

# National Standards for Aeromedical Evacuation

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## Introduction

This document outlines Standards established by the Royal Flying Doctor Service of Australia for the clinical care of patients during aeromedical evacuations. The Standards are endorsed by all Sections of the Service directly providing air medical transport and medical retrieval services.

The Standards form a consensus on the minimum requirements for best practice in our aeromedical services based on many decades of experience. Individual Sections may of course operate at a higher level in specific areas.

## Provision of Care

- 1.1 RFDS involvement will improve patient care.
- 1.2 Operations will not be conducted which put RFDS crew or patients at avoidable risk.
  - 1.2.1 Systems will be in place to safeguard staff and patients by the identification of occupational health, safety and welfare risks and hazards, both medical and aviation.
  - 1.2.2 All aspects of patient care will meet respective State Occupational Health Safety and Welfare requirements.
- 1.3 Patient assessment, stabilisation, initiation of treatment and preparation for aerial evacuation will be as thorough as possible, taking into account the severity and urgency of the clinical condition and local resources.

## 2. Communication

- 2.1 Flight requests (between Caller and Duty RFDS Clinical Coordinator)
  - 2.1.1 The duty RFDS Doctor/Clinical Coordinator will be contactable by the caller with a single telephone call (or radio call on the RFDS frequency), 24 hours a day.
  - 2.1.2 Backup systems will be in operation to cover all links in the communication chain.
    - [Single point of contact, 24/7 availability, communications redundancy.]
  - 2.1.3 The duty RFDS Doctor/Clinical Coordinator will be suitably qualified to make a medical assessment of the situation, offer interim advice on initial management and preparation of the patient for transport, prioritise the flight taking into account urgency and severity, determine the appropriate clinical crew mix and task the flight.

["One-stop shop", advice on initial management and preparation, prioritization.]

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2.1.4 The duty RFDS Doctor/Clinical Coordinator will have experience in aeromedical evacuation and local geographical, logistical and cultural issues. They will be aware of available and appropriate receiving hospital facilities.

[Knowledge of geography, logistics, local health service capacity.]

## 2.2 Pre-flight (between Coordinators, Transport staff and Caller)

- 2.2.1 Communication channels will be available which enable rapid mobilisation of staff once an urgent flight has been tasked. Notification of crews may be directly by the authorizing RFDS Doctor/Clinical Coordinator, or through an Operations or Coordination Centre dedicated to that task.
- 2.2.2 All necessary information will be forwarded to the Flight Nurse for preparation for flight, and to the pilot for flight planning, including the proposed destination, numbers and approximate weights of patients and attendants, and altitude restrictions required for clinical reasons.
- 2.2.3 Procedures will include a notification of the caller of the expected arrival time, as well as communications with other parties including ambulance, airstrip operators, and refuellers as required.

[Streamlined communications procedures for tasking staff.]

## 2.3 During transport (between Transport staff, Aircraft and Ground)

- 2.3.1 Effective means of communication will be available between the transport team, coordinator and destination both when airborne and on the ground.
- 2.3.2 The crew will have immediate access to clinical or operational advice when required.
- 2.3.3 The coordination entity, caller and transport team will keep each other informed of problems or proposed changes to plan.
- 2.3.4 The location of the aircraft will be known at all times.

[Effective continuous communications between all parties.]

## 2.4 At referring location (between Clinical staff and the Transport staff)

- 2.4.1 A comprehensive handover will be accepted by the transport team from personnel at the referring location. Referring hospital clinical staff are expected to provide an appropriate patient handover and documentation, preferably in person, whether at the hospital or an airstrip.
- 2.4.2 For primary retrievals appropriate information will be sought by the transport team from relevant bystanders and non-clinical personnel to assist in understanding the mechanisms of injury and likely diagnoses.

## 2.5 With receiving hospital (between Transport staff and receiving Clinical staff)

- 2.5.1 The RFDS transport team will keep the receiving hospital advised of the patient's condition and estimated arrival time (where appropriate) and liaise on complex aspects of clinical management.
- 2.5.2 A comprehensive clinical handover will be provided by the transport team to the clinical staff receiving the patient.

This will include but is not limited to:

- patient identifying details,
- all known diagnoses,
- previous and ongoing treatment,
- current vital signs,
- drug and infusion doses,
- any issues occurring during transport,
- any issues warranting immediate action.
- 2.5.3 Where the patient is to be handed over to intermediary personnel (for example paramedics), the transport staff will ensure a full comprehensive handover is provided in addition to clinical documentation. If necessary an additional telephone briefing may be provided to clinical staff at the receiving hospital.

