Standards

Version (2013) 4.0
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The EURAMI Accreditation Process

The process involves 6 steps:

1. **Validation of Eligibility**
   - **Duration**: 30 business days

2. **Self assessment**
3. **On site audit**
4. **Secondary validation**
5. **Vote by the board**
6. **Finalisation**

**Step 1: Validation of Eligibility**

*Duration*: 30 business days

**Eligibility for Registration**

Eligibility takes into consideration the following points:

- Operational experience/maturity
- Personnel & Infrastructure
- Aircraft

If operations experience isn’t met, the board may debate if alternate points suffice 2 of 3.

**Operational Experience**

- Minimum two years air ambulance operations
- Minimum of 250 completed medical flights
Alternate points

Programs who do not meet the above criteria may nonetheless apply if two of the following criteria are met:

1. Proof of previous operational air ambulance capability or experience in air charter for aeromedical transport activity (for instance a merger or spin-off of prior activity).
2. More than 150 completed medical flights.
3. Unequivocally positive references/letter of recommendation from two major clients.
   - Medical assistance companies.
   - Government bodies.
   - Insurances.
   - Other accredited EURAMI programs.

Documents required for Application

Personnel and Infrastructure

To be able to apply, the program must show proof of active participation of the following:

- Medical Director (as defined by the EURAMI standard for criteria for the position of Medical Director. Please enquire for details).
- Chief Executive Officer.
- Operations Director.
- Chief Pilot.
For the Medical Director:

- Current curriculum vitae.
- Current criminal record documents or other documents proving absence of criminal prosecution or nefarious activity.
- Proof of registration and membership in ‘good standing’ from a national physicians regulatory authority.

For the CEO:

- Current curriculum vitae.
- All documents must originals and less than six months old.

Aircraft

- The aircraft operator must present their own 135/145 + valid AOC.
- Demonstrate proof of ownership of dedicated air ambulances.
- OR exclusive contract with air taxi operator and appropriately outfitted aircraft.
- Proof of ownership of dedicated HEMS.
- OR equivalent contract with operator.

It is to be noted that the accreditation process will take into provision all of the aircraft tail fin numbers.
Step 2: Complete the self assessment questionnaire

*Duration*: 1 calendar year

The self assessment questionnaire is sent. EURAMI typically requires that the questionnaire be completed within 1 YEAR after receiving it.

Once the questionnaire is completed, an auditor is assigned to the program and the next step is programmed.

Step 3: Site visit

*Duration*: 30 business days

A EURAMI certified auditor is appointed to review the premises and interview key personnel in the company. The site visit is per the discrepancy of the auditor, however, most audits are performed four 2 hour modules that focus on different aspects of the audit.

The auditor will then draw up a report to be submitted no later than 30 days after completing the site visit.

Any conflicts of interest, perceived or real, must be addressed before the site visit. All auditors have signed a nondisclosure agreement with EURAMI.

Module 1
• Introduction of the company, values and mission.
• Presentations, meet and greet key players and actors.
• The EURAMI auditor presentation of Eurami and objectives of the site visit.

Module 2
• Review of the hiring and training processes.
• Continued training.
• Medical, nurse director & chief pilot interview (as possible).

Module 3
• Site inspection of operations centre.
• Review of the medical material and its management.
• Aircraft inspection.

Module 4
• Discussion on quality control & quality management.
• Debriefing & conclusions.
**Step 4: Secondary review**

*Duration:* 15 days

All of the reports are reviewed by two other auditors in order to validate any points. Supplemental questions may be asked and are sent the program for answers.

This report typically confirms the findings and recommendations of the primary auditor.

**Step 5: Officialisation by vote of the EURAMI Board**

*Duration:* 15 business days

All of the documents are presented to the members of the board

This includes:

- Updated application documents.
- Self assessment questionnaire.
- Primary Audit report.
- Secondary Audit Report.
- Images etc...

The board validates the findings and rewards the program with the appropriate aviation and medical category.
Step 6: Finalisation and implementation

Duration 2 business days

All EURAMI accredited providers are required to sign and return the:

- The EURAMI Code of Conduct.
- The EURAMI Logo contract.

Award of the certificate is provided when paying the annual membership fees.

EURAMI Accreditation Categories

All EURAMI accredited companies are able to perform at minimum a basic life support transports safely, with appropriately trained staff and with the adequate material on board to address any life threatening situations that would arise.

EURAMI awards accreditation standards according to the program’s medical and aviation capacities. Any program may be awarded one or several of the capabilities listed in the categories below.

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# Aviation Categories

<table>
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<td>• SAR</td>
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## Aviation categories

- Fixed Wing.
- Rotor Wing.
- Commercial flight escorts.

### Fixed Wing:

- Regional.
- Intercontinental.

Regional Air ambulance is those programs have an operational capability to fly within the continent where they are based but are not able to fly to another continent. These involve most turboprop and smaller jet categories.

The defining factor will depend on

- Aircraft type & range.
- Avionics.
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- ETOPs.
- Flight planning capabilities (to be defined).

Intercontinental air ambulance are those programs that have the operational capability to fly to another continent other than that on which they are based.

**Rotor Wing:**

- HEMS.
- SAR.
- Interhospital Transport.

*HEMS* is PRIMARY transfer of patients from the scene of injury/illness to the primary receiving hospital emergency department (or other acute facility). The skill set here is a mix of pre-hospital medical care, emergency medicine and critical care medicine.

*Interhospital Transport* are SECONDARY transfers, i.e. between hospitals - usually for a step up to a higher echelon of medical care (i.e. to a referral centre such as neurosurgery, PICU, cardiothoracic, burns, spinal, etc..), but sometimes for local or regional repatriation to a hospital nearer to home. The skill set required here is critical care medicine. To be eligible for this category, the program must have at least one of several medical capabilities validated below and more specifically adult special care.

*SAR (Search & Rescue):* Many RW systems in Australasia and the Middle East also do SAR involving mostly extraction work and less medical. Some SAR units carry paramedics and, hence overlap with HEMS.

**Commercial Flight Escorts**

Commercial flight escorts are secondary transport of adult or paediatric patients via a commercial flight.
These transfers involve regularly seated patients as well as stretcher patients. Commercial flights are defined as any flight involving sale of a ticket to the general public either directly or via a GDS.

Medical capabilities

- Adult Critical Care transport.
- Paediatric Critical Care transport.
- Neonatal Critical Care.
- Advanced Critical Care Transport.
- EMS Special Care.

Minimum Requirements

All programs have the minimum requirement of safely and efficiently transport basic life support patients (non intensive care) escorted at minimum by a RN able to administer advanced life support treatment (ALS, ACLS, ATLS) to the patient in case of a medical emergency.

This applies to commercial flight escorts and FW & RW services.

This is the baseline EURAMI certification required of all companies and for all types of aviation.

**Adult critical care** - this is for FW & RW services that are able to safely and efficiently transfer ventilated and other Level 3 patients, but because of their location or mission statement, do not have a requirement for advanced cardio-respiratory care such as intra-aortic balloon pumps, ECMO or nitric ventilation.
**Paediatric critical care** - Covers all programs that perform paediatric (0.5y-15y) intensive care transports. These should be performed with an appropriately certified physician as per national standards and paediatric nurse.

**Neonatal critical care** - this is for FW & RW programs for transporting neonatal transports with an appropriately certified physician as per national standards.

**Advanced critical care** - Covers IABP, ECMO, Nitric, for all age groups.

* Some organisations do not provide specialty services from within its own staff and with its own equipment. Many organisations offer their aircraft and crew to transfer such patients as long as the referring or receiving hospital provides the specialist staff and equipment. This does not allow them to be eligible for this category. Only specialised staff who has received appropriate training by the provider are eligible for this category.

**EMS Special Care** - this is for FW organisations that have a DELAYED PRIMARY role, ie collecting the patient from the nearest landing strip or airport to the point of injury or illness in order to deliver the patient to a primary receiving hospital emergency department (or other acute facility). Typically these flights are from remote areas to isolated hospitals. The skill set here is similar to that for HEMS.
1 Program Overview

The air medical service has a written mission statement.

