and required travel documents
4. Response to requests to attend to other passenger's medical issues
5. Use of AED for patient or another passenger if requested to assist during transport
6. Transport and storage of controlled substances
7. Prevention of DVT (deep venous thrombosis) on extended fixed wing transports
8. Obtaining additional medications and/or supplies in the event of cancelled transports/delays
9. Discharge instructions for patients
10. Facilitation of patient to proper healthcare disposition – home, hospital, rehabilitation, etc.
11. Criteria for patients that can be safely transported by medical escort
12. Contingency plans if patient's condition deteriorates

ME 01.06.05 There is a readily accessible resource for translation of foreign medications.

ME 01.06.06 Policies should include a plan of action if upon patient pick-up, the patient is inappropriate for medical escort or equipment/supplies are inadequate.

ME 01.06.07 A policy manual is available to all personnel.

1. Policies are dated and signed by the appropriate manager(s).
2. Policies are reviewed on an annual basis as verified by dated manager's signature on a cover sheet or on respective policies.
3. A policy addresses pre-employment background checks that include, at a minimum, criminal background, license verification, and previous employer.
4. A policy addresses pre-employment (whether or not it is required) and randomized drug screen-

ing “for cause”.

5. A policy addresses procedure for employee terminations that ensures protection of program information, physical and electronic data, property and security. This may include securing the individual’s badge/keys/other access devices, inactivating e-mail accounts/computer sign-ons/remote access/codes, remaining with employee until employee leaves premises, inspecting items employee takes with them, prompt notification of relevant departments/vendors/contractors, procural of program property the employee may have off site, etc.

Examples of Evidence to Exceed Compliance:

Management is educated to Just Culture and applies Just Culture principles throughout the organization.

ME 01.07.00 STAFFING

The service should have operational policies to address each area listed below.

ME 01.07.01 On-call policies demonstrate strategies to minimize duty-time fatigue, length of shift, number of shifts in a row and day to night rotation. (See References for circadian rhythm, Fatigue Risk Management System (FRMS) and other fatigue studies.)

ME 01.07.02 Policies address minimum rest/duty time requirements that are international or involve overnight stays.

ME 01.07.03 Duty and rest time for international trips and trips exceeding duty time are monitored by management.

ME 01.07.04 Policies address duty status affected by commercial airline restrictions and transports before/after medical escort’s other employment.

ME 01.07.05 Staffing must be commensurate with the patient care needs or potential patient care needs during the entire transport.

ME 01.07.06 Policies for long range transports address rest during transport, after patient is at the destination and acceptance of another mission. Medical personnel must have 10 hours free from all company assigned duties before accepting another mission or the provider must be swapped out.

Examples of Evidence to Meet Compliance:

Management monitors fatigue in terms of staffing patterns, patient outcomes and incidents or accidents.

ME 01.08.00 PHYSICAL WELL-BEING

ME 01.08.01 Physical well-being is promoted through:

1. Safe travel practises – travel plans are pre-arranged and attendants have alternative options for hotels, ground transport, etc. in the event plans fail and have resources to contact
2. Pre-employment and annual professional health assessment.

3. A policy addresses the potential for medical care of the crew with illness/injury outside of the U.S.
4. Evidence of an injury prevention program and ergonomic strategies to reduce employee injuries
5. Protective clothing and dress code pertinent to travel and destination
6. Infection control - dress codes address jewellery, hair and other personal items of medical personnel that may interfere with patient care.
7. Written policies addressing:
 - a. Duty status during pregnancy
 - b. Duty status during acute illnesses such as sinusitis or otitis
 - c. Duty status while taking medications that may cause drowsiness

Examples of Evidence to Meet Compliance:

Personnel are knowledgeable about policies regarding physical well-being and their program's dress code.

ME 01.09.00 MEETINGS/RECORDS

ME 01.09.01 There are formal, periodic staff meetings for which minutes are kept on file. Minutes will include names and titles of who attended, base identification (if multiple bases), who is presiding and discussion (versus agenda/topics only) and the date. There are defined methods, such as a staff notebook or electronic mechanisms for disseminating information between meetings.

1. Meeting minutes (Staff, Safety, QM meetings etc.) are kept on file and maintained for a minimum of three years.
2. Minutes are dated, and personnel present are clearly identified by title.

Examples of Evidence to Meet Compliance:

Meeting minutes indicate attendance and representation by all disciplines. Action items, timelines and area of responsibility are well documented and demonstrate a flow of information that indicates tracking, trending and loop closure.

ME 01.09.02 Management ensures that patient care records, and policies and procedures are stored according to hospital or agency policies and or privacy regulations and are indicative of the individual medical escort service's sensitivity to patient confidentiality.

1. A record of patient care is completed and a copy remains at the receiving facility or with a family member for appropriate continuity of care. If a copy of the patient's record is retained by the medical escort – there is a policy that defines proper storage of the records and a defined time frame to return a copy to the transport service corporate office.
 - a. A policy outlines minimal requirements for items to be documented in the patient care records that includes:
 - Vital Signs requirements and frequency

- Purpose of the transport
- History including list of patient's allergies, medications, and dietary needs
- Treatments, medications and patient's response to treatments and medications
- Transport facilities (to and from) and to whom report was given at the receiving facility as applicable
- Time zone(s) to be used in documentation
- Consent that informs patient of risks, benefits and limitations
- Copy of Do Not Resuscitate (DNR), Limitation of Therapy Agreement (LOTA) orders, or equivalent, as applicable

b. A stored permanent electronic patient care record is strongly encouraged

Examples of Evidence to Meet Compliance:

Patient records are signed and initialled by the crew member who performed the treatment or procedure. Records are stored in a secure area that is inaccessible to the public with accessibility limited according to applicable guidelines.

ME 02.00.00 - MEDICAL ESCORT QUALITY MANAGEMENT

Includes Quality, Utilization and Safety Management

ME 02.01.00 QUALITY MANAGEMENT

Management monitors and evaluates the quality and appropriateness of the medical escort service through an active Quality Management (QM) program, including the following:

ME 02.01.01 A QM flow chart diagram or comparable tool is developed demonstrating organizational structure in the QM plan and linkage to the Safety Management System.

ME 02.01.02 The QM plan should emphasize that 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.

ME 02.01.03 The QM program should be integrated and include activities related to patient care (including customer satisfaction, employee satisfaction), communications, and all aspects of transport operations and equipment maintenance pertinent to the service's mission statement.

ME 02.01.04 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 medical escort service.

ME 02.01.05 Promotes the effectiveness of the QM program through active participation by management and staff in the program and by sponsoring active communication pathways bi-directionally between staff and management.

ME 02.01.06 The QM Program is linked with risk management, so that concerns identified through the risk management program can be followed up through the continuous quality improvement program:

1. There is a written policy that outlines a process to identify, document and analyse sentinel events, adverse medical events or potentially adverse events (near misses) with specific goals to improve patient safety and/or quality of patient care.
2. There is follow-up on the results of actions /goals for specific events until loop closure is achieved.
3. The process encourages personnel to report adverse events even if it is a sole source event (only the Individual involved would know about it) without fear of punitive actions for unintentional acts.

ME 02.01.07 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).

ME 02.01.08 The Medical Director(s) is responsible for ensuring timely review of patient care, utilizing the medical record and pre-established criteria.

ME 02.01.09 There is an established QM program in place that includes:

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. Quality indicators
6. Thresholds for evaluation appropriate to the individual service
7. Methodology - the QI process or QI tools utilised and how individual indicator scores are measured/calculated
8. Evaluation of the improvement process

ME 02.01.10 For both QM and utilization review programs, there should be evidence of actions taken in problem areas and evaluation of the effectiveness of that action.

Examples of evidence to meet compliance:

Development of business indicators that will allow the program to improve in their processes should be developed with indicators focusing on every aspect of the program (i.e. coordination, clinical, mode of transport, safety, etc.) A flow chart outlining the process flow when outliers and how the loop is closed to ensure that each outlier was addressed. Subsequent action to trends in activity should be noted with constant evaluation of the performance improvement process (i.e., Deming Cycle; Plan Do, Study/Check, Act). The QM plan is current and describes the process with evidence of loop closure in subsequent reports.

ME 02.01.11 There will be regularly scheduled QM meetings providing a forum for all disciplines involved in the medical escort service to present their needs and areas for improvement to each other. Minutes will be taken and distributed to management and staff not participating in the meetings.

ME 02.01.12 The monitoring and evaluation process has the following characteristics:

1. Driven by important aspects of care and operational practises identified by the medical transport service's QM plan
2. Indicators and thresholds or other criteria are identified to objectively monitor the important aspects of care.
3. Evidence of QM studies and evaluation in compliance with written QM plan
4. Evidence of action plans developed when problems are identified through QM and communication of these plans to the appropriate personnel

5. Evidence of reporting QM activities through established QM organizational structure
6. Evidence of on-going re-evaluation of action plans until problem resolution occurs
7. Evidence of annual goals established prospectively for the QM program which provide direction for the work groups and which are quantitative. The emphasis must be on loop closure and resolution of problems within a finite time period.

ME 02.01.13 Quarterly review should include (at a minimum, but may exceed) criteria based upon the important aspects of care/service. The following examples are encouraged:

1. Reason for medical escort transport
2. Mechanism of injury or illness
3. Patient's outcome (morbidity and mortality) at the time of arrival at destination and patient's change in condition during transport
4. Safety practises
 - a. Safety issues should be identified to the Safety Committee with detailed reporting and analysis of vehicle/patient safety aircraft incidents, travel and cultural incidents that could potentially affect crew safety and resolution of issues with findings and action plans reported back to the QM committee.
 - b. QM personnel may collect data and refer to the Safety Committee for action and resolution.
5. QM personnel may collect data and refer to the Safety Committee for action and resolution.
6. Operational criteria to include at a minimum the following quantity indicators:
 - a. Number of completed transports.
 - b. Number of aborted and cancelled transports due to patient condition and use of alternative modes of transport.
7. Transport delays that required updating arrangements for meeting ambulance, family etc.
8. Change in patient's condition that required additional interventions
9. Serious Reportable Events or Never Events (see references)
10. Ground responses with use of lights and sirens
11. Patients transported with known communicable disease at the time of the request or discovered after the transport.

Examples of Evidence to Meet Compliance:

The QM plan is current and describes the process with evidence of loop closure in subsequent reports. QM does not consist only of medical record reviews.

Examples of Evidence to Meet Compliance:

Outcomes from QM should drive systems/process/procedures changes, education and training needs. Systems improvement tools are educational. The process is not directed toward an individual nor is it punitive.

Tracking and trending response times and times at the referring/receiving hospital/pickup-drop-off locations are evaluated in terms of benchmarks set by the program in order to evaluate the effectiveness of policies/procedures, training and/or equipment needs. If transports are delayed, reasons for delays or referrals are tracked as are transport requests that are conducted by an alternate means of transport (within the same program).

ME 02.02.00 UTILIZATION MANAGEMENT

ME 02.02.01 Management ensures an appropriate utilization management process based on:

1. Medical benefits to the patient
 - a. Timeliness of the transport as it relates to the patient's clinical status
 - b. Patient care needs consistent with the capabilities and limitations of commercial airline transport, other vehicle(s) of transport and the medical escort's skills
2. Safety of the transport environment
3. 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 semi-annually and recorded in a written report. This report indicates criteria have been tracked and trended and feedback was provided when there are inappropriate requests from referral and contacting agencies.
4. The following criteria trigger a review of the record to determine medical appropriateness based upon patients:
 - a. Who have needs not reported by the requesting agency
 - b. Who are served by an inappropriate transport arrangements vehicle in consideration of time, distance, speed considerations, etc.
 - c. Who are served by an inappropriate team, i.e., Basic Care Provider used but patient required Advanced Care

ME 02.02.02 Management ensures that steps are taken to reduce those transports that are considered to be non-appropriate.

Examples of Evidence to Meet Compliance:

UM reports indicate trending and loop closure of patient outcomes. Requesting agents are contacted if there are trends that indicate over-triage or under-triage.

Continuous review of UM with applicable trending and loop closure of patient outcomes in the form of follow-up with receiving facility, documented phone calls to patient/family, etc. may provide adequate informa-

tion about patient outcome. Outliers should be presented to a QM Committee or during regularly scheduled staff meetings to discuss specifics of transport.