## 2.6 Escorting patients

- 2.6.1 Where the patient is seriously ill or has advanced medical interventions in place, the transport team will escort the patient and hand over to a senior staff member in the receiving hospital.
- 2.6.2 The escorting of patients by road to the receiving hospital will depend on local policies but will normally include:
  - all ventilated patients,
  - patients requiring inotropic support.
  - patients who are shocked, actively bleeding or receiving blood products.
  - critical-care paediatric and neonatal patients,
  - women in active labour.

## 3. Coordination

- 3.1 At all times a nominated person will be responsible for coordination of a mission. The coordinator will have strong local geographical, operational and logistical knowledge.
  - 3.1.1 Coordination will involve monitoring of the progress of the transfer, acting as a communications conduit and keeping all appropriate agencies informed of any significant alterations to plans.
  - 3.1.2 Coordination will also involve monitoring of aviation issues including fuelling, lighting and duty hours.

[All flights are subject to continuous coordination and communications processes.]

## 4. Priority

4.1 Each mission will be tasked following assessment of the severity of the patient's illness and the urgency for aeromedical evacuation. The crew mix will be appropriate for the level of care required.

## Severity of illness

4.1.1 Sections record the severity of illness and monitor the clinical resources used.

### **Urgency for Aeromedical Evacuation**

4.1.2 A priority system of 3 levels will be used to indicate the urgency of transport.

Table 4 – Priority					
Priority 1	Life threatening emergency	Potentially life threatening and no adequate facilities for local management e.g. respiratory failure, upper airway obstruction, acute myocardial infarction, meningitis, premature infant at a station or nursing post Time critical condition needing immediate specialist care e.g. bleeding aortic aneurysm or ectopic pregnancy, acute extradural haematoma			
Priority 2	Urgent medical transfer	Urgent medical problem, some stabilisation and treatment may be possible locally but prompt transfer needed e.g. peritonitis, severe preeclampsia, cardiac arrhythmias, preterm labour, compound fractures			
Priority 3	Non-urgent or routine transfer	Elective inter-hospital transfer or clinic transfer.			

4.2 Flight crews (pilots, doctors and flight nurses) will be rostered on in sufficient numbers to meet the anticipated demand. Suitable numbers of aircraft will be maintained in operational readiness to meet demand.

## 5. Flight Crew

#### 5.1 General

5.1.1 On all missions, one member of the flight crew (other than the pilot) will be a dedicated RFDS-employed health professional, either Flight Nurse or Medical Practitioner.

[RFDS clinical staff on all RFDS-badged medical flights.]

## 5.2 Orientation, training and professional development

- 5.2.1 All RFDS clinical staff involved in aeromedical retrievals will have completed a formal orientation program in aeromedical transport, aviation physiology and retrieval medicine and an assessment of their skills and competencies in these areas. This will include but is not limited to specific training in:
  - the medical configuration of the aircraft types in use;
  - the operation of retrieval equipment;
  - the location of equipment and supplies on the aircraft, particularly emergency equipment;
  - aircraft safety training including manual handling and emergency procedures;
  - clinical aviation medicine, including organisational clinical protocols and guidelines;
  - infection control in the aviation environment; and
  - health services organization in the areas of operation.

[All clinical staff receive comprehensive aeromedical induction training.]

- 5.2.2 Where possible joint training of team members in emergency procedures will occur.
- 5.2.3 Where non-RFDS clinical staff are carried, especially on a regular basis, (for example neonatal teams), there will be a minimum orientation prior to commencing as an active team member. This should include, but is not limited to:
  - safety around the aircraft;
  - responsibilities in an emergency;
  - self care and preparation for flight.
- 5.2.4 In either a clinical or aircraft in-flight emergency, all clinical staff are should not a liability but an effective part of the team.

[All clinical team members can act independently during an emergency.]

- 5.2.5 Ongoing training, professional development and other regular proficiency checks will be in place.
- 5.2.6 Aeromedical clinical staff will receive appropriate aviation safety training.

[Orientation of clinical staff to aircraft operations and safety.]

5.2.7 Clinical Staff selected by the RFDS for involvement in aeromedical transport will be appropriately credentialed. Skills and experience will comprise as a minimum, the following.

