

## GUIDELINES FOR TRANSPORT OF THE CRITICALLY ILL

### 1. INTRODUCTION

Safe transport of the critically ill requires accurate assessment and stabilisation of the patient before transport. There should be appropriate planning of transport and optimum utilisation of communications. Safe transport requires the deployment of appropriately trained staff with essential equipment, and effective liaison between referring, transporting and receiving staff.

### 2. ADMINISTRATIVE GUIDELINES

Administrative guidelines should cover all aspects of the transport of the critically ill.

#### 2.1 Initiation and response :

Medical transport services using road ambulances, fixed or rotary wing aircraft must be coordinated for prompt, rapid, efficient, and safe transport of critically ill patients on a 24-hour basis.

The method of initiation of patient transport should be simple, with clear guidelines and communication channels.

In all situations necessitating transport of the critically ill rapid response of the transport system, together with minimal delays are paramount.

#### 2.2 Coordination and Communication :

Coordination of transport services for the critically ill should be centralised to ensure optimum utilisation of resources. Designated individuals need to be available immediately for consultation and planning.

Reliable communications must be available at all times between the transport team and the referring and receiving hospitals.

#### 2.3 Responsibility :

The chain of responsibility must be clear throughout the transfer. Responsibility for the patient care aspects of transport must be vested in an appropriately qualified medical practitioner.

#### 2.4 Documentation :

The clinical record should briefly summarise the patient's clinical status before, during and after transport, including relevant medical conditions, environmental factors and therapy given.

#### 2.5 Review and Quality Assurance :

Organisations involved in medical transportation should regularly review records made during transport, to assess the standards of care provided.

There should be a process to investigate specific problems, including delays in transportation.

### **3. CATEGORIES OF TRANSPORT**

Transport of critically ill patients is necessary in three sets of circumstances, namely, prehospital, interhospital, and intrahospital transport.

#### **3.1 Prehospital transport refers to :**

Transport of a critically ill patient from their location (home or site of accident) to hospital.

#### **3.2 Interhospital transportation may be :**

##### **3.2.1 Between hospitals as an emergency :**

Where the referring hospital lacks appropriate staff, equipment, or diagnostic facilities, either immediately or when the patients' deteriorating condition requires more sophisticated facilities.

##### **3.2.2 Intrahospital transport may be required for diagnostic or therapeutic reasons.**

### **4. STAFFING**

Personnel engaging in the transportation of critically ill patients should be selected and trained in the various aspects of patient transportation. An ability to communicate effectively, and to function as part of a team is essential.

#### **4.1 Prehospital transportation :**

Usually ambulance service personnel will be used. Crews with specialised advanced life support skills should be deployed as appropriate.

[In some circumstances, medical officers and/or nurses may be deployed with the ambulance.]

#### **4.2 Interhospital transportation :**

In the critically ill, it may be necessary to send expert medical assistance to the referring hospital.

Specifically trained personnel are required for neonatal and infant transport.

#### **4.3 Intrahospital transportation :**

Appropriately trained medical and nursing or technical staff should accompany critically ill patients requiring intrahospital transport

### **5. TRANSPORTATION**

The mode of transport used will depend partly on clinical requirements and partly on vehicle availability and conditions.

#### **5.1 Choice of transport vehicle will be influenced by :**

##### **5.1.1 nature of illness**

**GUIDELINES FOR TRANSPORT OF THE CRITICALLY ILL**

- 5.1.3 location of patient
- 5.1.4 distances involved
- 5.1.5 road transport times and road conditions
- 5.1.6 weather conditions for airborne transport
- 5.1.7 aircraft landing facilities
- 5.1.8 range and speed of vehicle

**5.2 Transport vehicle requirements :**

Vehicles should be appropriate to the task in terms of design and equipment, such as :

- 5.2.1 safely
- 5.2.2 adequate space, with room for an attendant at the head and side
- 5.2.3 adequate power supplies and gases for life support systems
- 5.2.4 easy access for embarkation and disembarkation
- 5.2.5 adequate lighting and internal climate control
- 5.2.6 secured stretcher and equipment
- 5.2.7 acceptable noise and vibration levels
- 5.2.8 adequate speed and response times
- 5.2.9 good communications systems, both internal and external
- 5.2.10 appropriate seating and restraints for staff

5.3 Medical fittings to aircraft, and bulky items carried need to have approval for the aviation authorities.

5.4 With all modes of transport, stabilisation of vital signs, provision of a secure airway and IV access, securing of all catheters and provisions of appropriate monitoring before departure is fundamental to safe transport.