The air medical service clearly specifies their scope of care.

The air medical service has a written code of ethical conduct that demonstrates ethical practices in business, marketing and professional conduct.

Medical professionals and other target audience are informed of:

• Hours of operation, phone number, and access procedure.
• Capabilities of medical transport personnel.
• Type of aircraft used and operational protocols specific to type.
• Coverage area for the air medical service.
• Preparation and stabilisation of the patient prior to transport.
• Safety program consisting of patient preparation and personal safety around the aircraft to include landing zone designation for rotor wing services.
• Patients considered appropriate for transport by the air medical service.

The air medical service demonstrates compliance with the legal requirements and regulations of the government and local agencies under whose authority it operates.

There is financial commitment that provides independence and excellence in patient care and safety of the transport environment.

Mission priority is based on patient condition. Economical aspects should be secondary to medical and social criteria.

The air medical service is properly directed and staffed according to the mission statement, anticipated needs and scope of services offered.
There is a clear indication that service personnel are the most important factor for success. Their motivation and specific education and training contribute decisively to meet high-level quality standards.

Safety issues are addressed according to the operational environment (i.e., weather, terrain, aircraft performance).

In general, air medical service’s aircrafts should be dedicated air ambulances.

Aircraft from business partners or commercial airlines may be used, if they conform to national/international requirements in terms of safety and appropriateness as well as to state of the art requirements in terms of patient care, treatment and monitoring.

Medical transports are preferably planned and performed as bedside to bedside transports.

Patient care treatment and monitoring must be provided continuously and without any disruption during the whole transport.

All patient care resources, including personnel and equipment; necessary to the program’s mission must be readily available in the aircraft or available for placing in the aircraft and operational prior to initiating the mission.

Due confidentiality is being kept against third parties.

The program understands that an appropriate transport should enhance the patient’s outcome.

There is evidence of environmental integration with the local community.

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

- Medical Scope of Service
- Human Resources
- Medical Management
- Medical Training
- Medical Personnel - Clinical Care Manager
- Medical Personnel - Medical Director
- Medical Personnel - Flight Nurse Manager
- Medical Personnel - Flight Nurse Coordinator
- Medical Personnel - Flight Doctor
- Medical Personnel - Non-Physician Medical Personnel
- Medical Personnel - Specialist Personnel
- Medical Resources - Medicines Management
- Medical Resources - Medical Gases
- Medical Resources - Medical Equipment Management
- Medical Capabilities - Clinical Management During Missions
- Medical Capabilities - Patient Transport Documentation
- Medical Capabilities - Infection Control
- Medical Capabilities - Medicines Emergencies in Flight

Medical Scope of Service

The air ambulance service has a written mission statement and a document which details the scope of the service.

There is evidence that staff are completely cognisant of with the mission statement and scope of care of the service.
All the aircraft to be accredited are configured to match the specific needs of each patient by the instillation of a stretcher system with monitoring and therapeutic devices and by the carriage of medical gases and other Medical consumables, as well as by resourcing appropriate medical staffing for the level of patient care required.

The air ambulance service has documented criteria with regards to the provision of appropriate care required by patients requiring aeromedical transport. This shall include:

- A description of the levels of care of patients that can be transported.
- Associated types and numbers of health care professionals that are required for each level of care.
- The minimum equipment set(s) that must be carried for each level of care.

**Human Resources**

There must be adequate personnel to provide full coverage of all clinical activities using flight nurses, flight physicians, or other health care professionals who are assigned to the air ambulance service and are readily available within the response time determined by the service.

All flight medical crew must be licensed, registered, certified or permitted according to the national regulations of the country in which the service is based, and, on recruitment, must meet minimum educational requirements specific to the mission statement and scope of service and set by the company.

Flight medical crew scheduling must demonstrate strategies to minimise duty time fatigue, including such strategies as planning of crew constitution, rest periods, management of jet lag and time on shift, length of shifts per week and day-to-night rotation, according to any flight time limitations or working-time laws or regulations required in the country in which the service is based.
Currency must be ensured and documented by way of a flight/mission log book, which must be kept up-to-date by both the individual crew member and also by the management of the service.

Training programs are planned and structured to include both initial (induction/introduction) education, as well ongoing (continuation) training (also see 1.4, below).

This training is available to all flight medical personnel and is guided by the mission statement and scope of care of the service.

**Medical Standards**

The training is mapped against aeromedical competencies as clearly defined by the Medical Director.

Successful completion of the educational components specified by the training program are documented for each member of the flight medical personnel.

Each individual member of the medical department is appraised at a regular assessment/evaluation meeting by one or more senior medical managers, during which their training record and mission logbook are checked to ensure the established minimum standards of the service are upheld.

Routine appraisals for each individual member of the medical department are staged at yearly intervals for full-time staff and two-yearly intervals for part-time staff.

Extraordinary appraisals are performed in exceptional circumstances, such as following critical incidents or to evaluate performance considered to be either well below what is considered safe, or when performance is exceptionally good and considered worthy of tribute.

The service has occupational health policies. These address the following topics:
• Pre-employment and physical examination or medical screenings, as well as immunisation history.
• The recruitment or ongoing employment of flight medical personnel with a psychiatric history.
• Dress codes and the use of protective clothing pertinent to the mission profile and safety procedures of the air ambulance service.
• Crew duty time limitations for flight medical personnel that addresses the issues of fatigue, performance, maximum duty time and advice with regards to adequate rest.
• Hearing protection on the ground and in the air.
• Duty status during pregnancy.
• Duty status during acute illnesses.
• Duty status while taking any chronic medication.
• Duty status after diving.
• Manual handling (lifting and loading).
• Drugs and alcohol abuse policy.

Medical Management

The service has a dedicated and integrated medical department, the structure of which is described using one or more hierarchy charts. The charts show the following details of the medical management structure:

• The relationship of the medical department within the structure of the air ambulance company and its key executives.
• The relationship between the medical department and other key areas which impinge on the operational capability of the air ambulance service.

The medical department of the service employs appropriately qualified and experienced personnel in the following key office-based
appointments:

- Medical Director (aka Chief Medical Officer, Senior Flight Physician, etc).
- Flight Nurse Manager (aka Senior Flight Nurse, Chief Nurse, etc.).
- Flight Paramedic Manager (aka Senior Flight Paramedic, Chief Paramedic, etc.).
- Flight Nurse Co-ordinator(s) (aka Flight Nurse Ops, Office Flight Nurse, etc.).
- Flight Medical Operations Co-ordinator(s). (aka Med Ops Manager, etc).

The medical department of the service employs appropriately qualified and experienced personnel (as defined below) in the following flying appointments:

- Flight medical crew.
- Flight Nurses.
- Flight Paramedics.
- Flight Doctors.

Expert medical personnel key to any specialist aspects of the air ambulance service (please define, e.g. neonatal care, psychiatric care, ECMO, IABP).

**Medical Training**

The service holds current and historical evidence of planned and structured training programs including attendance records of all flight medical personnel employed or contracted by the service.

Performance of each flight medical crew person at each training session is mapped and measured against a set of minimum standards of competency and currency, as established by the Medical Director and based on the
Mission statement and scope of the service.

Individuals’ performance in training is documented in a training record that includes a minimum of a two part induction training program for new recruits to the service, and a continuing education program for all personnel, as well as a personnel appraisal system.

The following list of subjects is covered in Part 1 of the induction training program:

- The flight environment.
- Altitude physiology.
- Biodynamics of movement.
- Limitations of in-flight management of patients.

Clinical considerations in the transport of specific adult patients:

- Respiratory.
- Cardiac/cardiovascular/haematological.
- Neurologic/neurosurgical.
- Orthopaedic/Spinal.
- Otorhinolaryngeal/maxilla-facial/Ophthalmic.
- Environmental injuries.
- Major and/or multiple trauma.
- Burns.
- Post-surgical.
- Intensive care patients.
- Advanced cardiac life support.
- Human factors and CRM (crew resource management)
The following list of subjects is covered in Part 2 of the induction training program:

- **Introduction to the service:**
  - Introduction to the philosophy, capabilities and structure of the air ambulance service.
  - Overview of the Operations of a complete repatriation, retrieval and/or transfer mission.
  - Brief overview and summary of company policies, procedures and guidelines, with information on how to access and use them.