### 5.3 Retrieval Doctor / Medical Practitioner

- Medical Board Registration
- Skills and experience in emergency medicine, anaesthetics, and paediatrics

- Basic obstetric experience
- Training and experience in Advanced Cardiac Life Support
- Participation in internal CME programs to maintain currency of skills and knowledge.
- Certification in training programs or their equivalent, as determined by the individual operating Section, such as:
  - EMST/ATLS (Emergency Management of Severe Trauma / Advanced Trauma Life Support);
  - APLS (Advanced Paediatric Life Support);
  - o ALSO (Advanced Life Support in Obstetrics);
  - o ALS (Advanced Life Support);
  - EMSB (Emergency Management of Severe Burns);
  - o MIMMS

## 5.4 Flight Nurse

- Registration as a General Nurse and Midwife
- Significant relevant post graduate experience including critical care
- Training and experience in Advanced Cardiac Life Support
- Competence in advanced clinical skills
- Participation in ongoing professional education in relevant areas
- Certification in training programs such as:
  - EMST/ATLS/PHTLS (Trauma Life Support);
  - APLS (Advanced Paediatric Life Support);
  - o ALSO (Advanced Life Support in Obstetrics);
  - ALS (Advanced Life Support);
  - EMSB (Emergency Management of Severe Burns);
  - o MIMMS (Major Incident Management)

### 5.5 Pilots

Aviation staff selected by RFDS to work in aeromedical services will be appropriately qualified and trained.

- 5.7.1 Pilots will have qualifications and experience suitable for their aeromedical role and the aircraft types in use.
- 5.7.2 Ongoing training and route checks, as required by CASA and additional training and checking, as determined at an individual Section level, will be provided.
- 5.7.3 Pilots engaged in aeromedical work will complete an orientation induction program which will include, but is not limited to:
  - the Service's priority system and operational performance objectives;
  - aviation medicine and the implications of aircraft operations on patients;
  - familiarization with the medical configuration and roles of biomedical devices;
  - stretchers and loading systems;
  - medical oxygen and power systems;
  - confidentiality principles;
  - dealing with blood and body fluids; and
  - cultural orientation.

[Orientation provided to pilots on aeromedical issues.]

#### 5.6 Communications staff

Communications staff will have training suitable for their role in the aeromedical service.

- 5.8.1 Communications staff will complete an orientation induction program which will include, but is not limited to:
  - the Service's priority system and operational performance objectives;
  - common medical terminology;
  - introductory aviation medicine and the implications of flight on patients;
  - familiarization with the medical configuration of aircraft in use;
  - an overview of the State's health system;
  - confidentiality principles; and
  - cultural orientation

[Orientation provided to communications staff on aeromedical issues.]

## 5.7 Drug & alcohol testing

Aeromedical personnel engaged in aircraft operations will be screened for drugs and alcohol, as required by CASA and individual Section policies.

## 6. Aircraft

#### 6.1 General

- 6.1.1 Aircraft must meet the Civil Aviation Safety Authority (CASA) requirements for certification and operation in Australia in its appropriate flight category.
- 6.1.2 Aircraft medical fit outs will, wherever possible, incorporate redundancy in systems to ensure patient care can continue if one system fails.

## 6.2 Aircraft design

- 6.2.1 Will be selected as appropriate for the speed required and distances involved, for the number of patients to be transferred, and for operating conditions in which they are to be used.
- 6.2.2 Aircraft will be specifically configured for aeromedical transportation.
- 6.2.3 There will be a pressurisation capability for appropriate patients.
- 6.2.4 Aircraft will allow easy access for stretcher loading and unloading.
- 6.2.5 Emergency exits will be suitable for all patient and crew configurations for ambulatory and non-ambulatory patients.

- 6.2.6 Secure stowage space for medical equipment will be provided within cabin.
- 6.2.7 The aircraft configuration will allow the pilot to be sufficiently isolated from the patient care area, to allow safe conduct of each flight.
- 6.2.8 There will be adequate lighting for patient care.
- 6.2.9 Aircraft cabin conditioning will provide suitable climate control for patients and staff in both hot and cold weather.
- 6.2.10 There will be access to cabin pressure altitude information.
- 6.2.11 The aircraft interior layout will afford good access to the patient, including head access, and to therapeutic devices during flight.
- 6.2.12 Aeromedical aircraft will be fitted with a stretcher loading system which facilitates loading of seriously ill and injured patients on stretchers and minimizes manual handling risks to staff.