ME 02.03.00 SAFETY MANAGEMENT

ME 02.03.01 Safety Management System - Management is responsible for a Safety Management System (SMS) but both management and staff are responsible for ensuring safe operations. The Safety Management System is proactive in identifying risks and eliminating injuries to personnel and patients and damage to equipment and includes:

1. A statement of policy commitment from the accountable executive
2. Risk identification process and risk management plan that includes a non-punitive system for employees to report hazards and safety concerns
3. A system to track, trend and mitigate errors or hazards
4. A system to track and document incident root cause analysis
5. A Safety Manual
6. A system to audit and review organizational policy and procedures, ongoing safety training for all personnel (including managers), a system of pro-active and reactive procedures to insure compliance, etc.
7. A process for dissemination of safety issues to all personnel for loop closure
8. There is evidence of management's decisive response to non-compliance in adverse safety or risk situations.
 - a. Senior management should establish a process to identify risk escalation to ensure that safety and risk issues are addressed by the appropriate level of management up to and including the senior level.
 - b. Operational Risk Assessment tools should include but not be limited to issues such as: transport acceptance, public relations events, training, maintenance and re-positioning trips. For transports, the tool should include:
 - Assessing fatigue
 - Clinical acuity of patient
 - Potential risks related to traveling companion (for example, recently discharged from hospital also or requires assistance)
 - Foreign language considerations (does medical escort speak local language)
 - Vehicle sophistication (for example large international airline carrier versus small third world regional aircraft)
 - Experience of medical escort

- Safety of local hotel and ground transportation
- Infrastructure of pick-up, drop off, connecting areas (for example, very limited communication network or road system in underdeveloped country/area)
- Number of flight connections
- Stretcher transports
- Travel advisories/warnings
- National v. international transport
- Other temporary situations in areas travelled to that may increase risk (for example, extreme weather forecasted, recent/impending political or natural disaster, etc.)

9. Policies address crew safety and include but are not limited to the following examples:

- a. Cultural intelligence
- b. Checking with medical assist companies and State Departments regarding high risk countries.

Examples of evidence to exceed compliance:

Crews should never eat the same food; Never leave the hotel alone – have a buddy system; Have a specific time to be back at the hotel; Behave and dress so as to blend in with locals; and No high risk activities, for example, bungee jumping.

10. The program has a process to measure their safety culture by addressing:

- a. Accountability – employees are held accountable for their actions
- b. Authority – those who are responsible have the authority to assess and make changes and adjustments as necessary
 - Standards, policies and administrative control are evident
 - Written procedures are clear and followed by all
 - Training is organized, thorough and consistent according to written guidelines
 - Managers represent a positive role model promoting an atmosphere of trust and respect
- c. Professionalism – as evidenced by personal pride and contributions to the program's positive safety culture
- d. Organizational Dynamics
 - Teamwork is evident between management and staff and among the different disciplines regardless of employer status as evidenced by open bi-directional and

inter-disciplinary communications that are not representative of a “silo” mentality.

- Organization represents a practise of encouraging criticism and safety observations, and there is evidence of acting upon identified issues in a positive way.

- Organization values are clear to all employees and embedded in everyday practise.

11. A Safety Management System includes all disciplines and processes of the organization. A Safety Committee is organized to solicit input from each discipline and should meet at least quarterly with written reports sent to management and kept on file as dictated by policy

a. Written variances relating to safety issues will be addressed in Safety Committee meetings.

b. The committee will promote interaction between medical transport personnel and communications personnel addressing safety practise, concerns, issues and questions.

c. There is evidence of action plans, evaluation and loop closure.

12. The Safety Committee is linked to CQI and risk management

13. Aviation, ambulance or other vehicle related events that occur during a medical escort trip are identified and tracked to minimize risks. (See Glossary in Appendix for definition of event)

a. Medical transport services are required to report aviation and ambulance accidents to CAMTS Global and must report to the appropriate government agencies. There is a written policy that addresses reporting incidents or accidents and assigns certain individual(s) with the responsibility to report.

ME 02.04.00 SAFETY AND ENVIRONMENT

1. Safety issues are addressed that are specific to the operational environment (i.e. travel and anticipated cultural conditions during the course of travel).

2. Patient and personnel security

a. A policy addresses the security of the physical environment including local hotels, ground transportation and use of ground ambulance lights and sirens as applicable.

b. Personnel security - Medical escorts are required to carry photo ID's (driver's license and/or passport) with first and last name while on duty.

c. Patient security - Patients and accompanying family/companion(s) must be properly identified and listed by name in the communications centre by the transport coordinator.

Examples of Evidence to Meet Compliance:

Policy requires wearing or carrying ID's while on duty

ME 02.05.00 SAFETY EDUCATION

1. Education Specific to Safety of the Transport Environment - Completion of all the following educational components should be documented for the medical escort. 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 as appropriate for the mission statement and scope of practise of the service.

- a. Communications strategies and back-up plans
- b. Specific capabilities, limitations and safety measures for specific airlines and for ambulances
- c. Survival training/techniques/equipment that is pertinent to the environment/geographic coverage area of the medical transport service but must include at a minimum:
 - Safety and survival equipment requirements
- d. General aircraft safety to be included on an annual basis.
 - Aircraft evacuation procedures (exits and emergency release mechanisms) to include electrical and oxygen shutdown
 - In-flight emergency and emergency landing procedures, i.e., position, oxygen, securing equipment according to specific airline regulations
 - Safety around the aircraft including Authority Having Jurisdiction (AHJ) regulations pertinent to medical escort duties
- e. General ground ambulance safety including:
 - Loading/unloading
 - Seat belt use and no side facing shoulder straps
 - Securing loose items/equipment
 - Minimizing lights and sirens use

ME 03.00.00 - MEDICAL ESCORT PATIENT CARE

ME 03.01.00 MISSION TYPES AND PROFESSIONAL LICENSURE

Staffing should be commensurate with the mission statement and scope of care of the medical transport service and potential needs of the patient during the entire transport. A well-developed position description for each discipline is written.

ME 03.01.01 Basic Care - A basic care medical escort mission is defined as the transport of a patient whose condition warrants an attendant commensurate with the scope of practice of an Ambulance Technician or national equivalent.

1. The care provider must be licensed, certified or permitted according to the appropriate regulations or by (AHJ) and has current relicensing, recertification, or re-permitting status and must have a minimum of 2 years of experience in the pre-hospital setting
2. Patient is stable and requires minimal supervision or care

ME 03.01.02 Advanced Care – An advanced care medical escort mission is defined as the transport of a patient whose condition warrants an attendant commensurate with the scope of practice of a nurse or paramedic or who meets the following criteria:

1. The nurse must have current and appropriate licensure and a minimum of two years of experience as a nurse in a hospital or pre-hospital setting.
2. The paramedic must be licensed, certified or permitted according to the appropriate of residence regulations or by Authority Having Jurisdiction (AHJ) and have current relicensing, recertification or re-permitting status and a minimum of two years ALS experience.
3. Patient is stable enough to travel and needs may include but not be limited to:
 - a. Use of oxygen
 - b. Mobilization devices
 - c. Emptying drainage bags
 - d. Dressing changes
 - e. Medication administration and/or supervision
 - f. Dietary supervision

- g. Potential for cardiac or diabetic complications such as angina or hypo/hyperglycaemia
- h. Potential for respiratory complications such as hypoxia, suctioning and humidity needs

ME

ME - PATIENT CARE

ME 03.02.00 MEDICAL DIRECTION

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 and by being familiar with the scope of practise of the transport team members and the regulations in which the transport team practises, competency and currency of all medical personnel working with the service.

ME 03.02.01 The medical director(s) should be licensed and authorized to practise in the location in which the medical transport service is based and have educational experience in those areas of medicine that are commensurate with the mission statement and scope of care of the medical transport service (i.e., adult, paediatric, neonatal transport, etc.) or utilize specialty physicians as consultants when appropriate.

ME 03.02.02 The medical director(s) should have experience in air and/or ground transport services and should have education as a medical director (see Education Matrix) as appropriate to the mission statement and scope of care and be familiar with the general concepts of appropriate utilization of transport 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. Certifications are required as pertinent to the program's scope of care. If a physician is certified in an area appropriate to the mission and scope of care of the service, certifications #1 and #12 are optional.

Supporting Criteria

1. Advanced Life Support (ALS) according to the current standards of the European Resuscitation Council or approved equivalent
2. Altitude physiology/stressors of flight
3. Quality Management and appropriate utilization of medical escort services
4. Continuing education in transport medicine
5. Emergency Medical Services
6. Ground ambulance rules /regulations
7. Hazardous materials recognition and response
8. Human Factors – Crew Resource Management
9. Infection control
10. "Just Culture" or equivalent education is strongly encouraged

11. Patient care capabilities and limitations (i.e., assessment and invasive procedures during transport)
12. European Paediatric Advanced Life Support (EPALS) according to the current standards of the European Resuscitation Council or approved equivalent (if paediatrics is part of the scope of care)
13. Stress recognition and management
14. Sleep deprivation, sleep inertia, circadian rhythms and recognizing signs of fatigue
15. The medical director should demonstrate continuing education in transport medicine

ME 03.02.03 The medical director(s) is actively involved in the quality management (QM) program for the service.

ME 03.02.04 The medical director(s) is actively involved in administrative decisions affecting medical care for the service.

ME 03.02.05 The medical director sets and reviews medical guidelines (for current accepted medical practice), and medical guidelines are in a written format.

ME 03.02.06 The medical director(s) is actively involved in the hiring process, training and continuing education of all medical personnel for the service that includes involvement in skills labs, medical protocol or guideline changes or additions.

ME 03.02.07 The medical director receives Safety and Risk Management training on an annual basis (strongly encouraged).

Examples of Evidence to Meet Compliance:

There is evidence of the medical director's involvement with the program through meeting attendance records, education records, chart reviews etc.

Examples of Evidence to Exceed Compliance:

Medical Director(s) attends TEM and Just Culture training and achieves advanced transport management certifications

ME 03.02.08 The medical director(s) ensures that the plans for transport are appropriate and safe for the patient's specific disease process/needs.

ME 03.02.09 The medical director must maintain open communications with referring and accepting agents and be accessible for concerns expressed regarding controversial issues and patient management.

ME 03.02.10 Medical Control

1. If the medical director is unavailable, there are other physicians (who are trained and identified by the service) with the appropriate knowledge base to ensure proper medical care and medical control during transport for all patient types served by the medical escort service.

Examples of Evidence to Exceed Compliance:

The medical director is involved in EMS on a regional and/or national basis. The medical director participates in peer-reviewed published research regarding medical transport.

ME 03.03.00 CLINICAL CARE SUPERVISOR

Clinical Care Supervisor responsibility for supervision of patient care provided by the various clinical care providers 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.

ME 03.03.01 The clinical care supervisor should demonstrate currency in the following or equivalent educational experiences as appropriate to the mission statement and scope of care.

1. Advanced Life Support (ALS) according to the current standards of the European Resuscitation Council or approved equivalent
2. Altitude physiology/stressors of flight if involved in fixed wing operations
3. Hazardous materials recognition and response
4. Human Factors – Crew Resource Management – Aeromedical Crew Resource Management (ACRM). (See References)
5. Infection control
6. “Just Culture” or equivalent education strongly encouraged
7. European Paediatric Advanced Life Support (EPALS) according to the current standards of the European Resuscitation Council or approved equivalent (if paediatrics is part of the scope of care)
8. Patient care capabilities and limitations during transport (i.e., assessment)
9. Quality Management and appropriate utilization of medical escort services
10. Stress recognition and management
11. Sleep deprivation, sleep inertia, circadian rhythms and recognizing signs of fatigue
12. Safety and risk management training on an annual basis (strongly encouraged)

ME 03.03.02 The clinical care supervisor is actively involved in the QM process.

ME 03.03.03 Knowledge of national and international regulations as appropriate to scope of practise.

Examples of Evidence to Exceed Compliance:

The clinical supervisor attends TEM and Just Culture training and achieves advanced certifications as appropriate.

ME 03.04.00 PROGRAM MANAGER

The program manager may have overall responsibility for a program or for a specific base with or without

additional clinical responsibilities. (Follow criteria above if clinical responsibilities are part of the position description.)