- **Essentials for successful mission completion:**
  - Essential procedures for flight medical personnel pre-, intra-, and post-mission.
  - Familiarisation and competency using the service’s medical equipment.
  - Infection control philosophy and procedures.
  - Aircraft essential knowledge, specific to the aircraft type(s) flown by the air ambulance service.
  - Personal health and safety.
  - Aircraft emergency procedures, specific to the aircraft type(s) flown by the air ambulance service.
  - Essential survival training appropriate to local geographic requirements.
  - Occupational health, fitness to fly and stress management.
  - Clinical governance.
  - Aeromedical risk analysis and management.
  - Quality management and audit systems.
There is a planned and structured continuing professional development (CPD) program which provides continuation training at least twice a year.

All of the topics addressed in the induction program are reviewed and updated over a rolling two year CPD program.

The CPD program includes case-related clinical governance sessions which provide a forum for discussing the successes as well as the problems encountered during recent missions.

**Medical Personnel - Clinical Care Manager**

The responsibility of clinical care manager is assigned to a senior member of the medical management team.

The roles of the clinical care manager include:

- Validation of the organisation’s medical policies and guidelines.
- Recruitment, training and continual education of all non-physician medical personnel.
- Administrative decisions regarding patient care.
- Daily assignment of flight medical crew members to individual missions.
- Active involvement in the quality management program.
- Provision and promulgation of mission briefing notes covering all relevant personal, clinical and logistic details.
- Necessary for the flight medical crew to undertake the mission successfully, efficiently and safely.
- Procurement, servicing and/or replenishment of medical equipment and consumables.
Medical Personnel - Medical Director

The service employs a Medical Director (may be called ‘Chief Medical Officer’, ‘Senior Flight Physician’ or such other term as is preferred by the air ambulance service) who is available for consultation within normal day-time working hours.

Where a Medical Director works only part-time for the service, one or more nominated deputies share the on-call availability rota as long as other members of the medical department are aware of who has overall responsibility at all times.

The Medical Director is responsible for the establishment and maintenance of the highest quality of medical care provided by its flight medical personnel.

The Medical Director has:

- An unrestricted license to practice and professional registration in the country in which the air ambulance service is based.
- More than three years of relevant clinical experience, and senior (higher) qualifications in, preferably, intensive care medicine, anaesthesia, or emergency medicine.
- A minimum of 2 years’ experience in a critical care environment.
- Maintain clinical currency in an acute medical role on a weekly or monthly basis.
- Full command of the official languages of the country in which the air ambulance service is based.
- A good working knowledge of the English language if the service is operating internationally.
- Received postgraduate training and qualification in patient transport which is accredited or otherwise recognised by a national or international academic body, such as university, health board,
professional accrediting board or college, or other acknowledged and acclaimed education provider.

- A thorough understanding of the general concepts of safe and efficient utilisation of aeromedical and ground resources.
- The Medical Director demonstrates sufficient expertise and currency pertinent to the mission statement and scope of care of the air ambulance service and according to international standards.
- The Medical Director demonstrates sound clinical and logistic decisions affecting medical care provided by the whole service.
- The Medical Director demonstrates personal high standards of care for all patients, but especially those who are critically ill or injured.

The Medical Director has related areas of responsibility.

These include:

- Overall management and direction of recruiting, training and continuing education for all health care professionals in the service.
- Ensuring the competency and currency of all medical personnel working with the service.
- The development and maintenance of guidelines concerning diseases and injuries that require specific management or medical control input during patient transport.
- Ensuring timely review of patient care, utilising audit tools and patient transport documentation, with the guidance of pre-established criteria.
- Development and maintenance of processes to identify, document and analyse adverse medical events or potential adverse events with the specific goal of improving patient safety and quality of patient care.
- The air ambulance quality management (QM) program. (Where other senior medical personnel medical direction to flight medical crew).
• Ensuring adequate orientation of on-line medical advisors to the policies, procedures and patient care protocols of the air ambulance service.

Medical Personnel - Flight Nurse Manager

The service employs a Flight Nurse Manager (may be called ‘Chief Flight Nurse’, ‘Senior Flight Nurse’ or such other term as preferred by the air ambulance service).

The Flight Nurse Manager is experienced in both air and ground patient transport apposite to the mission statement and scope of service.

The includes responsibility or oversight of the following:

• Day-to-day overview of office management in the medical department.
• Daily ‘ward round’ of current ongoing and planned cases, with clear communications between the Medical Director and others in the medical department.
• Interface with Medical Operations and Flight Operations.
• Clinical case management.
• Initial screening of completed case documentation, identification of issues for follow-up and reporting to the Medical director.
• Human resources issues.
• Recruiting, interviewing, training records, currency and competency status.
• Maintenance of rotas, availability calendar, and key operability status board(s).

Stock management and procurement of:

• Pharmacy items.
• Medical equipment.
• Medical consumables.
• Medical gases.
• Refurbishment of medical equipment and pharmacy bags/stores after each mission.

Organisation of external contracts for service requirements, including:

• Routine cleaning and infection control.
• Waste and sharps disposal.
• Maintenance of medical equipment servicing.
• Resupply, filling and maintenance of medical gas supplies.

**Medical Personnel - Flight Nurse Coordinator**

The service employs a Flight Nurse Coordinator (may be called ‘Flight Nurse Ops’, ‘Office Flight Nurse’ or such other term as preferred by the air ambulance service).

The Flight Nurse Co-ordinator is experienced in both air and ground patient transport apposite to the mission statement and scope of service.

This includes responsibility for:

• Deputising for all the roles of the Flight Nurse Manager.
• Provision of day-to-day continuity of case management with clear, concise and accurate handover of clinical and logistic information between shifts.
• Day to day interface with Medical Operations and Flight Operations personnel.
• Daily refurbishment of medical consumables and equipment.
Medical Personnel - Flight Doctor

The service employs its own Flight Doctors (also known as Flight Physicians). Every flight physician employed by the service, both full and part-time, complies with the following:

- Possesses a license to practice and is professionally registered in the country in which the air ambulance service is based.
- Has at least three years of relevant clinical experience, in either anaesthesia, intensive care medicine, or emergency medicine.
- (If undertaking critical care transfers) - Has at least 12 months experience in a critical care environment.
- Maintain clinical currency in an acute medical role on a weekly or monthly basis.
- Has full command of the official language of the country in which the air ambulance service is based.
- Has a good working knowledge of the English language if the service is operating internationally.
- Continuing education is provided and documented for flight doctors and is specific and pertinent to the mission statement and scope of care of the air ambulance service.

Medical Personnel - Non-physicians

This group of flight personnel mostly includes Flight Nurses or Flight Paramedics, but may, in some parts of the world, include respiratory therapists, physician’s assistants, operating department practitioners, and other types of health care professionals.

The service may employ Flight Nurses for routine in-flight care during patient transport. If so, each Flight Nurse must meet the essential national regulatory criteria for employment as a qualified and registered nurse, as well as any criteria set by the Medical Director of the service.
The service may employ Flight Paramedics for routine in-flight care during patient transport. If so, each Flight Paramedic must meet the essential national regulatory criteria for employment as a qualified and registered paramedic, as well as any criteria set by the Medical Director of the service.

The service may employ Flight Respiratory Technicians for routine in-flight care during patient transport. If so, each Flight RT must meet the essential national regulatory criteria for employment as a qualified and registered RT, as well as any criteria set by the Medical Director of the service.

The service may employ other categories of health care professionals for routine in-flight care during patient transport as long as there is a clear clinical requirement, all national, local and company criteria are met, and there is evidence of supervision by the Medical Director and/or other physicians working for the service.