### 6.3 Oxygen

- 6.3.1 A medical oxygen system is installed, restrained and certified, with sufficient standard Australian outlets in appropriate locations.
- 6.3.2 The aircraft will carry sufficient medical oxygen for the anticipated medical needs, taking into account the requirements of each patients and the duration of flight.
- 6.3.3 The medical oxygen system will operate independently of the aircraft emergency crew oxygen system.
- 6.3.4 The medical oxygen content gauge and controls will be within easy view and reach of medical staff so that the contents can be monitored during transport.
- 6.3.5 An alternate source of supply of medical oxygen should be available in the event that the primary system fails.
- 6.3.6 A source of medical oxygen will be available for use away from the aircraft.

#### 6.4 Suction

6.4.1 A suitable medical suction system will be available and appropriately positioned relative to patients. An alternate system should be available in the event of failure.

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#### 6.5 Electrical Power

- 6.5.1 Electrical power outlets will be provided which are compatible with the medical equipment to be used.
- 6.5.2 Where 240V AC is provided, outlets will be RCD (residual current device) protected and have standard Australian three-pin sockets.
- 6.5.3 Where either 12V DC or 24/28V DC is provided, outlets will be consistent with the de facto (ISAS) standard for aeromedical transport with military specification, environmentally-protected, three-pin plugs wherever possible.
- 6.5.4 All power outlets will be clearly placarded with the voltage and maximum current draw from the outlet.
- 6.5.5 An alternate source of electrical power should be available in the event of a failure. This may through internal equipment batteries.

[Aircraft have sufficient medical oxygen, suction and electrical power for the role.]

#### 6.6 Communications

- 6.6.1 A communications system will be available which facilitates crew communication with the pilot, ground coordination services and the referring and receiving locations.
- 6.6.2 Use of the communications system by clinical staff should be independent of the pilot if required.
- 6.6.3 Communication systems will incorporate a satellite phone or aircraft installation of a cellular phone.
- 6.6.4 Redundancy in communications will be provided by access to radio communications. In principle, clinical staff should have a means of contact with relevant health services and access to clinical advice, at all times during transport.

[A communications system is readily available to clinical staff during flight.]

## 7. Equipment

### 7.1 General

- 7.1.1 Systems will be in place to check and maintain all biomedical equipment, consumables and drugs.
- 7.1.1 The medical equipment required on a flight will depend on the nature of the patient(s) and the anticipated duration of the flight. However there are minimal requirements for transport of any patient.

### 7.2 Minimum equipment to be carried at all times

7.2.1 A summary of the minimum equipment to be carried on patient transport flights is outlined in **Appendix A**.

[There is a minimum standard of equipment on all aeromedical flights.]

## 7.3 Pharmacological agents

- 7.3.1 Pharmacological agents carried will be appropriate to the condition of the patient, intended treatment, potential complications and the duration of flight. All aircraft involved in patient transport will carry a minimum quantity of essential emergency medications to manage common conditions.
- 7.3.2 A summary of the minimum pharmacological agents to be carried on a patient transport flight is outlined in **Appendix B**.

[A minimum range of drugs is carried on all aeromedical flights.]

## 7.4 Extra equipment to be available when required

7.4.1 A broad range of additional biomedical and pre-hospital equipment will be available on the aircraft, or able to be taken when required. These items are outlined in **Appendix C**.

[A broad range of additional retrieval equipment is available.]

## 7.5 General requirements for electronic medical devices

- 7.5.1 Electronic medical devices carried on aeromedical aircraft will:
  - Be of size and weight suitable for transport
  - Be safely restrained in the aircraft in accordance with CASA regulations
  - Meet relevant EMI standards
  - Have a power supply that will exceed the predicted duration of the transfer
  - Operate from the site of retrieval continuously till the patient is delivered to hospital
  - Be suitable to work in the environmental conditions to be encountered, particularly heat and altitude
  - Be rugged and durable
  - Have suitable alarms which are audible and visible in the aircraft environment

[Retrieval equipment is selected to suit the aeromedical environment.]

#### 7.6 Stretchers

7.6.1 Stretchers should be adjustable so that patients can be transported semi-reclining or upright if required, including during take-off and landing.