ME 03.04.01 The program manager must demonstrate currency in the following or equivalent educational experiences as appropriate to the mission statement and scope of care. Didactic education initially and on an annual basis should include but not be limited to:

1. Human Factors – Crew Resource Management. (See References)
2. “Just Culture” or equivalent education strongly encouraged
3. Knowledge of national and international regulations as appropriate to scope of care
4. Quality Management of the program and its implication to best practises
5. Safety and Risk Management training on an annual basis (strongly encouraged)
6. Sleep deprivation, sleep inertia, circadian rhythms and recognizing signs of fatigue
7. Stress recognition and management

Examples of Evidence to Exceed Compliance:

The program manager attends Just Culture training and achieves advanced certifications.

ME 03.05.00 ORIENTATION AND CONTINUING EDUCATION

A planned and structured program should be required for all regularly scheduled advanced care and basic care providers. Competency and currency in these competencies must be ensured and documented through relevant continuing education programs/certification programs or their equivalent listed in this section. The orientation, training and continuing education must be directed and guided by the transport program’s scope of care and patient population, mission statement and medical direction and must be conducted at the program’s base of operations.

ME 03.05.01 Basic Care Medical Escort

1. Initial Training Program - Each Basic Care Medical Escort must successfully complete a comprehensive training program or show proof of recent experience/training in the categories listed below prior to assuming independent responsibility.

a. Didactic Component - Should be specific and appropriate for the mission statement and scope of care of the medical escort service.

- Altitude physiology/stressors of flight
- Aviation – aircraft orientation/safety & in-flight procedures/general aircraft safety including depressurization procedures
- Cell phone and established communications procedures
- Compliance issues and regulations

- Hazardous materials rules of the airlines
- Infection control
- “Just Culture” or equivalent education is strongly encouraged
- Quality management
- Stress recognition and management
- Survival training
- Sleep deprivation, sleep inertia, circadian rhythms and recognizing signs of fatigue

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 practise of the medical escort service):

- Emergency care
- Pre-hospital care

2. Continuing education/staff development - Continuing education must be provided and documented for basic care medical escorts.

a. Didactic continuing education must include:

- Altitude physiology/stressors of flight
- Aviation and ground vehicle - safety issues
- Emergency care courses –basic level
- Hazardous materials recognition and response
- Infection control
- Stress recognition and management
- Survival training
- Sleep deprivation, sleep inertia, circadian rhythms and recognizing signs of fatigue

b. Clinical continuing education should be developed and documented on an annual basis and must include:

- Emergency/hospital care
- Pre-hospital experience

c. Clinical competency must be maintained by currency in the following or equivalent train-

ing as appropriate for the position description, mission statement and scope of care of the medical escort service. (See addendum B – the Education Matrix.)

- Education specific to the transport environment
- Basic Life Support – documented evidence of current BLS certification according to AHJ

3. Completion of all the following educational components should be documented for each of the medical escort personnel. These components should be included in initial education as well as reviewed on an annual basis with all medical escort personnel.

a. Air medical patient transport considerations (assessment/ treatment/ preparation/ handling/ equipment)

b. Ground operations

- Patient loading and unloading procedures if patient has special mobility needs or is on a stretcher
- Contact procedures if patient is not met by pre-planned agent
- Familiarization with ambulance and its equipment if met by an ambulance (to be reviewed with ambulance personnel prior to transport)

ME 03.05.02 Advanced Care Medical Escort

1. Initial training program requirements for all advanced care medical escorts. Each advanced care medical escort must successfully complete a comprehensive training program or show proof of recent experience/training in the categories listed below prior to assuming independent responsibility.

a. Didactic Component - Should be specific and appropriate for the mission statement and scope of care of the medical escort service. Measurable objectives need to be developed and documented for each experience.

- Airway management
- Altitude physiology/stressors of flight
- Anatomy, physiology and assessment for adult, paediatric and neonatal patients as applicable
- Aviation - aircraft safety & in-flight procedures/general aircraft safety including depressurization procedures
- Cardiac emergencies
- Mobile phone and established communications procedures
- Compliance Issues and regulations
- Disaster and triage

- Environmental emergencies
- General travel advice
- Ground ambulance/other vehicle safety
- Hazardous materials rules of the airlines
- Infection control
- International travel considerations
- “Just Culture” or equivalent education is strongly encouraged
- Medical equipment
- Mechanical ventilation and respiratory physiology for adult, paediatric and neonatal patients
- Metabolic/endocrine emergencies
- Oxygen approved by the airlines and in line with the manufacturer’s instructions
- Post traumatic injury complications (adult and paediatric)
- Paediatric medical emergencies as applicable
- Pharmacology
- Pre-hospital experience
- Quality Management didactic education that supports medical transport service mission statement and scope of care (i.e. adult, paediatric, neonatal)
- Respiratory emergencies
- Stress recognition and management
- Survival training (in accordance with medical escort’s program policies)
- Sleep deprivation, sleep inertia, circadian rhythms and recognizing signs of fatigue
- Thermal, chemical and electric burns
- Toxicology

b. Clinical Component - Clinical experiences should include, but not be limited to the following. Experiences should be specific and appropriate for the mission statement and scope of care of the medical service). Measurable objectives need to be developed and documented

for each experience.

- Adult ALS stabilization
- Emergency care
- Paediatric ALS stabilization

2. Continuing education/staff development must be provided annually and documented for all advanced care medical escorts.

a. Didactic continuing education must include:

- Altitude physiology/stressors of flight
- Aviation and ground vehicle - safety issues
- Emergency care courses
- Hazardous materials rules of the airlines
- Infection control
- Stress recognition and management
- Survival training (in accordance with medical escort's program policies)
- Sleep deprivation, sleep inertia, circadian rhythms and recognizing signs of fatigue

b. Clinical and laboratory continuing education should be developed and documented on an annual basis and must include:

- Skills maintenance program documented to comply with number of skills required in a set period of time according to policy of the medical escort service
- Appropriate clinical experience pertinent to the medical escort scope of care

c. Policies ensure that clinical competency is maintained by currency in the following or equivalent training as appropriate. See addendum B – the Education Matrix.

- Advanced Life Support (ALS) according to the current standards of the European Resuscitation Council or approved equivalent
- European Paediatric Advanced Life Support (EPALS) according to the current standards of the European Resuscitation Council or approved equivalent (if paediatrics is part of the scope of care)
- Neonatal Resuscitation Program (NRP) if scope of care includes care of infants less than 30 days old.
- Current nursing certifications pertinent to scope of care and patient population required for nurses who have been employed for more than 2 years. Specialist

transport qualifications strongly encouraged for teams that transport paediatric (requiring specialized care in a PICU) and/or neonatal patients

- Current paramedic certifications pertinent to scope of care and patient population required for paramedics who have been employed for more than 2 years and are conducting ALS/BLS and critical care transports.

3. Education Specific to the Transport Environment

a. Completion of all the following educational components should be documented for each of the medical escort. These components should be included in initial education as well as reviewed on an annual basis with all medical escorts.

- Air medical patient transport considerations (assessment/ treatment/ preparation/ handling/ equipment)
- Ground operations
 - o Patient loading and unloading procedures if patient has special mobility needs or is on a stretcher
 - o Contact procedures if patient is not met by pre-planned agent
 - o Familiarization with ambulance and its equipment if met by an ambulance (to be reviewed with ambulance personnel prior to transport)

ME 03.06.00 ACCOMMODATIONS ON THE VEHICLE

ME 03.06.01 Patient accommodations on the aircraft should not compromise the ability to receive appropriate care if necessary.

1. Policies that address patient placement in the vehicle allow for safe egress.
2. For all transports, there are written guidelines describing types of patients that can be transported in a litter configuration if the aircraft is able to accommodate.
3. For all transports, strict policies will address: preparation based on patient condition based on anticipated needs and patient position in the aircraft.

ME 03.06.02 Policy will address procuring a privacy curtain or temporary barrier for the stretcher patient.

1. Policy will address patient use of bedpans, urinals or diapers and disposal of body waste and fluids are included according to the regulations of the specific airline.

ME 03.06.03 Delivering oxygen

1. Oxygen flow can be stopped at or near the oxygen source.
2. The following indicators are accessible to medical escort personnel while en route:

- a. Quantity of oxygen remaining
 - b. Measurement of litre flow
3. A variety of oxygen delivery devices consistent with the patient's needs must be available.
- a. Equipment requiring batteries such as an oxygen concentrator must include additional batteries sufficient for the duration of the transport.
4. Knowledge and use of airline oxygen as back up in the event the patient's system fails.

ME 03.06.04 Maintaining IV Fluids

1. IV supplies and fluids are available if needed.
2. Hangers/hooks are available that secure IV solutions in place or a mechanism to provide high flow fluids if needed.
3. IV infusion pumps are available as appropriate.

ME 03.06.05 Accessible medications consistent with the service's scope of care.

1. Controlled substances provided by the medical escort program are in a secured system or kept in a manner consistent with policy and with local, federal, and international regulations. It is recognised that the patient may bring with them and self-administer their own medications and/or narcotics.
 - a. If transports involve team members lodging overnight with controlled substances, a policy to address securing/storage of controlled substances is required.
2. Storage of medications allows for protection from extreme temperature changes if environment deems it necessary.
3. There is a method to check expiration dates of medications on a regular basis.

ME 03.06.06 Pressure Ulcers – Policies and procedures are written and followed to prevent pressure ulcers for transports longer than 2 hours and/or reduce the impact of pressure ulcers during transport.

1. Patient assessment and documentation of pressure ulcers is done prior to, during and following each transport, according to program policy
2. Pressure reducing devices and/or methods are used when needed.

ME 03.06.07 Circulatory issues must be addressed if patient is subjected to long transport times in confined spaces.**ME 03.06.08** Medical supplies and equipment must be consistent with the service's mission statement and scope of care.

1. A portable mechanical suction unit if needed is anticipated
2. Glucometer is available

3. Pulse oximetry capabilities
4. Automatic blood pressure device or sphygmomanometer
5. Portable oxygen concentrator approved by AHJ
6. Policy that addresses oxygen use (provided by the commercial airline or other provider) includes time to taxi, take-off, land until connecting with ground ambulance oxygen.
7. The vehicle will be assessed in advance to the extent possible for the potential problems comprising the patient's stability in loading/unloading and addressed accordingly
 - a. If a stretcher is needed and can be provided:
 - Aircraft stretcher and the means of securing it in-flight must be consistent with AHJ regulations
 - The stretcher should be large enough to carry the 95th percentile adult American patient, per current specifications, full length in the supine position.
 - The stretcher should be sturdy and rigid enough that it can support cardiopulmonary resuscitation.
 - The stretcher will be assessed in advance to ensure the head of the stretcher is capable of being elevated if required by patient needs.
 - The stretcher mattress must be sealed to prevent absorption of blood and other body fluids, easily cleanable and designed to reduce pressure ulcers.
 - b. Supplemental lighting is available if needed. A self-contained lighting system powered by a pack or a portable light with a battery source must be available.
 - c. Adapters and/or regulators must be accessible to and compatible with a power source.
 - d. Semi-automatic or automatic external defibrillator may be supplied by the airline, cruise ship, train or ground transport provider. Personnel need to know how to use specific make and model of this equipment and how to check functionality of equipment and its batteries or verify that airline or ground personnel are proficient.
 - e. The medical escort service must verify prior to departure of escort personnel, that there is an AED available on board each vehicle during the course of the escort transport; if not, one must be taken by escort personnel.
8. All equipment and supplies must be secured according to AHJ requirements (and also if transporting on a ground ambulance, marine, train or other mode of transport) including containers for medical equipment along with padlocks, straps or other mechanism for securing it.

ME 03.06.09 Operational Issues

1. Medical escorts must ensure that all medical equipment is in working order and all equipment/

supplies are validated through documented checklists.

- a. Equipment must be periodically tested and inspected by a certified clinical engineer.
- b. Equipment inspections will be required according to the program's guidelines.
- c. Adequate back-up battery supply must be available to ensure all medical equipment remains functional throughout the transport.

2. Occupant restraint devices - Medical escort must be in seatbelts for all take-offs and landings according to international regulations.

3. A policy describing pre-boarding for ambulatory or wheelchair patients, or patient loading and unloading procedures for stretcher patients.