The service must have evidence of a clear legal framework to support the use of non-physician/non-nurse personnel for the interhospital transfer of critically ill or injured patients.

The service must demonstrate the means by which non-physician/non-nurse personnel may be legally utilised as flight medical crew in countries where similar groups of allied health care professionals do not exist or where they do not share the same privileges of practice.

The service must provide evidence of current corporate and/or individual professional indemnity insurance for the use of non-physician/non-nurse personnel in the interhospital transfer role.

Each individual is licensed to practice and is professionally registered in the country in which the air ambulance service is based.

Only personnel who are deemed by the Medical Director to have the necessary training, qualifications, knowledge, experience and competency are employed to undertake such missions.
Non-physician/non-nurse flight medical personnel receive the same initial induction training, with didactic operational and clinical components as offered to the doctor and nurse flight medical crew.

Non-physician/non-nurse flight medical personnel receive the same ongoing regular education programs with didactic operational and clinical components as offered to the doctor and nurse flight medical crew.

There is documentary evidence that clinical competency in the relevant fields has been achieved, according to standards set by the Medical Director.

The service must provide evidence of the means by which non-physician/non-nurse personnel are supervised both on-line and off-line.

**Medical Personnel - Specialist Personnel**

Specialist personnel are employed or sub-contracted for neonatal, paediatric, or advanced critical care transfers (such as extra-corporeal membrane oxygenation transports).

When these specialists are not part of the company’s core team of flight medical crew (i.e. they are added to supplement the service’s own employed flight medical personnel), they are obliged to meet the following requirements:

- Compliance with national licence, registration and/or certification requirements of the country in which the service is based.
- Recognised relevant specialist knowledge, experience and currency, as defined by the requirements of the mission and established by the Medical Director.
- Receive an abbreviated specific induction training, designed to introduce ‘medical passengers’ or ‘temporary flight medical crew members’ to the air ambulance service.
- This training covers the topics considered essential for a successful,
safe and efficient outcome to the mission.

The topics include the following minimal set (which may be presented as an extended briefing):

- Flight environment.
- Altitude physiology.
- Biodynamics of movement.
- In-flight management of patients.
- Aircraft safety.
- Emergency procedures.
- Essential survival training pertinent to local geographic requirements.

To support specialist personnel in their temporary airborne role, all specialist care personnel are accompanied by at least one of the service’s own flight medical crew personnel.

Continuing education is offered to specialist care professionals with an interest in continuing their service. The training is specific and pertinent for the mission statement, scope of care of the air ambulance service and the specialist’s role within the service.

**Medical Resources - Medicines Management**

The service must demonstrate compliance with national medicines management laws, regulations and procedures.

The following information must be provided:

- Details of an accountable person, chosen from the senior management in the medical staff, who has overall responsibility for pharmacy management.
- Details of persons or personnel roles that have access to pharmacy stores.
• Demonstration of a pharmacy room or store cupboard which complies with the security demands of the national regulatory body.

• At a minimum, the service has a locked cupboard within another locked cupboard or room.

• Evidence of compliance with national laws, regulations and recommendations for the storage, carriage, supply and use of controlled drugs.

• Evidence of compliance with national and/or international recommendations for the storage, carriage, supply and use of refrigerated drugs.

• Evidence of accurate and precise stock checking and procurement of medicines.

• Evidence of medicines wasted, destroyed or returned.

• Examples of Patient Specific Directions which authorise non-physicians to dispense medicines to specific patients by off-line supervision.

• Examples of Patient Group Directions which authorise non-physicians to dispense emergency medicines to any patients by off-line supervision and under the guidance of national, international or local guidelines.

• Evidence of the licence or permissions needed to import or export medicines.

• Evidence for the thorough checking and refurbishing of medical equipment bags to ensure all pharmacy items are in place and in-date.

**Medical Resources - Medical Gases**

Evidence must be provided to demonstrate compliance with national and/or local regulations and recommendations concerning medical gases.
The following information must be provided:

- Details of an accountable person, chosen from the medical staff, who has overall responsibility for medical gases management.

- Demonstration of a medical gases storage facility which complies with national health and safety recommendations. At a minimum, this will be provision for a lockable cylinder store within a secure area.

- Evidence of clearly marked separation of full and used cylinders in the storage area.

- Evidence of compliance with national laws, regulations and recommendations for the procedures of storage, carriage, supply and use of medical gases.

- Evidence of accurate and precise stock checking and procurement of medical gas cylinders, and also of timely servicing or replacement of the cylinders.

- Instructions to flight medical personnel on the following:
  
  - Understanding the benefits and hazards of supplemental oxygen in flight.
  
  - National and international cylinder specifications and differences.
  
  - Safe storage and use of portable oxygen cylinders in flight and on the ground.
  
  - Safe handling and use of aircraft fixed oxygen systems.
  
  - Calculation of patient-specific oxygen and medical air requirements.
  
  - Safe and efficient use of oxygen flow regulators and delivery devices.
  
  - Evidence of regular inspection and certification of in-flight oxygen cylinders.
Medical Resources - Medical Equipment Management

The service must provide details of the accountable person, chosen from the medical staff, who has day-to-day responsibility for medical equipment management.

The service must provide evidence of procurement of all major items of medical equipment and proof that they have been fully tested and cleared for use in the aircraft to be accredited. In addition:

- Evidence of compliance with health and safety regulations and manufacturer’s instructions and recommendations for the servicing, storage, charging and maintenance of medical equipment.
- Demonstration of maintenance and servicing records for each major item of medical equipment.
- Demonstration the presence of information manuals and other data pertinent to each item of equipment.
- All flight medical crew receive instruction and competency checking each item of equipment they are likely to use in flight.
- The service uses comprehensive checklists for medical equipment carried on board aircraft and ground vehicles. The service has stock-checking and supply systems which tracks shelf-lives, servicing due dates, and levels of consumables immediately available for use.

Medical Capabilities - Clinical Management During Missions

Managers within the service understand clearly that by virtue of internal fitting of medical equipment designed for the transport of patients and the carriage of medical materials and flight medical personnel, the aircraft becomes a patient care unit which may be uniquely tailored to the specific needs of the patient.
The service must demonstrate that proper and adequate briefing and debriefing of in-flight medical teams and individuals is provided by the service.

All flight medical personnel are completely cognisant of the mission statement, scope of care of the service, and the limitations of the service.

Flight medical crew are involved in the clinical decision making with reference to the care provided during the mission.

The service must provide evidence for the presence of guidelines and other supporting documents aimed at ensuring the provision of optimum care (i.e. appropriate equipment, medical personnel and level of care) required for patients who are in need of aeromedical transport.

Examples of such mechanisms include:

- Risk analysis and management strategies.
- Algorithm driven clinical and logistic flow charts.
- Decision trees with clear end points on such issues as equipment, staffing, and logistics.
- Clear policies on the management of specific clinical dilemmas.
- Clear policies on escalation of case management which require specialist or senior medical input.

Evidence of policies, protocols or procedures shall be provided in respect of:

- Pre-flight preparation of the mission requirements.
- Pre-flight assessment and preparation of the patient.
- In-flight medical procedures and capabilities.
- Clinical hand-over procedures.
• Medicolegal issues in patient transport.

• Special circumstances - procedures for tarmac transfers.

• Special circumstances - transport of two or more patients simultaneously.

• Special circumstances - travelling companions.

• Special circumstances - procedures for palliative/end of life transfers.

• Special circumstances - patient care during long haul missions.

• Special circumstances - patients with psychiatric disturbance.

• Special circumstances - latex and other allergies.

• Medical Capabilities - Patient Transport Documentation

Evidence must be provided that preparation for transport is based on a patient medical report, clinical and logistic risk analysis, assessment of medical equipment and supplies needed, as well as the logistics and geography of the mission.

A patient care transfer record is completed during every mission.

Minimal requirements for items to be documented are:

• Purpose of the transport.

• Clinical assessment of patient prior to departure from point of origin.

• Patient condition at predetermined time intervals during the transfer.