- 7.6.2 Stretchers will be of adequate load capacity, able to accommodate the patient weight, both in the aircraft during flight and during ground handling. A maximum patient weight of at least 160kg is recommended as a minimum standard. A capacity for heavier patients highly desirable.
- 7.6.3 Stretchers will be of adequate dimensions to hold patients within a broad range of anthropometric dimensions for the community being served (at least 1.8m in length and able to accommodate splints to lower limbs).
- 7.6.4 Will be comfortable for prolonged periods and designed to avoid skin injury to pressure areas.
- 7.6.5 Will be installed in a head-forward configuration in the aircraft.
- 7.6.6 Will comprise an adequate approved safety harness, to restrain patients in a forward, sideways and upwards direction, in accordance with at least the minimum load factors required for the aircraft type.
- 7.6.7 The stretcher configuration will enable ready access to patient in flight, especially the head and airway.
- 7.6.8 Stretcher design should allow for both safe ground handling and inaircraft manoeuvring during loading.

[Stretchers are of suitable design and appropriately configured on aircraft.]

## 7.7 Loading systems

- 7.7.1 Loading systems should minimize physical lifting and manual handling and reduce the hazards to staff and patients during the process.
- 7.7.2 Loading and unloading systems should avoid prolonged periods of head up or head down tilt during handling.
- 7.7.3 The loading system should safely hold patients of minimum weight of 160 kg plus the additional weight of connected clinical monitors and the stretcher.
- 7.7.4 Design of stretchers and a loading system which minimizes patient transfer between aircraft stretchers and ambulance stretchers, is highly desirable, to simplify loading and reduce unnecessary patient handling..
- 7.7.5 A system or process for managing air transport of morbidly obese patients should be available.

[A safe and effective loading system is provided.]

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## 8. Monitoring

- 8.1 All critical care and ventilated patients will be accompanied by RFDS staff capable of monitoring the patient's condition, modifying management and dealing with any emergencies which could be reasonably expected to occur during transport. These will normally be an RFDS Retrieval Doctor and RFDS Flight Nurse.
- 8.2 Additional specialist medical or nursing expertise will be utilized to assist RFDS staff where appropriate.

[Patients accompanied by staff able to carefully monitor their clinical condition.]

- Vital signs will be monitored for all patients being transported. These are: blood pressure, pulse rate, respiratory rate, temperature and oxygen saturation.
- 8.4 Vital signs will be recorded as a minimum: on initial handover, during flight and at final handover.

[Vital signs recorded at handover, during flight and at final handover.]

- 8.5 Other clinical signs will be monitored as appropriate to the condition of the patient (for example: neurological and pupil signs, conscious state, GCS, uterine contractions, pain level, peripheral circulation).
- 8.6 More advanced monitoring will occur for appropriate patients. This may include:
  - hemodynamic monitoring (invasive blood pressure, central venous pressure)
  - respiratory monitoring (airway pressures, FiO2, TV, MV, PEEP, I:E)
  - biochemical monitoring (blood gases, electrolytes, glucose, haemoglobin, coagulation indices, cardiac markers)
  - fetal monitoring (fetal heart rate by Doppler)

[Advanced critical care monitoring available for appropriate cases.]

## 9. Documentation

### 9.1 General

9.1.1 Standardised pre-flight and in-flight clinical documentation will be completed for each every patient, whether a primary or secondary transfer.

## 9.2 Pre-flight assessment

- 9.2.1 Preflight information obtained will include:
  - Date and time of initial contact
  - Name and status of caller

- Name and status of the RFDS Doctor or Clinical Coordinator taking the call and tasking the flight
- Patient details
  - o Name, age, sex, DOB, weight
  - Diagnosis and clinical details
  - Patient location
  - o Initial advice given and treatment instituted

### 9.3 Clinical tasking decisions

- 9.3.1 Decisions regarding the transfer will be made and recorded and include:
  - Priority of the case
  - Crew selected to transfer the patient
  - Operational considerations such as cabin altitude restriction, suitability of other patients on flight
  - Special equipment, drugs or blood products required
  - Whether the patient is to be handed over at the airport or hospital
  - Who made these decisions

## 9.4 In-flight clinical record

- 9.4.1 A clinical record will be completed with details recorded from the time of initial handover and during flight, until the end of the transport. Details will include:
  - Condition on handover
  - A summary of diagnoses and interventions
  - Vital signs (blood pressure, pulse rate, respiratory rate, temperature & SaO<sub>2</sub>)
  - Clinical observations appropriate to the patient's condition
  - Fluid balance
  - Drugs given
  - Monitor, ventilator and other biomedical equipment parameters
  - Notable events
  - Orders and authorizations for in-flight medications and fluids given
  - Date, times, names, roles and signatures
- 9.4.2 Appropriate clinical and administrative documentation will be provided to the receiving hospital and a copy of the record retained by the RFDS.