- a. Hi-lo lift is strongly encouraged to board and disembark for commercial stretchers

4. A policy addressing carry-on baggage of patient that must be checked for hazardous materials before boarding the vehicle if not already performed by airport security.

5. Policy will address operational issues per vehicles utilised – commercial aircraft, private plane, boat, train, passenger van, etc. (For example, AED availability, back-up oxygen (cannot be private plane's emergency oxygen), boarding if patient is non-ambulatory, attending to other passengers when requested if no flight attendant to watch escort patient, baggage handling, optimal seating, optimal room location on cruise ship, arrival times of patient and escort specific to vehicle, and minimum communication required specific to vehicle.

6. Policy addressing the provision of contingency plans in the event of maintenance problems, adverse weather, cancelled flights, airline denying boarding due to patient condition, problems with ground transportation, delays extending duty time beyond 24 hours, unplanned overnight stays in high risk areas/countries, delays requiring overnight stay with patient along the transport route and other adverse occurrences. The policy will list resources available to personnel should these situations arise.

7. A policy sets criteria and guidelines for aborting a mission prior to and during a transport.

8. There is a written policy on conducting CPR during transport.

9. A policy that addresses do not resuscitate (DNR)/allow natural death (AND)/physician's orders for life sustaining treatment (POLST)

10. A policy addresses transfer and security of patient's personal property.

ME 03.07.00 INFECTION CONTROL

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 or national standards as published by the European Centre for Disease Control and Prevention (ECDC), Centers for Disease Control and Prevention (CDC) or World Health Organization (WHO).

ME 03.07.01 Policies and procedures must be written and readily available to all personnel of the medical transport service.

ME 03.07.02 There is an Exposure Control Plan consistent with national or WHO guidelines. The ECP includes:

1. A reference for work restrictions for personnel exposed to or infected with an infectious disease (reference IATA Medical Manual)
2. A list of the risks associated with diseases prevalent in coverage areas specific to the program such as pertinent international risks.

ME 03.07.03 Education programs will include the program's infection control resources, programs, policies and ECDC, CDC or WHO recommendations (or equivalent national guidelines). In addition, initial and annual education regarding identification, management and safety related to patients with potentially infectious pathogens is documented.

ME 03.07.04 Education programs and policies regarding latex allergies may include:

1. Patients and employees at risk for latex sensitivities and symptoms manifested by an allergic reaction
2. Maintaining a latex-safe environment
3. Methods to minimize latex exposure to lessen risks of allergic reactions in clinical personnel

ME 03.07.04 Preventive measures - All personnel must practise preventive measures lessening the likelihood of transmission of pathogens. Policies and procedures address:

1. Personnel health concerns and records of:
 - a. Pre-employment and annual physical exams or medical screening to include:
 - History of acute or chronic illnesses
 - Illnesses requiring use of medications that may cause drowsiness, affect judgment or coordination
 - Provide annual tuberculosis testing (purified protein derivative) especially if conducting international transports and other testing, screenings and vaccinations as consistent with current national guidelines.
 - Immunisation history appropriate to the scope of practise transport team members encouraged to have tetanus immunisation (Measles, mumps, and rubella (MMR) immunisations are encouraged for those born after 1957.) "Hepatitis B vaccine must be offered and if the employee has not previously had the vaccination or does not have adequate titres and declines, the program must have a signed declination form.
 - Immunisation history is documented and monitored for currency and appropriateness

2. Management of communicable diseases and infection control in the transport environment is outlined in policies.

- a. Use of gloves, eye and mouth protection. Personal protective equipment is readily accessible in the ambulance or issued to the medical transport team
- b. Use of safety needles and blunt or other type system to lessen the risk of needle-sticks to those who may come into contact with them
- c. Sharps disposal container for contaminated needles and collection container for soiled disposable items on the vehicle and proper disposal of same
- d. Cleaning and disinfecting with appropriate disinfectant of the equipment and personnel's soiled clothes
- e. Proper cleaning or sterilization of all appropriate instruments or equipment
- f. Hand washing before and after each patient contact and glove application and removal
 - When hand washing facilities are not available, alcohol-based hand sanitizer should be used.
 - Alcohol based hand rubs are the preferred method of routine hand hygiene. Soap and water must be used if hands are contaminated with blood and/or body fluids, after using the restroom and after contact with a patient diagnosed with *C. difficile*.
- g. Management maintains documentation related to bloodborne and airborne pathogens including confidential records of exposure incidents and post-exposure follow-up, hepatitis B vaccination status and initial and on-going training for all employees.
 - Post exposure follow-up includes: identification and testing of source patient, baseline and follow-up testing of exposed employee, making counselling resources available, and offering Hepatitis B vaccination.
- h. 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.
- i. Where there is likelihood of occupational exposure, the following are prohibited: eating, drinking, applying cosmetics or handling contact lenses.
- j. Food and drink will not be stored where blood or other potentially infectious materials are present. If the service performs transports with long transport times, there should be a policy to address the nutritional needs of patients and personnel.

ME 04.00.00 - MEDICAL ESCORT COMMUNICATIONS

ME 04.01.00 COMMUNICATIONS AND TRIP PLANNING

Medical escorts plan and follow a specific trip as follows:

ME 04.01.01 If mobile phones are part of the on-board communications equipment, they are to be used in accordance with airline regulations.

ME 04.01.02 A Coordinator must be assigned to receive and coordinate all requests for the medical escort service.

ME 04.02.00 TRAINING OF THE DESIGNATED COORDINATOR

ME 04.02.01 Should be commensurate with the scope of responsibility of the service.

1. Medical terminology
2. Knowledge of EMS – roles and responsibilities of the various levels of training -BLS/ALS, Ambulance Technician/Paramedic
3. Knowledge of appropriate contacts and procedures – foreign language resources, base and destination resources, local handler, abort procedure, common logistical problems and troubleshooting/response plans, etc.
4. Relevant ambulance and aviation regulations as appropriate to scope of service
5. General safety rules and emergency procedures pertinent to medical transportation and flight/transport following procedures
6. How to retrieve current and forecasted weather to assist the medical escort during a transport
7. Assistance with the hazardous materials response and recognition procedure using appropriate reference materials
8. Sleep deprivation, sleep inertia, circadian rhythms and recognizing signs of fatigue
9. Stress recognition and management to include resources for Critical Incident Stress Debriefing or other type of post-critical incident counselling

10. Customer service/public relations/phone etiquette
11. Quality management
12. Aeromedical Crew Resource Management (ACRM) pertinent to communications
13. Computer literacy and software training
14. Post-Accident/Incident Plan (PAIP)

ME 04.02.03 There is evidence of recurrent training and of training as policies and equipment changes occur. This also includes:

1. Aeromedical Crew Resource Management (ACRM) pertinent to communications
2. Post-Accident/Incident Plan (PAIP)
3. Sleep deprivation, sleep inertia, circadian rhythms and recognizing signs of fatigue
4. Stress recognition and management to include resources for Critical Incident Stress Debriefing or other type of post-critical incident counselling

ME 04.03.00 POLICIES

ME 04.03.01 A readily accessible post-incident/accident plan so that appropriate search efforts may be initiated in the event communications cannot be established with medical escort or location determined within a pre-planned time frame.

1. Written post-incident /accident plans are easily identified, readily available and understood by all personnel and minimally include:

a. List of personnel (with current phone numbers) to notify in order of priority (for coordinator to activate) in the event of an incident/accident. This list should include:

- Risk management/attorney
- Family members of team members
- Family of patient
- Referring hospital and receiving hospital
- Human resources (as applicable)
- Media relations or pre-identified individual who will be responsible for communicating with the media, health department and other team members.

b. A method to insure accurate information dissemination

c. Notification plans include appropriate family members and support services to family members following a tragic event. There must be timely notification of next of kin. Next of kin is no longer strictly defined at the federal level, so the crew member determines this on a data sheet and reviews annually. It is strongly recommended that:

- Family assistance includes coordination of family needs immediately after the event e.g. transportation, lodging, memorial/burial service, condolences, initial grief support services/referrals, (usually through appointment of a family liaison).
- Continuity includes follow through with the family after the event (e.g., the continuation of grief counselling and support referrals, the inclusion of families in decision-making on anniversaries/memorials, and check-ins following release of accident reports, or equivalent, etc.)

d. Consecutive guidelines to follow in attempts to:

- Communicate with the medical escort(s)
- Initiate ground support as appropriate
- Have a back-up plan for transporting the patient

e. Preplanned time frame to activate the post-accident/incident for overdue communication point

f. Coordination of transport of injured team member(s) to higher level of care if needed and/or back to local area

g. Procedure to document all notifications, calls, communications and to secure all documents related to the particular incident/accident

h. Procedure to deal with releasing information to the press

i. Resources available for CISD (critical incident stress debriefing) or other counselling alternatives

j. Process to determine whether the program will remain in service

2. An annual drill is conducted to exercise the post-accident/incident plan.

3. A general test of all emergency procedures to include fire drill, intruder on premises, catastrophic failure of the communications centre, forces of nature etc. will each be conducted on an annual basis (as applicable to medical escort services with a dedicated communications centre or base)

ME 04.04.00 COORDINATION AND MISSION TRACKING

ME 04.04.01 Initial coordination must be documented, and a transport coordinator should be contacted prior to each take-off and after each landing, referring/receiving area or other designated checkpoints.

1. These items to include but not be limited to:

- a. Name and telephone number of caller
- b. Patient type/condition
- c. Date and time call received
- d. Anticipated or scheduled date/time of departure
- e. Location of patient and destination
- f. Name of medical escort(s) assigned to transport
- g. Confirmation of bed assignment and accepting physician if admitted to healthcare facility
- h. Copy of medical records from sending healthcare facility
- i. Additional information as appropriate to the request such as:
 - Special diet requests
 - Local handler
 - Confirmed airline tickets and airline/company representative phone numbers
 - Ground transportation name and contact information for flights or other vehicle that requires ground support
 - Hotel arrangements
 - Time zone differences
 - Medical assistance company third party administrator (TPA) report/paperwork, airline fit to fly form, MEDIF (medical information form) for airlines
 - Expected transport time; number of fuel stops
 - Number of seats available for medical team; space/seats available for luggage/medical equipment
 - Carry-on restrictions; airline/company's policy for handling of body fluids/infectious waste
 - Travel documents required
 - Advisories particular to area(s) being travelled
 - Number of family/companion(s) accompanying
 - Availability, number outlets and power limitations of inverter
 - Airline/company stretcher limitations (length/width, linens available, mattress,

isolette types permitted)

- Number of oxygen cylinders that can be accommodated, adapter/regulator type, flow capabilities
- Lighting available

2. Specific methods must be used by the coordinator for contacting the medical escort personnel to relay request information, i.e., pager numbers, telephone and/or mobile numbers.

3. An on-call roster of the medical team must be provided to the answering service/coordinator that includes a priority phone list of personnel to notify in the event of an emergency.

4. Management requires a post transport debrief is conducted after each transport.

ME 04.04.02 Mission Tracking – Communications during a mission should also be documented accordingly:

1. Direct or relayed communications to coordinator specifying all take-off, departure and/or arrival times.

ME 04.04.03 The Coordination Point must contain the following:

1. At least one dedicated phone line for the medical escort service

2. Capability to notify on-call personnel and on-line medical direction (through radio, pager, telephone, etc.)

3. A status board or electronic display with information about pre-scheduled medical escorts transports, personnel on-call, etc.

4. Communications policy and procedures manual

5. If medical escort service is unable to do the transport there is a policy addressing referrals to CAMTS or CAMTS Global-accredited programs.

EDUCATION AND CERTIFICATION

SOURCES, TOOLS AND EXAMPLES OF EVIDENCE

Recommendations

It is *important* that the education and training of all transport members reflect the mission and scope of service of the transport program.

1. Equivalent Courses

CAMTS Global will accept appropriate equivalent courses. However, these courses must meet the following criteria:

Include measurable learning objectives

Offer equivalent number of hours to the course that is being replaced

Include documentation of scores and evaluations at the completion of the course

Equivalent courses (to the required) include: Advanced Life Support (ALS), European Trauma Course, European Paediatric Advanced Life Support (EPALS) and Neonatal Life Support (NLS) (if part of scope of care). Equivalent course must be submitted to the Education Committee for approval at least 6 months prior to a site survey for initial accreditation applicants. Changes to existing approved equivalent courses must be submitted with the PIF for programs applying for reaccreditation.