• Treatment, medications and patient’s response to treatment and medications.

• Transport modalities for all stages of the transfer.

• Transfer timings.

• Names and professions of flight medical crew.

• Details of the referring and receiving medical teams and confirmation
of receipt of clinical handovers.

- Completed transport documentation is summarised and the data used to maintain a database of missions which forms part of regular auditing procedure and quality management.

**Medical Capabilities - Infection Control**

Policies and procedures shall are in place, which address issues involving communicable diseases, infectious processes and health precautions for patients as well as for patient transport personnel.

The management of communicable diseases and infection control policy covers the following areas:

- Special precautions when transporting patients known to have communicable diseases.
- Use of gloves, goggles and masks for protection.
- Hand cleaning and disinfection procedures and facilities.
- Disposal of sharps at the patient or mission destinations.
- Disposal of waste and soiled products at the patient or mission destinations.
- Cleaning and/or sterilisation of potentially contaminated instruments and equipment.
- Cleaning and disinfecting of the patient cabin area, equipment, and personnel’s soiled uniforms.
- Mechanism for identifying those at risk for exposure to rubella, measles and other childhood diseases.
- Additional (external) resources pertinent to infection control must be identified in the policy.
- These policies and procedures must be readily available to all personnel working for the air ambulance service.
• A pathway exists for communication between the flight medical crew, ground ambulance providers and hospital when exposure is suspected. This is to include necessary follow-up.

• Management maintains confidential records related to blood borne pathogens including exposure incidents, post-exposure follow-up, hepatitis B vaccination status and training for all employees with occupational exposure.

• The generic dress code addresses issues which are also relevant to infection control, specifically: sleeve length, hair length, style and cleanliness, laundry of uniform items, and the wearing of jewellery, watches, and other personal items that increase the risk of contamination or the spread of pathogens.

• Flight Medical Crew must practice preventive measures reducing the likelihood of transmission of pathogens.

• Contamination of food and drink shall be prevented by ensuring that they are not stored where clinically contaminated materials, blood or other potentially infective materials are present. Contamination of medical equipment and consumables shall similarly be prevented by ensuring foodstuffs are stored separately from all materials used in clinical care.

**Medical Capabilities - Medical Emergencies in Flight**

The service provides guidance documents, such as policies, procedures and/or protocols that prepare flight medical crew for the possibility of medical emergencies in flight and recommends how these emergencies should be managed.

The minimal requirements are:

• Recognition and immediate management of the acutely deteriorating patient.
• Management of cardiorespiratory arrest and peri-arrest in flight.
• Management of paroxysmal cardiac failure.
• Management of cardiac dysrhythmias.
• Management of shock.
• Management of anaphylaxis.
• Management of emergencies in spinal patients.
• Management of respiratory emergencies.
• Management of neurologic and neurosurgical emergencies.
• Management of endocrine emergencies.
• Management of the combative patient.
• Depending on the mission statement and scope of the service, these guidance documents might also include:
  • Difficult airway management.
  • Rapid sequence intubation.
  • Failure to oxygenate or ventilate.
• There shall be evidence of training to support these policies, for all flight medical personnel, within the bounds of each crew member’s professional limitations.
3 Patient cabin & equipment checklist

- The Patient Compartment
- Equipment checklist
- Operation & maintenance of medical equipment

The Patient Compartment

- Overview.
- Cabin Environment.
- Electrical supply.
- Oxygen supply.
- IV Fluid Management.
- Medication storage.
- Restraint systems.
- Patient Loading & Unloading.
- Emergency exits.

Overview

The patient compartment can fit two medical personnel and at least one stretcher patient with the required medical devices and equipment.

Essential medical devices required for use outside the aircraft are easily accessible.

The medical crew shall have access to the patient’s vital body parts, e.g. head, chest and abdomen.

The medical crew can ensure adequate treatment, monitoring, care, emergency procedures, and effective CPR, if necessary.
The patient compartment is designed and constructed to accommodate and secure the required medical devices.

Medical devices are positioned to allow operation of the device without obstructing aisles, emergency exits or patient loading and unloading sites.

Floor coverings shall be durable and easy to clean and disinfect.

The ceiling, the interior walls and the doors of the patient compartment should be lined to allow easy cleaning and disinfection.

The interior of the patient compartment shall be designed to minimise the risk of injury.

Interior material shall be flame resistant/retardant according to relevant European or International Standards.

The patient compartment must be large enough to provide free space for the patient on a stretcher, the minimum dimensions being:

- Height: 1300 mm.
- Width: 1100 mm.
- Length: 2650 mm.

**Cabin Environment**

*Temperature control*

**Heating**

The patient compartment heating system must be capable of raising the temperature from 0 °C to +18 °C within 10 minutes, when the outdoor temperature is 0 °C.
Cooling
The interior of the aircraft should be air conditioned. There should be an auxiliary system to heat / cool the patient compartment when stationary and/or to preheat the engine, when operating in extreme environments.

Lighting
There is a minimum of 300 lux in the patient area.

Alternate sources of lighting should be available in low lighting conditions.

It should be possible to dim lights within the patient compartment

Noise
The interior noise level should not exceed 85 dBA. (ie. enough to avoid shouting).

If noise exposure to the patient compartment during transport exceeds 85 dBA, noise protection for both the patient and personnel shall be available.

Sound protection must allow communication (intercom) between the medical crew, the pilot and the patient under condition of high ambient noise, e.g. over 85 dBA.

Electric Supply
The patient compartment has minimum either 12 VDC, 24 VDC, and if necessary 230 VAC power outlets.

The outlets are located near the area of the medical device(s).

The outlets for the medical devices shall be labelled with the nominal voltage and current rating.

Outlets should have a visible indication to show if the power is
switched on.

Earth current leakage is provided if AC is available.

Connectors should be designed to prevent short circuiting under the environmental conditions prevailing in the aircraft.

Electromagnetic disturbances caused by the aircraft shall not influence the safe operation of the medical devices and vice versa.

**Oxygen supply**

Sources containing Pressurised gas shall be approved for the use in aircrafts (Supplementary Technical Certification or equivalent) and mounted according to relevant guidelines.

Oxygen is installed according to national regulations and standards in the aircraft.

All oxygen sources shall provide a maximum flow of at least 15l/min

Flight crew must be able to visualise flow metering in non ventilated patients while in the patient compartment

Each gas outlet is clearly marked and color coded for identification.

Oxygen flow can be stopped at or near the oxygen source from inside the aircraft.

The quantity of oxygen remaining and the measurement of litre flow are accessible to the medical crew while en-route.

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

**IV fluid management**

At least two hangers or hooks are available at the maximum available
height above the patient.

Position of IV fluids ensures sufficient infusion rates.

Pressure infusions are available if the position of IV fluids cannot ensure sufficient infusion rates

All IV hooks are padded, flush mounted, or located as to prevent head trauma in the event of a hard landing in the aircraft.

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

**Medication storage**

Medication that may be required on the flight shall be easily accessible.

Access to controlled substance is consistent with national requirements of the aircraft operator.

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

The air ambulance should have the capability of maintaining an **uninterrupted** cold chain for thermolabile medications.

There is a procedure that ensures that expiration dates of medication are checked regularly.

A lockable compartment or other suitable alternative is available for the storage of drugs.

**Restraint systems in the patient compartment**

Restraint systems are available to secure the patient and personnel and are available for all age groups within the program’s scope.

Medical personnel are seated in an unimpaired manner when secured.
Security arrangements are in place to prevent intrusion of items into the cockpit area.

Security arrangements are in place to prevent cargo intruding into the patient compartment.

Medical personnel must be able to maintain and provide adequate ventilation support to the patient while in the sitting position with the safety belt fastened.

Essential medical devices for management of vital functions such as airway management and ventilation shall be in reach of the attendant while seated.

Drawers shall be secured to prevent self-opening.

Medical devices and other equipment are secured to the aircraft by an appropriate mounting system or fixation device.

If rail systems for supporting medical devices are used, they abide to relevant national requirements or European Standards.