## 10. Quality Improvement

- 10.1 There is an appropriate and comprehensive quality improvement program in place covering all aspects of aeromedical services.
- There is a clinical audit, incident reporting and clinical governance system in place to ensure safety, quality and risk management principles are followed.
- 10.3 There are internal aviation safety and incident processes, in addition to those prescribed by regulatory authorities.

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10.4	Quality processes involve clinical, aviation, communications and administrative
	staff, to ensure that all groups contribute to ongoing improvement activities.

10.5	Ongoing	education,	teaching	and	research	activities	contribute	to	the	quality
	system.									

This document will have an effective date and review date, with a review process undertaken by the RFDS National Health Advisory Committee on a regular basis.

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## **Appendices**

## Appendix 1 – Minimum equipment to be carried at all times

The following list outlines the minimum equipment expected to be carried on an RFDS patient transport flight, in a medically dedicated RFDS aircraft.

## Respiratory Support Equipment

Oxygen masks, all ages

**Nebulisers** 

Self-inflating bag-valve-mask manual ventilation assembly with a range of mask sizes Suction equipment

Airways suitable for all ages, including oropharyngeal & nasal

Intubation equipment, including aids for difficult airways

Endotracheal tubes for all ages

Laryngeal mask airways

Humidification and filter systems for ventilated patients

Cricothyroidotomy set

Pleural drainage equipment including one way valves

### Circulatory Support Equipment

Aneroid sphygmomanometer & range of cuffs

Vascular cannulae - peripheral

IV fluids, giving sets, pressure cuff and other devices to infuse fluids and blood products Syringes and needles

Intraosseous needles

### Other equipment

Nasogastric tube and bag

Urinary catheters and bags

Suturing instruments and equipment

Thermal insulation

**Splints** 

Rigid cervical spine collars

Dressings and bandages

Maternity packs

Stethoscope

Fetal (Doppler) stethoscope

Temperature measuring device (electronic thermometer)

Blood glucose test strips

Variations and additions to this minimal standard may occur in accordance with Sectional policies and differing clinical roles.

## Appendix 2 – Minimum pharmacological agents carried at all times

Pharmacological agents to manage a broad range of clinical conditions will be carried and include those required to treat:

- Cardiac arrest
- Hypotension
- Hypertension
- Cardiac dysrhythmia
- Acute coronary syndromes / Myocardial infarction / Thrombolysis
- Sepsis
- Anaphylaxis
- Pulmonary oedema
- Bronchospasm
- Hypoglycaemia
- Hyperglycaemia
- Raised intracranial pressure
- Uterine atony
- Premature labour
- Adrenal dysfunction
- Narcotic depression
- Benzodiazepine depression
- Convulsions
- Agitation / Psychosis
- Pain
- Emesis
- Electrolyte disturbance
- Premature labour

Additional agents will be available (if not carried routinely) to manage

- Patients requiring ongoing ventilation
- Snake bite
- Other poisonings & toxicological emergencies
- Neonatal care
- Blood transfusion
- Coagulation disorders
- Infectious diseases including viral, bacterial & fungal

## Appendix 3 – Additional retrieval equipment available

A range of additional retrieval equipment will be available and includes:

- Portable oxygen supply with regulator and appropriate connectors
- Portable suction
- Portable mechanical ventilator
- ECG monitor-defibrillator
- Transcutaneous pacing
- Non-invasive blood pressure monitoring
- Invasive arterial pressure monitoring
- Central venous pressure monitoring
- Pulse oximeter
- Capnograph
- Vital signs monitor (may incorporate parameters above and additional temperature, respiration, printer)
- Portable spirometer
- Infant incubator
- Oxygen analyser
- Restraints for uncooperative or violent patients
- Volumetric infusion pump for intravenous fluids with alarms (air bubble, high pressure alarm) and fail-safe mode
- Syringe drivers (with alarms for high pressure and end of infusion)
- Foetal heart monitor/ Doppler stethoscope
- Biochemical analyser / Point of Care testing (blood gases, electrolytes, glucose, haemoglobin, renal function, coagulation)
- 12 lead ECG with interpretive algorithms
- Portable diagnostic ultrasound
- Spinal stretcher/vacuum mattress
- Limb splints including traction splints
- Pelvic splint
- · Cervical collars and splinting devices
- Paediatric restraint systems
- Obese patient transport restraint
- Standardized transport bags