SPONSORING AGENCIES OF COURSES LISTED ABOVE

European Resuscitation Council (ERC)

Advanced Life Support (ALS)

European Resuscitation Council and the Resuscitation Council (UK)

European Paediatric Life Support Course (EPALS)

European Resuscitation Council (ERC) European Society for Trauma and Emergency Surgery (ESTES) European Society for Emergency Medicine (EuSEM) and European Society of Anesthesiology (ESA)

European Trauma Course

2. Human Patient Simulators:

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 to demonstrate 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. **ONLY scenarios used instead of clinical experiences MUST be reviewed by the CAMTS Education Committee.* (refer to medical education approval policy - below)**

For airway competency in initial training to meet the 5 live or cadaver intubation requirement:

(Does not require Education Committee Approval)

- Must be capable of real time changes in difficult airway scenarios including a surgical airway.
- Must allow realistic pharmacologic/pharmacodynamic 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 rescue airway devices), CPR, pacing and de-fibrillation.
- 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.

For invasive skills: (Does not require Education Committee Approval)

- HPS is capable of simulating same skills as listed in ATLS or TNATC curriculum and as consistent with the program's mission and scope of care.
- Simulation for airway competency and invasive skills do not require approval.

Simulation used instead of clinical experiences: Simulator experiences must be approved by the CAMTS Education Committee. Submit according to the 4 Step Process below (forms are completed and submitted electronically as found on the camts.org website):

Step One: Submit the CV for the simulation facilitator including all certifications (such as Certified Healthcare Simulation Educator-CHSE) or other formal training (such as from a simulator manufacturer or center). The facilitator must have evidence of simulation training.

Step Two: – Complete the Gap Analysis to assess your current work with simulation learning (Highlight the number that best reflects your current status)

Step Three: Submit:

1. The education plan that incorporates the simulation goals
2. The learning objectives and outline for each scenario utilized
3. The corresponding medical protocols for each of these patient conditions
4. Debriefing documents/checklists that support each of the scenarios

Step Four: Submit a video* of an actual simulation training that includes the debriefing session. (If low volume/high risk transports are part of your scope of care, choose such a scenario. For exam-

ple: high risk OB, pediatrics, neonates.)

*This does not need to be professionally filmed – a home video or phone camera is adequate.

SIMULATION LEARNING GAP ANALYSIS

1	Simulation equipment is available, which can include human patient simulators, task trainers, airway trainers, OB manikins. Scenarios used are basic.
2	Simulation education plan in place with identified learning objectives and appropriate paid time devoted to training. Scenarios used incorporate advanced learning objectives and particularly emphasize high risk low volume clinical skills.
3	Simulation educator(s) has documented experience and proficiency with the techniques of simulation and is actively involved with the broader educational needs of the program. Documented educator experience can include completion of formal degree programs related to simulation, CE from simulation organization conferences and educational offerings, and on the job mentorship. Checklist of specific interventions, evaluation, and debriefing are demonstrated.
4	Simulation program is mature in that scenarios include not only clinical points but integrate team training, aviation/ground environment, and communication skills. Well written criteria checklists are documented and a post debriefing is completed. Community outreach is used to bring in EMS, transferring and receiving facilities, and other stakeholders into the scenario development and training.
5	Simulation educators and other stakeholders link educational objectives to specific patient outcomes, track simulation effectiveness, and share their findings by publishing and presenting.

I. General guidelines for use of simulation instead of actual clinical experience:

- 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.
- Multifaceted, complex, realistic simulations should be written out and used for documentation of education.

A

EDUCATION AND CERTIFICATION

II. Examples of Evidence for Education

A. Copies of documents that demonstrate current completion of national or international courses based upon the scope and mission of the transport program. Database that includes names and dates of completion of required education will be requested as an attachment along with the Program Information Form for accreditation applicants.

B. If an equivalent course is used by the transport program, an outline must include:

- Objectives
- Didactic component
- Skills component
- Measurement tool
- Evaluation tool

CERTIFICATIONS

EXAMPLES OF CERTIFICATION EXAMS AND RESOURCES

All of the listed resources have web sites where additional information about the specific examinations, requirements to take the exams, and where the exams are administered:

Board for Critical Care Transport Paramedic Certification (BCCTPC)

- FP-C: Certified flight paramedic
- CCP-C: Certified critical care paramedic

QUICK REFERENCE MATRIX

This is a quick reference document that lists requirements for each level of service and type of training.

It is not intended to be all inclusive.

It also does not include training requirements for non-clinical staff.

For more details, reference the actual Standard and for much more detail on equivalent education and certification courses reference Addendum A: Education and Certification Matrix, Sources, Tools and Examples of Evidence.

INCLUDES:

Staffing
Equipment
Interventions
Quality Metrics
Initial Training
Continuing Education

Note in the following charts:

“Yes” means the item is required.

“If in Scope” means the item is required only if the transport program provides those services within its scope of services.

A blank box indicates the item is not required for that level of service.

As with all Standards, each item in the chart is measured against the transport service’s scope of practice and services. For example, if you do absolutely no neonatal services and do not advertise as doing so, none of the neonatal requirements would apply, even if the chart indicates a “Yes.”

REQUIRED STAFFING

Category	Personnel	Min. Required	Certification/License (for complete details see the actual Standard)
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Basic Life Support

Medical Director			Certified - Emergency Medicine*
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Minimum two people per vehicle:

Ambulance Technician	1		Training per AHJ
Vehicle operator	1		Emergency Response Driving per AHJ

Advanced Life Support

Medical Director			Certified - Emergency Medicine*
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Minimum two people per vehicle:

Paramedic	1		Paramedic with regional/national registration
Ambulance Technician	1		Emergency Response Driving per AHJ

Emergency Critical Care

Medical Director			Certified - Emergency Medicine* or specialty based on program scope of care
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Minimum three people per vehicle:

Pilot/Vehicle operator	1		EASA/AHJ(pilot) Emergency Response Driving
Nurse, Paramedic, Physician, Advanced nurse practitioner, Physician Assistant.	1		Licensed with appropriate regional/national specialty certification within 2 years, plus 3 years critical care experience Paramedic: FP-C or CCP-C within 2 years, plus 3 years critical care experience.

Plus one of the following: 1

Physician			Licensed with appropriate certification
Paramedic			FP-C or CCP-C within 2 years plus 3 years ALS experience
Physician Assistant			Licensed with 3 years ED or ICU experience
Nurse or Advanced nurse practitioner			Licensed with 3 years critical care experience and appropriate regional/national specialty within 2 years

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REQUIRED STAFFING

B
QUICK REFERENCE - STAFFING

Category	Personnel	Min. Required	Certification/License (for complete details see the actual Standard)
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Intensive Care

Until we have sufficient data, we will not accredit at this level.	Medical Director		Certified - Emergency Medicine with demonstrated competency in intensive care or Critical Care certified
	Minimum three people per vehicle:		
	Pilot/Vehicle operator	1	EASA/AHJ(pilot) Emergency Response Driving
	Physician	1	Certified plus 3 years ICU experience MD with critical care experience.
	Plus one of the following:	1	
	Physician		Licensed with appropriate regional/national certification
	Paramedic		FP-C or CCP-C within 2 years plus, 3 years critical care experience
	Physician Assistant		Licensed with 3 years ED or ICU experience
Nurse or advanced nurse practitioner		Licensed with 3 years critical care experience and appropriate regional/national certification within 2 years	

Specialty Care

Medical Director	1	Certified based on program scope of care + additional sub specialty liaison as required
Minimum three people per vehicle:		
Pilot/Vehicle operator	1	EASA/AHJ(pilot) Emergency Response Driving
Nurse or Physician	1	Licensed and certified per specialty
Plus one of the following:	1	
Physician		Certified with critical care experience
Paramedic		FP-C or CCP-C with 3 years critical care experience
Physician Assistant		Licensed with 3 years of ED or ICU experience, plus experience in specialty area
Nurse or advanced nurse practitioner		Licensed with 3 years of ED or ICU experience, plus experience in specialty area

+ Emergency Medicine certified or if not emergency medicine certified then family medicine/internal medicine/surgery/pediatrics certified is strongly encouraged with demonstrated EMS education or experience (5 years)

REQUIRED MEDICAL EQUIPMENT/SUPPLIES

Category	Item	BLS	ALS	ECC	Intensive	Specialty
Cardiovascular	Cardiac Monitor: including, at a minimum, 12 leads, external defibrillator and pacing		Yes	Yes	Yes	Yes
	Automatic External Defibrillator	Yes				
	Non-invasive blood pressure (NIBP) monitoring	Yes	Yes	Yes	Yes	Yes
	Pulse oximetry	Yes	Yes	Yes	Yes	Yes
	Minimum two invasive line monitoring ports				Yes	Yes
	ICP monitoring				Yes	Yes
	End-tidal CO2 detectors		Yes			
	In line continuous waveform capnography		Yes	Yes	Yes	Yes
	Patient temperature monitoring		Yes	Yes	Yes	Yes
	Trending and print of vital signs and patient management		Yes	Yes	Yes	Yes
	Doppler: circulation		If in scope	If in scope	If in scope	If in scope
	Pericardiocentesis Kit			If in scope	If in scope	If in scope
	Hypothermia protocol devices		If in scope	Yes	Yes	Yes
	Automated external chest compression device	If in scope	If in scope	If in scope	If in scope	If in scope
	Intraortic balloon pump (IAPBP)				If in scope	If in scope
	Extra Corporeal Membrane Oxygenation (ECMO)				If in scope	If in scope
	Ventricular assist devices				If in scope	If in scope
	Isolette				If in scope	If in scope
	Fetal monitor			If in scope	If in scope	If in scope
Invasive hemodynamic monitoring (transvenous pacemakers, central venous and arterial pressures)			Yes	Yes	Yes	
Invasive monitoring including hemodynamic, cardiac & neurological			If in scope	Yes	Yes	

Continued on next page.

REQUIRED MEDICAL EQUIPMENT/SUPPLIES — Continued

B

QUICK REFERENCE - EQUIPEMENT

Category	Item	BLS	ALS	ECC	Intensive	Specialty
Respiratory						
	Oral/pharyngeal	Yes	Yes	Yes	Yes	Yes
	Bag/Valve Mask	Yes	Yes	Yes	Yes	Yes
	Supraglottic (LMA, King) devices and supplies		Yes	Yes	Yes	Yes
	Video assisted laryngoscopy		If in scope	If in scope	If in scope	If in scope
	Endotracheal intubation (blades, tubes, supplies)		If in scope	Yes	Yes	Yes
	Endotracheal cuff pressure monitor		If in scope	Yes	Yes	Yes
	Surgical airway kit		If in scope	If in scope	If in scope	If in scope
	Pneumothorax decompression kit		If in scope	If in scope	If in scope	If in scope
	Ventilator: Single mode, volume/pressure support		If in scope			
	Ventilator: Multi-mode w/ PEEP		If in scope	Yes	Yes	Yes
	Ventilator: Multi-mode w/ CPAP and BiPAP		Yes	Yes	Yes	Yes
	Ventilator: Hi Fi, APRV capabilities				Yes	Yes
	Suction: in vehicle	Yes	Yes	Yes	Yes	Yes
	Suction: portable	Yes	Yes	Yes	Yes	Yes
	Inhaled Gases (e.g., nitric oxide, helium oxygen, aerosolized prostacyclin)				If in scope	If in scope

Continued on next page.