All medical devices required for set procedures are stowed in a specific location.

All devices are restrained within the aircraft and G-load requirements shall be those applicable to the particular class or certification of the aircraft.

**Patient loading & unloading**

The safe loading and unloading of patients shall be possible under all operational conditions.

*Maximum lifting or lowering height does not exceed 1500 mm.*

Loading ensures that the patient’s position ensure a nearly horizontal position of the patient.
If the above is not possible, a loading system for the patient and personnel is available.

Medical personnel should be in the upright position when manually loading and unloading the patient.

The cabin door shall be large enough to allow the patient to be carried into the compartment in a nearly horizontal position and does not compromise functioning of monitoring systems, intravenous lines, and manual or mechanical ventilation.

During the loading and unloading of the patient, the medical crew must have access to the patient, any tubes and drains, and any attached medical equipment.

**Emergency exits**

The emergency exit shall be free from obstructions.

An alternative exit from the patient compartment, permitting the evacuation of both the patient and personnel should be available.

The aircraft configuration and patient placement allows for safe crew exit, i.e., doors must be fully operable from the interior and they must be capable of being opened fully and held by a mechanical device.
Equipment Checklist

► Medical material and equipment
► Rescue & protective equipment
► Operation & maintenance of medical equipment
► Safety equipment

NOTE: Due to the fact that each program is different some items may not be on the checklist or some of the items on the checklist are not available.

Medical Material and Equipment

Overview

Stretcher System
• Main stretcher (STC) with loading system.
• Vacuum mattress.
• Carrying sheet or transfer mattress.
• Long spinal board.
• Isolated extremity and upper spinal immobilisation devices.

Airway
• Stationary oxygen min 3000 L, with a quick connection.
• Portable oxygen min 400 L, with a quick connection.
• Nasal cannulae.
• O2 Masks with and without rebreather.
• Nebulisation device.
• Oropharyngeal airways.
• Airway aspirator and suction catheter.
• A suction device and backup.

**Ventilation**

• Bag valve mask with oxygen reservoir and tube to connect to O2 source.
• Laryngoscope(s) with suitable blades.
• Endo tracheal tubes with connectors.
• Tube fixing materials).
• Tracheostomy kit (insertion stylets, inflation tube clamp, inflation syringe, Magill forceps etc.).
• Tracheotomy nursing kit.
• Difficult airway management kit (e.g. Combi-tube, LMA, Fast Trach etc…).

Ventilator (OBLIGATORY for advanced critical care transport):

• Controlled and assisted ventilation.
• CPAP-system (incubated & non incubated patients).
• PEEP-valve, adjustable or set.
• Pressure and volume control.
• Oxygen monitoring system.
• Low pressure alarm.

If possible, the ventilator should also have a BIPAP system for patient ventilation.
**IV Systems**

- Appropriate equipment for placing and maintaining IV access.
- Appropriate equipment for placing and maintaining IO access.

**Patient Monitoring systems**

- Cardiac monitor.
- Defibrillator with rhythm display, recording, and documentation of patient data.
- External pacing.
- 12-lead ECG (Adult Critical Care).
- Invasive BP monitoring system (Adult Critical Care).
- Electronic temperature monitoring (Adult Critical Care).
- Invasive pressure monitoring systems for BP, CVA, ICP etc (Adult Critical Care).
- Automatic non-invasive BP monitoring system.
- Pulse oxymeter.
- Capnometer (Adult Critical Care).

**Diagnostic equipment**

- Stethoscope.
- Manual blood pressure.
- Thermometer min. range 15C - 42C.
- Diagnostic light.
- Laboratory kit for blood gas (Advanced Critical Care).
- Laboratory kit for haemoglobin/electrolyte analysis (Advanced Critical Care).
- Blood sugar tests.

**Nursing**
- Vomiting bag.
- Bed pan.
- Non-glass urine bottle.
- Sharps container.
- Bedding equipment.
- Blankets.
- Waste box/bag.
- Wound treatment materials.
- Treatment materials for wounds caused by burns and corrosives.
- Adhesive fixing materials.
- Kidney bowl.
- Gastric tube with accessories.
- Sterile surgical gloves.

**Miscellaneous**
- Emergency delivery set as per scope of the program.
- Small surgical kit (e.g. scalpels, suture holder, forceps, scissors, clamps etc. according to local needs).
- Skin cleaning and disinfection material.
- Non-sterile gloves.
- Physical restraint systems.
- Electrical adaptors for medical equipment.
- O2 connectors for ventilator (quick release system).
Rescue & Protective equipment (as applicable)

- Light rescue tools, set (saw, hammer, axe etc. according to local practice).
- Seat belt cutter.
- Warning lights.
- Fire extinguisher.
- Spotlight.
- Basic protective clothing including helmets and high visibility reflective jacket, per crewmember, according to local requirements.
- Advanced weather protection (additional to basic equipment), per crew member.
- Life jacket, per crew member.
- Safety / debris gloves, pairs per crew member.
- Safety / flight helmet.

Safety equipment

- The safety equipment of the aircraft must be in accordance with national/international regulations.
- The aircraft must be equipped with survival gear.
- Survival gear is appropriate to the area and the number of occupants.
- Survival gear will be maintained appropriately per policy.
- Survival gear is available to personnel on board.
- A policy must be in place regarding checking survival kit contents and expiration dates on supplies.
- The equipment is periodically tested according to the manufacturer’s guidelines or specifications.
There is an emergency locator transmitter (ELT) or portable radios carried by the aircrew.

Please list the:

- Aviation life support equipment (ALSE) carried on the aircraft.
- The ELT or portable radios carried by the aircrew.

The aircraft is equipped with a Flight Data Recorder (FDR).

Please provide the FDR details (including equipment installed, location installed on the aircraft and FDR parameters recorded).

Please provide the name of the organisation/company that performs the annual FDR verification.

Are the aircraft equipped with a Cockpit Voice Recorder (CVR)?

If yes, please provide the CVR details (including equipment installed, location installed on the aircraft and CVR details recorded) been provided?

Please provide the name of the organisation/company that performs the annual CVR verification.
Operation and maintenance of medical equipment

Electrically powered medical devices have a self-contained power supply so that the devices do not rely on the power supply from the aircraft.

The operator shall provide a documentation system assuring the proper quality of the medical devices for their use within aircrafts, using operating and maintenance instructions as provided by the relevant manufacturer of the medical device.

Appropriate trained personnel shall be provided with relevant information to enable them to take with them the necessary medical devices and other relevant equipment, as well as medicinal products. This shall be provided in a way that would facilitate its use when the time available is extremely limited, such as when going out on a mission.

User manuals, when relevant, are provided with the product. These shall be made available to the user.

Medical transport personnel ensure that all medical equipment is in working order with a pre flight checklist and all equipment and supplies are validated through documented checklists for both the primary and backup aircraft.

Equipment is periodically tested and inspected by a certified clinical engineer.

Equipment inspections are performed according to the manufacturer’s guidelines.

There is a clear procedure/policy in regards to the management and disposal of sharps and other biocontaminants.
4 Aviation

► Overview
► HEMS/SAR
► Fixed Wing
► Operational Capability
  − Pilots
  − Flight planning
  − Medical Crew
  − Passengers
  − Incidents & Accidents
► Flight Safety & Inspections
► Aircraft Hazardous Contents
► Aircraft Maintenance

Overview

The air medical service shall be licensed, permitted or certified by the appropriate national agency (if applicable).

The certificate holder must meet all national/international aviation regulations specific to the operations of the air medical service in the country of residence (as applicable).

Air ambulances shall be licensed and operated under requirements of commercial flight operation.

*NB: Some third world countries do not have a national aviation agency or is considered compromised or unreliable. In these cases an alternative must be presented and validated before audit.*
Please provide a copy of:

- AOC.
- Proof of Insurance.
- Airworthiness certificate per aircraft.

**HEMS/SAR**

There is a policy that HEMS helicopters should take off with the weight of 4 persons and the equipment. It should fly a minimum 1.5 hours plus the required fuel reserve.