**6. EQUIPMENT**

Equipment should be adequate in amount for each transport, taking into account, duration of transport and the patient's condition. In choosing equipment, attention must be given to size, weight, battery life and durability, as well as to suitability for operation under conditions of transport. Equipment should be adequately restrained, and continuously available to the operator. The following equipment should be considered :-

**6.1 Respiratory Support Equipment**

- 6.1.1 airways
- 6.1.2 oxygen, masks, nebuliser
- 6.1.3 self-inflating hand ventilating assembly with PEEP valve
- 6.1.4 suction equipment of appropriate standard

**GUIDELINES FOR TRANSPORT OF THE CRITICALLY ILL**

- 6.1.6 intubation set
- 6.1.7 cricothyroidotomy set
- 6.1.8 pleural drainage equipment
- 6.2 Circulatory Support Equipment
  - 6.2.1 monitor/defibrillator/external pacer
  - 6.2.2 pulse oximeter
  - 6.2.3 Non-invasive blood pressure measuring device with appropriate sized cuffs
  - 6.2.4 vascular cannulae, peripheral and central
  - 6.2.5 IV fluids and pressure set
  - 6.2.6 infusion pumps
  - 6.2.7 arterial cannulae and arterial monitoring device
  - 6.2.8 syringes and needles
  - 6.2.9 external pacing equipment
  - 6.2.10 MAST
- 6.3 Other Equipment
  - 6.3.1 nasogastric tube and bag
  - 6.3.2 urinary catheter and bag
  - 6.3.3 nasal decongestant spray
  - 6.3.4 instruments, sutures, dressings, antiseptic lotions, gloves
  - 6.3.5 thermal insulation/and temperature monitor when indicated
  - 6.3.6 splints
- 6.4 Pharmacological Agents  
Pharmacological agents as necessary to manage :
  - 6.4.1 cardiac arrest
  - 6.4.2 hypotension
  - 6.4.3 hypertension
  - 6.4.4 cardiac dysrhythmia
  - 6.4.5 pulmonary oedema
  - 6.4.6 anaphylaxis
  - 6.4.7 bronchospasm
  - 6.4.8 hypoglycaemia
  - 6.4.9 hyperglycaemia
  - 6.4.10 raised ICP
  - 6.4.11 uterine atony
  - 6.4.12 adrenal dysfunction
  - 6.4.13 anaesthetic depression

**GUIDELINES FOR TRANSPORT OF THE CRITICALLY ILL**

6.4.14 convulsions

6.4.15 agitation

6.4.16 pain

6.4.17 emesis

6.4.18 electrolyte abnormalities

6.4.19 provision of sedation and neuromuscular paralysis

**7. MONITORING**

Monitoring of certain fundamental variables should be carried out.

7.1 Personal observation is essential during intensive patient care transport. This should be supplemented by appropriate monitoring devices.

7.2 Patient monitoring

7.2.1 Circulation

The circulation must be monitored at frequent and clinically appropriate intervals by the detection of the arterial pulse and measurement of the arterial blood pressure.

7.2.2 Respiration

Respiratory function should be assessed at frequent and clinically appropriate intervals.

7.2.3 Oxygenation

The patient's oxygenation must be assessed at frequent and clinically appropriate intervals by observation, and pulse oximetry.

7.3 Oxygen Supply Failure

7.3.1 Oxygen supply failure alarm

An automatically activated device to monitor oxygen supply pressure and to warn of low pressure should be fitted to the oxygen supply.

7.3.2 Alarms for breathing system disconnection or ventilator failure

When an automatic ventilator is in use, a device capable of warning promptly of a breathing system disconnection or ventilator failure should be in continuous operation.

7.3.3 Alarms for breathing system high pressure

When an automatic ventilator is in use, a device capable of warning promptly of high pressure in the breathing system should be in continuous operation.

7.4 Electrocardiograph

Equipment to monitor and continually display the electrocardiograph must be available for every critically ill patient during transport.

7.5 Other Equipment

When clinically indicated, equipment to measure other physiological variables, such as capnography should be available.

**GUIDELINES FOR TRANSPORT OF THE CRITICALLY ILL**

These guidelines have been prepared with regard to general circumstances, and it is the responsibility of the practitioner to pay particular attention to the circumstances and applicability of these guidelines to each case.

As the guidelines are reviewed from time to time, it is the responsibility of the practitioner to ensure that he or she uses the current version. Guidelines have been prepared having regard to the information then available and the practitioner should consider any information, research or material which may have become available subsequently.

Whilst the college endeavours to ensure that the guidelines are correct at the time of their preparation, no responsibility is taken for matters arising from changed circumstances, information or material which may have become available subsequently.