REQUIRED MEDICAL EQUIPMENT/SUPPLIES — Continued

Category	Item	BLS	ALS	ECC	Intensive	Specialty
Medical & Surgical						
	Glucometer	If in scope	Yes	Yes	Yes	Yes
	Point of care lab value testing (Hemoglobin, Hematocrit, etc.)			If in scope	If in scope	If in scope
	IV Pump w/ medication formulary & dosage calculations		If in scope: x3	Yes x4	Yes x4	Yes x4
	Pressure infusion devices		Yes x3	Yes x4	Yes x4	Yes x4
	Gastric decompression device		If in scope	Yes	Yes	Yes
	Pelvic stabilization devise	If in scope	Yes	Yes	Yes	Yes
	Escharotomy supplies			Yes	Yes	Yes
	Thorax drainage/suction devices			Yes	Yes	If in scope
	Bleeding control devices and supplies	Yes	Yes	Yes	Yes	Yes
	Blood storage device with temperature monitoring			If in scope	If in scope	If in scope
	IO kit		Yes	Yes	Yes	Yes
	Sonography for determination of death or placing lines			If in scope	If in scope	If in scope

High Risk Obstetric

	Doppler: Fetal			If in scope	If in scope	If in scope
	External cardiotocography monitoring (for long distance transports)				If in scope	If in scope
	External fetal monitor			If in scope	If in scope	If in scope
	Incubator with heart rate monitoring and size appropriate ventilator & infusion devices			If in scope	If in scope	If in scope
	Ventilator with blending			If in scope	If in scope	If in scope
	Meconium aspirator suction catheters and bulb syringe				If in scope	If in scope

Note: All equipment and supplies must be secured during transport and all equipment that requires electrical power must have a primary and back up power source.

INTERVENTIONS

Item	BLS	ALS	ECC	Intensive	Specialty
Bag-valve mask ventilation and oxygenation	Yes	Yes	Yes	Yes	Yes
Selective spinal immobilization	Yes	Yes	Yes	Yes	Yes
Non-invasive vital sign measurement (e.g., blood pressure, pulse oximetry)	Yes	Yes	Yes	Yes	Yes
Control of bleeding	Yes	Yes	Yes	Yes	Yes
Exposure (infection) control	Yes	Yes	Yes	Yes	Yes
Advanced airway Management (Endotracheal intubation, Supraglottic airway)		Yes	Yes	Yes	Yes
Needle thoracostomy		Yes	Yes	Yes	Yes
Interosseous placement		Yes	Yes	Yes	Yes
Non-invasive CO2 monitoring		Yes	Yes	Yes	Yes
Peripheral IV		Yes	Yes	Yes	Yes
Rapid sequence induction (medication facilitated)			Yes	Yes	Yes
Surgical airway			Yes	Yes	Yes
Ability to manage tube thoracostomy			Yes	Yes	Yes
Ability to perform tube thoracostomy				If in scope	If in scope
Ability to manage central line			Yes	Yes	Yes
Ability to place central line				If in scope	If in scope
Blood product infusion (initiated or continued)			Yes	Yes	Yes
Continuous temperature management (i.e., therapeutic hypothermia)			Yes	Yes	Yes
Waveform capnography			Yes	Yes	Yes
Point of care testing appropriate for long distance transports				If in scope	Yes
Ability to manage cardiac assist device					Yes
Ability to manage extracorporeal oxygenation device					Yes
Ability to maintain multi-modality ventilator for all ages including deliver of inhaled specialty gases					Yes

QUALITY METRICS

#	Item	BLS	ALS	ECC	Intensive	Specialty
1	Ventilator use in patients with advanced airway		Yes	Yes	Yes	Yes
2	Scene and/or interfacility bedside times for STEMI activation		Yes	Yes	Yes	Yes
3	Unintended neonatal hypothermia			If in scope	If in scope	Yes
4	Blood glucose for altered mental status	Yes	Yes	Yes	Yes	Yes
5	Waveform capnography for ventilated patients		Yes	Yes	Yes	Yes
6	First attempt tracheal tube success		Yes	Yes	Yes	Yes
7	Definitive airway “sans” hypoxia/hypotension on first attempt		Yes*	Yes	Yes	Yes
8	Verification of tracheal tube placement		Yes	Yes	Yes	Yes
9	Over-triage in mode of transport		Yes*	Yes	Yes	Yes
10	Medication errors on transport		Yes	Yes	Yes	Yes
11	Rapid sequence intubations protocol compliance		Yes	Yes	Yes	Yes
12	Appropriate management of blood pressure for aortic emergencies			Yes	Yes	Yes
13	Unplanned dislodgement of therapeutic devices		Yes	Yes	Yes	Yes
14	Any unanticipated event	Yes	Yes	Yes	Yes	Yes
15	Incidence of hypoxia during transport		Yes	Yes	Yes	Yes
16	Management of hypertension in hemorrhagic stroke			Yes	Yes	Yes
17	ECG interpretation for STEMI patients		Yes*	Yes	Yes	Yes
18	Appropriate management of hemorrhage shock			Yes	Yes	Yes
19	Medical equipment failure	Yes	Yes	Yes	Yes	Yes
20	Adverse drug event during transport		Yes	Yes	Yes	Yes
21	Near miss or adverse event	Yes	Yes	Yes	Yes	Yes
22	Reliable pain assessment	Yes	Yes	Yes	Yes	Yes
	Number of intercepts with Advanced Life Support or higher	Yes				Yes
	Number of responses with use of lights and siren	If in scope	If in scope	If in scope	If in scope	If in scope
	Number of Serious Reportable Events or Never Events	Yes	Yes	Yes	Yes	Yes
	Helicopter EMS scene missions meeting statewide or local triage criteria		If in scope	If in scope	If in scope	If in scope
	If program is IFR or NVG, track availability for these e.g. % of IFR capability		Yes	Yes	Yes	Yes
	Who are not transferred to and/or from a critical care unit			Yes	Yes	Yes
	Who are not transported bedside to bedside			Yes	Yes	Yes
	Who are served by an inappropriate mode of transport (time, distance, speed)			Yes	Yes	Yes
	Who are served by an inappropriate ambulance meeting the aircraft			Yes	Yes	Yes
	Whose condition deteriorated during transport			Yes	Yes	Yes
	Cardiac or respiratory arrest during transport			Yes	Yes	Yes
	Plateau pressure < 31					Yes

QUALITY METRICS

B

QUICK REFERENCE - QUALITY METRICS

#	Item	BLS	ALS	ECC	Intensive	Specialty
	Number of and ability to manage central lines			Yes	Yes	Yes
	Number of and ability to manage arterial lines			Yes	Yes	Yes
	Number of and ability to manage surgical airways			Yes	Yes	Yes
	Number of and ability to manage tube thoracotomies			Yes	Yes	Yes
	Number of and ability to insert central lines				If in scope	Yes
	Number of and ability to insert arterial lines				If in scope	Yes
	Number of and ability to perform surgical airways				If in scope	Yes
	Number of and ability perform tube thoracotomies				If in scope	Yes
	Number of neonatal transports to an neonatal ICU					If in scope
	Number of back transports to a lower level of care					If in scope
	Number of specialty high risk OB transports					If in scope
	Number of ECMO transports					If in scope
	Number of IABP transports					If in scope
	Number of transports to a Pediatric ICU					If in scope
	Number of transports requiring ventricular assist device					If in scope
	Number of transports requiring inhaled gases (other than oxygen)					If in scope

CLINICAL TEAM INITIAL TRAINING

Category	Item	BLS	ALS	ECC	Intensive	Specialty
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LICENSE & CERTIFICATIONS

LOCAL, REGIONAL AND/OR FEDERAL LICENSE FOR POSITION (VERIFIED)	YES	YES	YES	YES	YES	YES
VALID DRIVER'S LICENSE (IF DRIVING)	YES	YES	YES	YES	YES	YES
CRIMINAL BACKGROUND CHECKS	YES	YES	YES	YES	YES	YES
PRE-EMPLOYMENT DRUG SCREEN	YES	YES	YES	YES	YES	YES
THREE YEARS EXPERIENCE IN LICENSED ROLE	YES	YES	YES	YES	YES	YES
CERTIFICATION IN LICENSED ROLE (WITHIN 2 YEARS OF HIRE)			YES	YES	YES	YES

COMPETENCIES

AMBULANCE TECHNICIAN	YES	YES	YES	YES	YES	YES
ADVANCED LIFE SUPPORT (ALS)		YES	YES	YES	YES	YES
EUROPEAN TRAUMA COURSE			YES	YES	YES	YES
EUROPEAN PAEDIATRIC ALS (EPALS)			YES	YES	YES	YES*
NEONATAL LIFE SUPPORT (NLS)			IF IN SCOPE	IF IN SCOPE	IF IN SCOPE	IF IN SCOPE

NOTE: FOR MUCH MORE DETAIL AND EQUIVALENT COURSES SEE THE EDUCATION AND CERTIFICATION MATRIX, ADDENDUM A

DIDACTIC COMPONENT (TRAINED TO LEVEL OF CERTIFICATION)

ADVANCED AIRWAY MANAGEMENT		YES	YES	YES	YES	YES
ALTITUDE PHYSIOLOGY/STRESSORS OF FLIGHT (RW/FW)	YES	YES	YES	YES	YES	YES
ANATOMY, PHYSIOLOGY AND ASSESSMENT PER CERTIFICATION/LICENSE	YES	YES	YES	YES	YES	YES
AMBULANCE ORIENTATION/SAFETY AND PROCEDURES	YES	YES	YES	YES	YES	YES
CARDIAC EMERGENCIES AND ADVANCED CARDIAC CRITICAL CARE	YES	YES	YES	YES	YES	YES
BURN EMERGENCIES (THERMAL, CHEMICAL & ELECTRICAL)	YES	YES	YES	YES	YES	YES
DISASTER AND TRIAGE (IF RESPONDING TO SCENES)	YES	YES	YES	YES	YES	YES
EMS RADIO COMMUNICATIONS	YES	YES	YES	YES*	YES*	YES*
ENVIRONMENTAL EMERGENCIES	YES	YES	YES	YES	YES	YES
EQUIPMENT EDUCATION (AIRWAY, BREATHING, MONITORS, ETC.)	YES	YES	YES	YES	YES	YES
HEMODYNAMIC MONITORING DEVICES	YES	YES	YES	YES	YES	YES
HIGH RISK OBSTETRIC EMERGENCIES	YES	YES	YES	If in scope	If in scope	If in scope
ROAD TRAFFIC COLLISION MANAGEMENT	YES	YES	YES	YES	YES	YES

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QUICK REFERENCE - TRAINING

Category	Item	BLS	ALS	ECC	Intensive	Specialty
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DIDACTIC COMPONENT (TRAINED TO LEVEL OF CERTIFICATION) — CONTINUED

HUMAN FACTORS – AEROMEDICAL CREW RESOURCE MANAGEMENT - ACRM	If in scope	If in scope	If in scope	If in scope	If in scope	If in scope
INFECTION PREVENTION	YES	YES	YES	YES	YES*	YES*
MECHANICAL VENTILATION & RESPIRATORY PHYSIOLOGY	YES	YES	YES	YES	YES	YES
METABOLIC ENDOCRINE EMERGENCIES	YES	YES	YES	YES	YES	YES
MULTI-TRAUMA (CHEST, ABDOMEN, FACIAL)	YES	YES	YES	YES	YES	YES
NEONATAL EMERGENCIES (RESPIRATORY DISTRESS, SURGICAL, CARDIAC)	If in scope	If in scope	If in scope	If in scope	If in scope	If in scope
OXYGEN QUALITY CONTROLS	YES	YES	YES	YES	YES	YES
PAEDIATRIC MEDICAL EMERGENCIES	If in scope	If in scope	If in scope	If in scope	If in scope	If in scope
PAEDIATRIC TRAUMA	If in scope	If in scope	If in scope	If in scope	If in scope	If in scope
PHARMACOLOGY	YES	YES	YES	YES	YES	YES
QUALITY MANAGEMENT	YES	YES	YES	YES	YES	YES
RESPIRATORY EMERGENCIES	YES	YES	YES	YES	YES	YES
SAFETY AND RISK MANAGEMENT (STRONGLY ENCOURAGED)	YES	YES	YES	YES	YES	YES
SCENE MANAGEMENT/RESCUE/EXTRICATION (IF DOING SCENE RESPONSE)	YES	YES	YES	YES	YES	YES
SLEEP DEPRIVATION. SLEEP INERTIA, CIRCADIAN RHYTHMS & FATIGUE	YES	YES	YES	YES	YES	YES
EMS RULES AND REGULATIONS REGARDING AIR AND/OR GROUND TRANSPORT	YES	YES	YES	YES	YES	YES
STRESS RECOGNITION AND MANAGEMENT	YES	YES	YES	YES	YES	YES
TRANSPORT VEHICLE ORIENTATION/SAFETY & PROCEDURES (ASSIGNED VEHICLE(S))	YES	YES	YES	YES	YES	YES
TOXICOLOGY	YES	YES	YES	YES	YES	YES