The aircraft shall be capable of carrying two medical personnel and at least one stretcher patient with the required medical devices and equipment within the patient compartment.

HEMS helicopters shall be able to land on hard soil, i.e. sloping (minimum 8°) or rough grounds.

The main rotor blades shall be a minimum of 2.2 m in height above level ground irrespective of rotor speed. If required, rotors shall become stationary at the earliest possible time, e.g. by using rotor brakes.

For primary missions HEMS helicopters should take off two minutes after the flight crew has entered.

The number of engines shall be in accordance to the relevant national and international guidelines.

There is a structured safety program provided to firemen, EMTs, police or other public safety agencies as well as hospital personnel who interface with the air medical service.

Records are kept of initial and recurrent safety training.
The safety program includes:

- Identifying, designating and preparing an appropriate landing zone.
- Personal safety in and around the helicopter for all ground personnel.
- Procedures for day/night operations, conducted by the air medical team, specific to the aircraft.
- High and low reconnaissance.
- Two-way communications between helicopter and ground personnel to identify approach and departure obstacles and wind direction.
- Approach and departure path selection.
- Procedures for the pilot to ensure safety during ground operations in a landing zone with or without engines running.
- Procedure for the pilot to have ground control during engine start and departure from a landing site.

**Fixed Wing**

The aircraft shall be capable of carrying two medical trained personnel and at least one stretcher patient and the required medical devices and equipment within the patient compartment.

The number of engines shall be in accordance to the relevant national and international guidelines.

The fixed wing air ambulance shall have a minimum endurance of three hours flight time.
Operational Capability

Pilots

• The pilot licenses are current and valid for the type of aircraft flown.
• The pilots are all current with their instrument ratings.
• There is a written policy for renewing currency requirements.
• There are written hiring qualification standards for all pilots
• There are records of pilot flight physicals.
• The pilot’s current passport and visas are available.

How are all recruited pilots trained and checked for currency?

• Pilot training records available for review and organised in a logical fashion.
• There is a company upgrade/training program for pilots.
• There is a simulator training program for pilots.
• Pilots attend Cockpit Resource Management (CRM) training.
• There is a night and IFR currency programme.
• Pilots and copilots are certified and current in CPR and first aid.

There are annual or semi-annual check rides performed and by whom?

• Check rides are accompanied by written tests.
• There are annual safety systems training and briefs.
• Aircraft emergency drills are conducted on a yearly basis.
• (If applicable) is helicopter underwater escape training (HUET) conducted? How often?
• Are aircraft ditching drills or evacuation training conducted? How often?
• Pilots have adequate aviation life support equipment (ALSE)?
• There are adequate personnel to provide full coverage of the air medical service.
• Pilots are assigned to the air medical service and are readily available within the response time determined by the service.
• Pilots are trained to assist the medically trained personnel in non-medical tasks.

Flight Planning

• The program has a standardised mission planning process.
• The air operator has a standardised flight planning process.
• Weather data is easily available in the flight planning process.
• NOTAMS are part of the flight planning process.
• Flight planning includes an airport security briefing for the air and medical crew.
• In high risk areas, there are adequate provisions for ensuring the security of the personnel and the aircraft.
• If necessary, there are seasonal briefings such as hot weather or cold weather briefs.
• There is a flight following process (cf Communications Center).
• There is a flight operation manual approved by a civil aviation authority.
• The pilots are notified of civil aviation “advisory circulars” and the notification is verified.
• Flight publications used are approved by a civilian aviation authority and are current.
• There is a person responsible for keeping flight publications and manuals current.
• VFR or IFR flight plans are filed or communications centre does flight following with every take off and immediately post landing.
• Flight plans are filed by adequately trained personnel.

Medical Crew
• Medical aircrew attend Cockpit Resource Management (CRM) training.
• Annual safety systems training and briefs are held for medical aircrew.
• Aircraft emergency drills are conducted with the pilots.
• Helicopter underwater escape training (HUET) is conducted with the pilots (where applicable).
• Aircraft ditching drills or evacuation training are conducted (with the pilots).
• There is a policy for “Ride Along” staff (ie staff taking the available seats on the mission as part of an induction program, training or orientation) including insurance and legal.
• Medical aircrew are provided with adequate aviation life support equipment (ALSE).

Passengers
• A passenger manifest is prepared for each flight.
• A weight and balance report is prepared for each flight.
• There is a written procedure for passenger safety briefings.
• Passengers are provided with adequate aviation life support equipment (ALSE).
• In-flight meals are provided to passengers if necessary.
• In flight meals are appropriate for cultural and religious orientation of crew, patient and family.
• There is a policy for managing passenger’s cargo.
• Passenger, baggage and cargo weights are included in the weight and balance report.

There is a specific policy to address the combative patient/passenger.

• Additional physical and/or chemical restraints should be available and used for combative patients who potentially endanger him, the personnel or the aircraft.
• Patients, family members or others who are considered a threat to the safety of the transport or medical crew are refused by policy.

**Incidents & Accidents**

Cf Communications Center: Incident & Emergencies.

**Flight safety and inspections**

• Please list the last civil aviation inspections conducted over the past year.
  
  *Please provide their reports for review.*

• Have there been any flight accidents in the last five years?
  
  *If yes please list date, type, n° of fatalities or serious injuries.*

• Have there been any ground accidents in the last five years?
  
  *If yes please list date, type, n° of fatalities or serious injuries.*

• Are regular flight safety briefings held? When was the last?
• Are the minutes from the last flight safety briefing available for review?
There is a written aviation safety policy and programme.

The program has implemented a flight safety management system.

Please provide a copy of the SMS.

There is a clearly identified person in the organisation who is responsible for flight safety.

The person responsible for flight safety:

- Has direct access to the CEO or equivalent.
- Demonstrates sufficient authority to implement corrective actions.
- Has appropriate training and credentials.

### Aircraft Hazardous Contents

The air operator has a detailed list of hazards on their aircraft.

The following hazards must be included:

- Depleted uranium (used for ballast).
- Radioactive material (sometimes in instruments).
- Fluids other than standard aviation fuel, oil, and hydraulic fluids
- Explosive devices.
- Hazardous materials in the structure (composite fibres, beryllium etc).
- Pressurised vessels (eg, pneumatic blow down, oxygen or nitrogen systems, etc).
- Biocontaminants (cf Ch 3).
- Any other on-board hazards.
Exact location on the aircraft (drawings or sketches) is provided for each hazard.

Applicable tail numbers are provided for each hazard.

**Maintenance**

Maintenance management secures a high level of aircrafts’ readiness to use.
5 Communications Equipment

▶ Aircraft communications
▶ Communication centre
▶ Personnel & Training
▶ Accident/Incident planning

Aircraft Communications

Communications equipment is according to national/international regulations.

Communications equipment is maintained in full operating condition and in good repair.

Radios on aircraft (as range permits) shall be capable of transmitting and receiving the following:

• Air traffic control.
• EMS agencies (if applicable).
• Communications Centre.

Pilot is able to control and override radio transmissions from the cockpit.

The air medical team is able to communicate with each other during flight.

When landing on unprepared sites, the aircraft can communicate with ground personnel.

The Communication Centre ensures a timely feedback about procedures and patients condition.
If the air medical service is integrated with EMS, they shall 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.

**Communications Center**

The communications centre is available 24/7/365.

There is at least one dedicated phone line for medical transport coordination.

There is at least one dedicated phone line for incoming calls.

There is at least one dedicated email and mobile phone number for medical transport communications.

Noise and other distractions are minimised in the communications centre area while the personnel is involved with a medical transport mission.

All incoming and outgoing phone and radio transmissions are recorded.

Recordings are time stamped and may be played back directly by the comm personnel.

All parties are informed that their conversation is recorded as per national regulations.

There is an electronic case management tool. At minimum this tool can gather medical, logistics and aviation information centrally and share with appropriate personnel.