CLINICAL COMPONENT

CRITICAL CARE - ADULT			YES	YES	YES
CRITICAL CARE - PAEDIATRIC			If in scope	If in scope	If in scope
CRITICAL CARE - NEONATAL			If in scope	If in scope	If in scope
EMERGENCY CARE - ADULT	YES	YES	YES	YES	YES
EMERGENCY CARE - PAEDIATRIC	If in scope	If in scope	If in scope	If in scope	If in scope
EMERGENCY CARE - NEONATAL	If in scope	If in scope	If in scope	If in scope	If in scope
INVASIVE PROCEDURES			YES	YES	YES
AIRWAY MANAGEMENT	YES	YES	YES	YES	YES

Category	Item	BLS	ALS	ECC	Intensive	Specialty
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DIDACTIC COMPONENT (TRAINED TO LEVEL OF CERTIFICATION) — CONTINUED**SAFETY - AIR**

MEDICAL PATIENT TRANSPORT CONSIDERATIONS	YES	YES	YES	YES	YES	YES
DAY AND NIGHT FLYING PROTOCOLS	YES	YES	YES	YES	YES	YES
EMS COMMUNICATIONS AND SYSTEMS	YES	YES	YES	YES	YES	YES
EXTRICATION DEVICES AND RESCUE OPERATIONS (IF DOING SCENES)	YES	YES	YES	YES	YES	YES
GENERAL AIRCRAFT SAFETY (RW/FW)	YES	YES	YES	YES	YES	YES
AIRCRAFT EVACUATIONS PROCEDURES	YES	YES	YES	YES	YES	YES
AVIATION TERMINOLOGY AND COMMUNICATION PROCEDURES	YES	YES	YES	YES	YES	YES
IN-FLIGHT AND GROUND FIRE SUPPRESSION PROCEDURES	YES	YES	YES	YES	YES	YES
IN-FLIGHT EMERGENCIES AND EMERGENCY LANDING PROCEDURES	YES	YES	YES	YES	YES	YES
SAFETY IN AND AROUND THE AIRCRAFT	YES	YES	YES	YES	YES	YES
AIRCRAFT SPECIFIC SAFETY MEASURES AND LIMITATIONS	YES	YES	YES	YES	YES	YES
USE OF THE EMERGENCY LOCATOR TRANSMITTER	YES	YES	YES	YES	YES	YES
MINIMAL SAFETY REQUIREMENTS ON GROUND SUPPORT AMBULANCES	YES	YES	YES	YES	YES	YES
GROUND OPERATIONS (RW)	YES	YES	YES	YES	YES	YES
LANDING SITES REQUIREMENTS	YES	YES	YES	YES	YES	YES
PATIENT LOADING AND UNLOADING	YES	YES	YES	YES	YES	YES
REFUELING POLICIES AND EMERGENCY SITUATIONS	YES	YES	YES	YES	YES	YES
HAZARDOUS MATERIALS RECOGNITION AND RESPONSE	YES	YES	YES	YES	YES	YES
HIGHWAY SCENE SAFETY MANAGEMENT	YES	YES	YES	YES	YES	YES
SURVIVAL TRAINING/TECHNIQUES/EQUIPMENT	YES	YES	YES	YES	YES	YES
SMOKE IN THE COCKPIT/CABIN, FIRE FIGHTING IN THE COCKPIT/CABIN	YES	YES	YES	YES	YES	YES
EMERGENCY EVACUATION OF CREW AND PATIENT(S)	YES	YES	YES	YES	YES	YES
HANDS-ON PRACTISE OF SURVIVAL TECHNIQUES AND USE OF SURVIVAL KIT	YES	YES	YES	YES	YES	YES

SAFETY - GROUND

EMS COMMUNICATIONS AND SYSTEMS	YES	YES	YES	YES	YES	YES
EXTRICATION DEVICES AND RESCUE OPERATIONS (IF DOING SCENES)	YES	YES	YES	YES	YES	YES
GENERAL SAFETY	YES	YES	YES	YES	YES	YES
AMBULANCE EVACUATIONS PROCEDURES	YES	YES	YES	YES	YES	YES
FIRE SUPPRESSION PROCEDURES	YES	YES	YES	YES	YES	YES
PATIENT LOADING AND UNLOADING	YES	YES	YES	YES	YES	YES

Category	Item	BLS	ALS	ECC	Intensive	Specialty
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SAFETY AIR — CONTINUED

	REFUELING POLICIES AND EMERGENCY SITUATIONS	YES	YES	YES	YES	YES
	USE IF ROAD HAZARD EQUIPMENT	YES	YES	YES	YES	YES
	SPECIFIC CAPABILITIES, LIMITATIONS AND SAFETY MEASURES FOR VEHICLE	YES	YES	YES	YES	YES
	HAZARDOUS MATERIALS RECOGNITION AND RESPONSE	YES	YES	YES	YES	YES
	SURVIVAL TRAINING/TECHNIQUES/EQUIPMENT	YES	YES	YES	YES	YES

B

QUICK REFERENCE - TRAINING

Annual Education and as per Organization Guidelines (Competencies) To the Level of License or Certification

Category	Item	BLS	ALS	ECC	Intensive	Specialty
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Competencies (frequency per course requirement)

Advanced Life Support (ALS)		Yes	Yes	Yes	Yes	Yes
European Trauma Course				Yes	Yes	Yes
European Paediatric Advanced Life Support (EPALS)				Yes	If in Scope	If in Scope
Neonatal Life Support (NLS)				If in Scope	If in Scope	If in Scope

Note: For much more detail and equivalent courses see the Education and Certification Matrix, Addendum A

Didactic Component (trained to level of certification)

Human Factors - Crew Resource Management - AMRM	Yes	Yes	Yes	Yes	Yes	Yes
Infection Prevention	Yes	Yes	Yes	Yes	Yes	Yes
Safety and risk management (strongly encouraged)	Yes	Yes	Yes	Yes	Yes	Yes
Sleep deprivation. Sleep inertia, circadian rhythms & fatigue	Yes	Yes	Yes	Yes	Yes	Yes
Government EMS rules and regulations	Yes	Yes	Yes	Yes	Yes	Yes
Stress Recognition and management	Yes	Yes	Yes	Yes	Yes	Yes

Clinical Component

Critical Care - adult			Yes	If in Scope	If in Scope
Critical Care - paediatric			Yes	If in Scope	If in Scope
Critical Care - neonatal			Yes	If in Scope	If in Scope
Emergency care - adult	Yes	Yes	Yes	If in Scope	If in Scope
Emergency care - paediatric	Yes	Yes	Yes	If in Scope	If in Scope
Emergency care - neonatal	Yes	Yes	Yes	If in Scope	If in Scope
Invasive procedures labs			Yes	If in Scope	If in Scope
Labor and Delivery			Yes	If in Scope	If in Scope
Airway management	Yes	Yes	Yes	Yes	Yes

Safety - Air

Medical patient transport considerations	Yes	Yes	Yes	Yes	Yes
Day and night flying protocols	Yes	Yes	Yes	Yes	Yes
EMS Communications and systems	Yes	Yes	Yes	Yes	Yes
Extrication devices and rescue operations (if doing scenes)	Yes	Yes	Yes	Yes	Yes
General aircraft safety (RW/FW)	Yes	Yes	Yes	Yes	Yes
Aircraft evacuations procedures	Yes	Yes	Yes	Yes	Yes
Aviation terminology and communication procedures	Yes	Yes	Yes	Yes	Yes
In-flight and ground fire suppression procedures	Yes	Yes	Yes	Yes	Yes
In-flight emergencies and emergency landing procedures	Yes	Yes	Yes	Yes	Yes
Safety in and around the aircraft	Yes	Yes	Yes	Yes	Yes

B

QUICK REFERENCE - TRAINING

Category	Item	BLS	ALS	ECC	Intensive	Specialty
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Safety - Air — Continued

	Aircraft specific safety measures and limitations	Yes	Yes	Yes	Yes	Yes
	Use of the emergency locator transmitter	Yes	Yes	Yes	Yes	Yes
	Minimal safety requirements on ground support ambulances	Yes	Yes	Yes	Yes	Yes
	Ground operations (RW)	Yes	Yes	Yes	Yes	Yes
	Landing sites requirements	Yes	Yes	Yes	Yes	Yes
	Patient loading and unloading	Yes	Yes	Yes	Yes	Yes
	Refueling policies and emergency situations	Yes	Yes	Yes	Yes	Yes
	Hazardous materials recognition and response	Yes	Yes	Yes	Yes	Yes
	Highway scene safety management	Yes	Yes	Yes	Yes	Yes
	Survival training/techniques/equipment	Yes	Yes	Yes	Yes	Yes
	Smoke in the cockpit/cabin, fire fighting in the cockpit/cabin	Yes	Yes	Yes	Yes	Yes
	Emergency evacuation of crew and patient(s)	Yes	Yes	Yes	Yes	Yes
	Hands-on practise of survival techniques and use of survival kit	Yes	Yes	Yes	Yes	Yes

Safety - Ground

	EMS Communications and systems	Yes	Yes	Yes	Yes	Yes
	Extrication devices and rescue operations (if doing scenes)	Yes	Yes	Yes	Yes	Yes
	General safety	Yes	Yes	Yes	Yes	Yes
	Ambulance evacuations procedures	Yes	Yes	Yes	Yes	Yes
	Fire suppression procedures	Yes	Yes	Yes	Yes	Yes
	Patient loading and unloading	Yes	Yes	Yes	Yes	Yes
	Refueling policies and emergency situations	Yes	Yes	Yes	Yes	Yes
	Use if road hazard equipment	Yes	Yes	Yes	Yes	Yes
	Specific capabilities, limitations and safety measures for vehicle	Yes	Yes	Yes	Yes	Yes
	Hazardous materials recognition and response	Yes	Yes	Yes	Yes	Yes
	Survival training/techniques/equipment	Yes	Yes	Yes	Yes	Yes

GLOSSARY

AEROMEDICAL CREW RESOURCE MANAGEMENT (ACRM)	A specific body of knowledge that focuses on communications and team building between aviation, medical, communications and management personnel and includes human factors and situational awareness training for all disciplines of an air medical transport service.
AHJ	Authority Having Jurisdiction – An organization, office or individual responsible for enforcing the requirements of a regulation or standard or for approving equipment, materials or an installation or a procedure.
ALS TRANSPORT	The transport of a patient who receives care during an interfacility or scene response commensurate with the scope of practise of a paramedic.
ALS PROVIDER	A certified provider of skills required for advanced life support.
ATP	Airline Transport Pilot. A certificate over and above private and commercial certificates requiring higher qualifications and more stringent criteria.
AUTO LAUNCH	A simultaneous request for a helicopter and first responders to a scene. This does not preclude the normal weather and aircraft pre-flight responsibilities of the pilot and does not override a pilot's go/no-go decision.
AUTOROTATION	A descending maneuver in which the engine(s) of a helicopter are disengaged from the main rotor system and the rotor blades are driven solely by the upward flow of air through the rotor. Usually the result of a mechanical failure of the engines or other components.
BiPAP	BiPAP, or bi-level positive airway pressure, is a type of noninvasive ventilation that helps keep the upper airway open by providing a flow of air delivered through a face mask. The air is pressurized by a machine, which delivers it to the face mask through long, plastic hosing.
BLS TRANSPORT	The transport of a patient who receives care during an interfacility or scene response that is commensurate with the scope of practise of an ambulance technician,
BLS PROVIDER	A certified provider of skills required for basic life support.

BROKERED TRANSPORT	A transport that is represented as being carried out by the service originally requested service to do the transport although another service, medical team and/or aircraft not affiliated with the service is used. The charge for the transport is billed by the service originally requested, or a fee is paid to the service originally requested.
CDC	Center for Disease Control - a division of U. S. Health and Human Services whose mission is to address diseases, traveler's health and emergency preparedness.
CERTIFICATE	Signifies a pilot level of competency, i.e., student, private, commercial. It can also refer to the type of service a company is qualified to provide.
CERTIFICATION	A proven level of competency given to a medical care provider or others that has been issued by a regional or national organization after successful completion of established requirements and testing.
CISD	Critical Incident Stress Debriefing. A process developed to address providers' stress following a critical incident, such as the injury or death of a crewmember.
CONFLICT OF INTEREST STATEMENT	A document signed by an organization's board member, administrator or others that states situations that have the potential to undermine the impartiality of a person because of the possibility of a clash between the person's self-interest and professional interest or public interest.
CONSORTIUM PROGRAM	A medical transport service sponsored by more than one health care facility or entity.
CONTROLLED AIR SPACE	Air space designated as continental control area, terminal control area or transition area within which some or all aircraft may be subject to air traffic control.
CPAP	Continuous positive airway pressure, is a type of noninvasive ventilation that helps keep the upper airway open by providing a flow of air delivered through a face mask. The air is pressurized by a machine, which delivers it to the face mask through long, plastic hosing.
CRASH RECOVERY	Procedures involved in responding to an aircraft crash that include extricating persons from specific types of aircraft and knowledge and location of certain components within an airframe of a specific aircraft make and model.
CRM	Crew Resource Management. A term sometimes used interchangeably with ADM to reference a body of knowledge that addresses human factors and a pilot's decision-making process.
CROSS COUNTRY	Generally when the destination is greater than 25 nautical miles from the departure point or as designated by a geographic boundary.

CUSTOMS BOND

A customs surety bond is a contract used for guaranteeing that a specific obligation will be fulfilled between customs and an importer for any given import transaction. The main purpose of a customs bond is to guarantee the payment of import duties and taxes. A customs bond is required on all commercial imports entering the United States. Merchandise will not clear customs without a properly executed bond. According to customs regulations, a surety bond's purpose is "to protect the revenue of the United States and to assure compliance with any pertinent law, regulation or instruction." The importer agrees to the following conditions upon posting a bond:

1. Agreement to pay duties, taxes and charges in a timely manner.
2. Agreement to make or complete entry.
3. Agreement to produce documents and evidence of shipment.
4. Agreement to redeliver merchandise if requested.
5. Agreement to rectify a non-compliance with provision for admission.
6. Agreement to allow examination of merchandise.
7. Reimbursement and exoneration of the United States.
8. Compliance with special requirements on duty free entries.

EASA

European Aviation Safety Agency (EASA). An agency of the European Union (EU) with regulatory and executive tasks in the field of civilian aviation safety. The main activities of the organization include safety management, the certification of aviation products and the oversight of approved organizations and EU Member States.

ECDC

European Union independent organization whose mission is to strengthen Europe's defenses against infectious diseases.

ECP

Exposure Control Plan also referred to as an Infection Control Plan.

ELECTIVE TRANSPORTS

Medical transports that may not be medically necessary but are done for patient or physician preference; these often are fixed wing, scheduled transports.

ELT

Emergency locator transmitter. A radio transmitter attached to the aircraft structure that is designed to locate a downed aircraft without human action after an accident.

EVENT

The result of a chain of errors or red flags that are linked and that do not necessarily end with an undesirable result but have the potential to develop into an incident or accident.

EVENT MEDICINE

A planned gathering of a large number of people, such as a concert, sporting venue or rally, requiring on-site medical coverage.

GAMUT

Ground and Air Medical Quality Transport database was created by the Air Medical Physician Association (AMPA) and the American Academy of Pediatrics (AAP) to create a consensus methodology for quality improvement project to track, trend and benchmark against agreed-upon metrics on a national level.

GPS	Global positioning system.
GREEN-ON-GREEN	The combination of two unseasoned (green) or less-experienced pilots or medical crew members working together without a more experienced person present.
HAZARDOUS TERRAIN	Terrain that has significant obstacles, antennas, power lines and such within 3 miles of the route or has minimal visual surface reference or subtle elevation changes.
HEAD-STRIKE ENVELOPE	The volume of air space that a person's head would potentially move through (while in a seat-belted position on the aircraft or ambulance) during any abrupt motion.
HELIPAD	A designated area usually with a prepared surface used for takeoff, landing or parking helicopters.
HELIPORT	An area of land, water or structure used or intended to be used for the landings and takeoffs of helicopters and includes its buildings and facilities, if any are part of the landing site.
HEAVY JETS	Jet aircraft typically used for air medical transport, such as Hawkers and Gulfstreams, that have empty weights of 20,000 pounds or more.
HIGH RISK OBSTETRIC	A transport that is directly related to pregnancy that may endanger the mother or fetus of a gestational age greater than 20 weeks. This does not include pre-existing conditions or trauma in the pregnant patient.
HUMAN PATIENT SIMULATOR	A mannequin that has electronic or mechanical means to simulate human physiologic responses to performed skills.
IABP	Intra-aortic balloon pump. A cardiac assist machine that can be retrofitted into various aircraft or ambulances.
IATA	International Air Transport Association. A trade association of the world's airlines that supports aviation with global standards for airline safety, security, efficiency and sustainability.
ICAO	International Civil Aviation Organization. A specialized agency of the United Nations. It codifies the principles and techniques of international air navigation and fosters the planning and development of international air transport to ensure safe and orderly growth.
IFR	Instrument flight rules.
IMC	Instrument meteorological conditions.
INCIDENT	Occurrences other than an accident that affect or could affect the safety of operations and may interrupt or delay patient transport.

INDEPENDENT PROGRAM	Referring to a medical transport service not sponsored by a hospital and operating under its own FAA certificate.
INFECTION CONTROL	An approach to reducing the risk of disease transmission from patient to care provider, care provider to patient, and from the contaminated environment to care provider or patient.
INFORMED CULTURE	A culture that supports an environment of transparency or the perceived quality of intentionally shared information from a sender.
INSTALLED EQUIPMENT	Includes all items or systems on the aircraft at the time of certification and any items or systems subsequently added to the aircraft with AHJ approval.
JUST CULTURE	A value-supported system of shared accountability where organizations are accountable for the systems they have designed and respond to the behaviors of their staff in fair and just manners.
LIGHT JETS	Jet aircraft typically used for air medical transport, such as Cessna Citations or Learjets, that have empty weights below 12,500 pounds.
LOTA	Limitation of Therapy Agreement. Agreement that provides an ethical and legal framework for making decisions to limit life-sustaining treatments in determining the patient's best interests.
LOCAL	Day-local: Less than 25 nautical miles from departure point to destination point with generally the same terrain elevation. Night-local: The urban area of the helicopter base with enough illumination to maintain ground reference.
MEDICAL ESCORT TRANSPORT	A transport that occurs aboard a commercial vehicle or a private vehicle that is not owned or affiliated with the medical escort program or medical transport program. Typically this is commercial airlines, but other examples may be a cruise ship, chartered non-medical aircraft, passenger van or train.
MEDICAL PERSONNEL OR TEAM	Refers only to the patient care personnel involved in air medical or surface transport.
MEDICAL TRANSPORT SERVICE	A company or entity of a hospital or public service which provides air transportation and/or surface interfacility transportation to patients requiring medical care. This term may be used interchangeably with the term "medical transport program" throughout the document.
MEL	Minimal equipment list
MISSED TRANSPORTS	A transport request that cannot be completed and no resources have been dispatched. This may include no team or vehicle available, weather that is too poor, a request that is outside the program's scope of service or service area, etc. This is opposed to an Aborted Transport, where resources were dispatched and then canceled.

MODALITIES	Refers to treatment plan and equipment used for specific patient care needs.
MOUNTAINOUS TERRAIN	Terrain over which a route (or within 3 miles of a route) varies in elevation more than 1000 feet.
NEONATAL	Relating to the period immediately succeeding birth and continuing through the first 28 days of extrauterine life.
NEVER EVENT	An event that should never occur however occurs despite risk assessment and preventive policies and practises. Also referred to as a serious reportable event. See References.
NEWBORN	A human infant from the time of birth through the 28th day of life.
OPERATIONAL RISK PROFILE	A list and description of risks that may be encountered during normal, routine operations and often includes the Risk Management elements of risk analysis, evaluation, treatment and residual risk.
OUTSOURCING FLIGHTS	Transferring a request to another service but retaining control of the coordination throughout the transport.
POLST	Physician orders for life-sustaining treatment. A legal document stating the type of care a person would like in an emergency medical situation.
PSYCHOLOGICAL FIRST AID	A full-scale public health response to mental and physical needs of crisis and disaster respondents and affected groups.
PIC	Pilot in command.
PPE	Personal protective equipment.
PROFESSIONAL HEALTH ASSESSMENT	A health screening completed by a health professional to assure an employee is fit for duty. Usually completed by a physician or employee health professional.
PROGRAM PERSONNEL	Refers to all personnel involved with a medical transport service or program (i.e., pilots, drivers, mechanics, communications specialists, medical personnel, administrators, etc.).
PROVIDER	A person who provides patient care.
QUALITY MANAGEMENT	QM is a total process of continually monitoring, assessing and improving the quality of the service.
RAPID FUELING	Fueling an aircraft with rotors (RW) or propellers (FW) turning or the vehicle running.
RAPID LOADING/ UNLOADING	The loading or unloading of patient(s) or equipment with rotors (RW) or propellers (FW) turning.

REFERRED TRANSPORT	A transport that is turned over to another service in all aspects, including billing/receipt of revenue for the transport. No fees are collected by the referring service.
RISK	The effect of uncertainty on objectives.
RISK MANAGEMENT	Coordinated activities to direct and control an organization with regard to risk; an organized approach enabling effective management of both potential threats to objectives and new opportunities
RSI	Rapid sequence intubation (RSI). The virtually simultaneous administration of a sedative and a neuromuscular blocking (paralytic) agent to render a patient rapidly unconscious and flaccid in order to facilitate emergent endotracheal intubation and to minimize the risk of aspiration. Also known as Rapid Sequence Induction.
RST	Regularly scheduled team. Refers to the medical team scheduled 24/7.
SENTINEL EVENT	An unexpected occurrence involving death or serious physical or psychological injury, or the risk thereof. Serious injury specifically includes loss of limb or function. The phrase “or risk thereof” includes any process variation for which a recurrence would carry a significant chance of a serious adverse outcome.
“SHOPPING”	A term that refers to the practise of first responders requesting air medical services (helicopter) from other programs when turned down for weather from the previous program(s) requested.
SIC	Second pilot in command.
SPECIAL OPERATIONS	Medical operations that provide medical care and/or potential medical transport that do not necessarily fit within the medical transport standards but substantially comply with the overall CAMTS EU Standards. Some examples include medical coverage at sporting, concert or special events, special public safety operations, such as tactical rescue or “SWAT” call-outs, and citizen recovery from potentially unstable environments.
SPECIALTY CARE PROVIDER	A provider of specialty care, such as neonatal, pediatric, perinatal, etc.
STERILE COCKPIT	Refers to the practise of allowing no internal or external communications except for the aviation tasks at hand below certain altitudes (when the pilot needs to talk to communications or to air traffic control, for example).
SUBCONTRACTED FLIGHTS	When another service is used to supply a portion of the transport, such as the aircraft or the medical team if the service’s aircraft is not available or is not appropriate, or the medical team is not available nor appropriate.
SUPRAGLOTTIC AIRWAY	Any one of several manufactured airway adjuncts that sits above the larynx used to establish a patent airway in a patient.

SUPS	Suspected unapproved parts system.
SURFACE VEHICLE	A general term used in the standards to differentiate from helicopters or airplanes such as a ground ambulance, boat, snowmobile, all-terrain vehicle (ATV), etc. that may be used for patient care and transport.
TC	Transport Canada. The agency with regulatory and executive tasks in the field of civilian aviation safety in Canada.
UTILIZATION MANAGEMENT	An organized, comprehensive approach to analyze, direct, and conserve organizational resources, with a view toward providing care that is both efficient and cost-effective.
UNITS OF SERVICE	Used to measure workload and/or activity for a defined group of employees.
UNMANNED AERIAL SYSTEM (UAS)	Any unmanned, remotely controlled aircraft. Often referred to as a small unmanned aircraft system (sUAS) or “drone.”
VEHICLE	Any machine used to transport people.
VEHICLE OPERATOR	The person responsible for the safe operation of a vehicle.
VFR	Visual flight rules.
WHO	World Health Organization. An organization within the United Nations with primary role to direct international health and to lead partners in global health responses.

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