In case of power outage there is either:

- a back-up emergency power source for communications equipment
• or a policy for maintaining communications

There is a status board with information about

• Pre-scheduled flights.
• The medical transport team on duty.
• Weather information.
• Maintenance status.
• Ongoing missions.

Local aircraft service area maps and navigation charts are readily available.

There is a communications policy and procedures manual.

**Communications Centre Personnel**

Communication Centre Personnel receive and coordinate requests for medical transports.

There are adequate personnel to provide full coverage with Communication Centre functions.

Personnel are assigned primarily to the air medical service and are readily available.

Personnel understand that all cases are accepted regardless of cultural differences and without discrimination due to sex, color, age, religion, national origin, ancestry, or handicap.

The air medical service will know the capabilities and resources of receiving facilities and will transport patients to appropriate facilities within the service region based on either direct referral or as per an approved EMS plan.
The communication centre personnel will have access to medical crew and flight crew visas and passport information.

Communication centre personnel should have paramedic/EMT/nurse or equivalent certification.

Training should include knowledge or experience of:

- Computer programs used for managing the case and transport.
- Geographical considerations pertinent to the air medical service.
- Tourism and national/international aviation regulations.
- General safety rules and emergency procedures.
- Flight following procedures.
- Navigation techniques/terminology.
- Weather interpretation.
- Understanding of GPS navigation approaches.
- Hazardous materials response and recognition procedure.
- If applicable, types of frequency bands used in air medical and ground EMS.

Communication Centre Personnel shall have a full command of the official languages of the country in which the air medical service is based as well as of English.

Communications centre personnel have human factors - crew resource management courses.

**Flight Following & Documentation**

Initial coordination must be documented and continuous flight following must be monitored and documented and shall consist of the following:

- Time when initial request is received.
- Name and phone number of requestor.
- Patient name, age & sex.
- Diagnosis and/or mechanism of injury.
- Referring and receiving physician.
- Referring and receiving facilities in the event of interfacility requests.
- Patients or legally responsible family member’s authorisation for transport.
- Confirmation of bed availability by referring physician and facility.
- Departure airport or landing zone.
- Destination airport or landing zone.
- Refuelling stops if applicable.
- Location of transportation exchange and hours of operation.
- Ground transportation coordination at sending and receiving areas.
- Time of departure from base.
- Roster of persons on board.
- Estimated time of arrival at destination (if applicable).
- Pertinent landing zone or airport information.
- Time of arrival at patient pick up
- Time of departure from patient pick up.
- Time of arrival at patient drop off.
- Time departure from patient drop off.
- Time arrival at base.
- Time of end of mission.
- Time flight is aborted or cancelled after dispatch.
- Reason of cancellation or reason for aborting flight.
Direct contact between parties is established whenever possible. (i.e., medical personnel, ground ambulance providers).

**Incident/Accident Plan**

A readily accessible post incident/accident plan must be part of the flight following protocol so that appropriate search and rescue efforts may be initiated in the event the aircraft is overdue or radio communications cannot be established nor verified.

The list will include:

- List of personnel/telephone numbers to notify as well as their priority to activate in the event of a program incident/accident.
- Guidelines to follow in attempts to communicate with the aircraft.
- Guidelines to initiate search and rescue.
- Time frame to activate the post-incident plan for overdue aircraft.
- Communications policies to ensure accurate information dissemination.
- Procedures to secure all documents, and recordings related to the particular incident/accident.
- Procedure to deal with releasing information to the press.

An annual drill is conducted to exercise the post incident/accident plan. This drill should include pilots, medical crew, communication personnel, mechanics and administrative personnel.
6 Management Policies

There is a well-defined line of authority.

An organisational chart defines how the air medical transport service fits into the governing/sponsoring institution. (if applicable)

There is a clear disciplinary process that protects employees from capricious actions.

Medical personnel understand the chain of command.

There is a clear reporting mechanism to upper level management.

Standard operating procedures and policies define what treatment may be performed without direct medical supervision and in which situations.

Management sets guidelines for press related issues and marketing activities.

Management policies encourage ongoing communication between patient care personnel, communications personnel, pilots and mechanics and ground personnel.

There are formal, periodic staff meetings with all medical and non medical staff for which minutes are kept.

Medical, logistical and management information is disseminated between meetings in a predefined manner i.e. such a staff notebook, email newsletter.

For public or private institutions and agencies that contract with an aviation firm to provide air medical services or an ambulance firm to provide ground transport services, there shall be a policy that specifies the lines of authority between the medical management team and the aviation/ambulance team.
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, returning a patient to a referring facility, or due to a patient’s desire.

Hospital or non-hospital based program director or administrator is oriented to how management can affect aeronautical decision-making.

A Safety Committee shall meet regularly with written reports sent to management and kept on as dictated by policy.

a) Written variances relating to safety issues will be addressed in Safety Committee meetings.

b) Recommendations for operational and safety issues will be reviewed by management.

c) The Safety Committee is linked to QM and risk management.

Management ensures an appropriate utilisation review process based on:

a) Medical benefits to the patient.

Management ensures that patient care records, meeting minutes, policies and procedures are stored according to air medical service’s policy and are indicative of the service’s sensitivity to patient confidentiality.

A copy of the patient care record remains at the receiving facility for appropriate continuity of care.

A policy manual is available to all personnel.

a) Policies are dated and signed by the appropriate manager.

b) Policies are reviewed on an annual basis as verified by dated manager’s signature on a cover sheet or on respective policies.
7 Quality Management

► Overview
► Quality management: methodology
► Quality management: measurement
► Quality management: review

Overview

• The air ambulance program has a written policy defining the quality management infrastructure.

• The air ambulance program has established annual quality management goals.

• The air ambulance program has written patient care guidelines and standing orders.

• The air ambulance program has a quality management workgroup that meets on a regular basis.

• The air ambulance program has defined quantitative key performance indicators (KPIs).

• The air ambulance program publishes regular quality management reports.

• The air ambulance program has a quality management “dashboard” that allows the program to monitor in real time and identify deviations from their established quality standard.

Methodology

• Quality management tools are designed to collect, monitor and assess the program in real time.
• Key performance indicators monitor patient care and aviation safety.
• Key performance indicators are reviewed annually.
• Identified issues are addressed with a written action plan.
• Staff is informed of annual goals, key performance indicators and action plans.
• Action plans are actively monitored to evaluate their efficiency and reevaluated if inefficient.
• There is a clear trail of accountability for all aspects of quality management.

Measurement

The air ambulance program shall measure at minimum the following items.

Transport

• Total number of transports.
• Total flight minutes per aircraft.
• Total flights with per medical personnel (MD, RN, RT, EMT).
• Total mission minutes.
• Number of aborted and cancelled flights due to weather.
• Number of aborted and cancelled flights due to maintenance.
• Number of aborted and cancelled flights due to patient condition.

Medical

• Reason for transport.
• Classification of injuries & illnesses.
• Medical procedures performed or maintained (Mechanical ventilation,
IABP, etc…).

- Adverse events in patient’s medical condition during transport.
- Clinical outcomes in case of adverse events.

**Logistics**

- Timeline of the transport.
- Medical material dysfunction or adverse events
- Aircraft or ground transport related delays.

**Satisfaction**

- Customer satisfaction.
- Medical crew satisfaction.
- Air crew satisfaction.

**Review**

There are regular quality management meetings with the different disciplines involved (aviation, medical, logistics, etc…).

There is a periodic review of the quality management reports by management.

Patient care guidelines or standing orders that must be reviewed annually for content accuracy by management, QM committee members and the Medical Director.

Quality management reports are shared with staff.

There is a process for staff to comment and provide feedback on the quality management reports.
Adverse events generate an action plan that integrates the following:

- Description of the issue.
- Nominative responsibility or assignment of accountability.
- A written action plan.
- A written prospective timeline.
- Indicators to measure if applicable.
- Written progress reports/notes.

All action plans are reviewed on a regular basis and feedback is sent to staff and management.

The QM program is linked with risk management, so that concerns raised through the risk management program can be followed up through the continuous quality improvement program.