MEDICAL SERVICES/REQUIREMENTS

Motorsport Australia Alternative Medical Service Requirements

Purpose

To introduce on a trial basis an option for Casualty Transport at identified circuit race events which previously exclusively required a state-level ambulance to be in attendance at all times.

For those circuit race events which have been identified refer to:

Motorsport Australia Medical Services/Requirements at Motor Sport Events

3.1 Circuit Race Events

3.1.1 General

Introduction

Motor Sport Injures

Significant motor sport injuries are rare but may be severe due to the extreme forces involved following a collision at high speed. Given current use of roll-over protection structures, seat harnesses, neck restraints and helmets, most injuries are due to “blunt trauma” following dramatic deceleration when the racing vehicle strikes a fixed object. Blunt trauma may also occur when a stationary vehicle is struck at high speed by another competition vehicle.

Common injuries in this setting are concussion, spinal injuries and torso (chest/abdominal) injuries. In the rare event that a fuel tank ruptures, there may also be a burn injury. Occasionally, “penetrating trauma” may occur when debris pierces the body. This may lead to organ injury and internal bleeding.

Most injures in motor sport are sustained during the impact. However, after the impact, there are a number of additional complications that may occur in the first few hours following the trauma. These may be a lack of oxygen secondary to lung injury and/or lack of blood pressure due to blood loss.

The medical assessment and treatment of injured competitors should follow the recommendations of the Early Management of Severe Trauma (EMST) as endorsed by the Royal Australasian College of Surgeons *(http://www.surgeons.org/for-health-professionals/register-courses-events/skills-training-courses/emst/).*

This approach emphasises the “Primary Survey” which consists of assessment and treatment of immediate life-threats using “ABCDE” (airway/breathing/circulation/disability/ and environment-avoid hypothermia). Following management of any abnormalities found on the Primary Survey, a “Secondary Survey” consisting of a thorough physical examination should be undertaken. If serious injuries are suspected, transfer as soon as possible to an appropriate hospital for definitive medical care is required.

Thus, injured participants in motor sport require an early Primary Survey and management of immediate life-threats. This is also known as Basic Life Support. This initial medical response consists of:

- Rapid response to the scene
- Ensure that the scene for rescuers is safe (red flag/safety car)
- Assess the conscious state and respirations of the patient
- If unconscious, open the airway (whilst taking care to avoid spinal column movement)
- If non-breathing, assisting respirations using bag/ valve/mask plus other airway support; ie, Guedel airway
- Administer supplemental oxygen
- Immobilise the spinal column with a C-spine collar, apply an extrication device (ie, KED) and extricate onto a spine board
- Control any external blood loss with pressure dressing and/or arterial tourniquet
- Provide appropriate pain relief (if conscious)
- Splint limb and pelvic fractures
- In the presence of suspected cardiac arrest, in addition to assisting respirations with supplemental oxygen, chest compressions should be commenced and a defibrillator attached to treat cardiac arrhythmias.

Subsequently, the patient should be transported by stretcher vehicle to the circuit Medical Centre for a thorough physical examination (“Secondary Survey”) and additional medical interventions (if needed). These additional interventions may include intubation of the airway or insertion of a LMA (Laryngeal Mask) and intravenous fluid administration if an appropriately trained medical practitioner is present. These latter interventions are known as “Advanced Life Support”.

However, Advanced Life Support requires specialised training and is only able to be undertaken by experienced physicians with specialist training and/or ambulance paramedics with additional training (“intensive care ambulance paramedics”) whilst on duty for an ambulance service.

In recent years, there has been increasing medical evidence that Advanced Life Support is not useful unless there is a prolonged time to definitive care at an appropriate hospital. Thus, the Motorsport Australia National Medical Advisory Committee (NMAC) favours an emphasis on the provision of early "Basic Life Support" and less emphasis on the provision of "Advanced Life Support" at race circuits following severe trauma.

Early contact with the state ambulance service (call 000) following initial assessment of the patient is essential to ensure timely transport from the circuit medical centre to hospital. Recent developments in trauma care now require significantly injured patients to be transferred to a hospital designated as a "Trauma Service" rather than the nearest hospital without specialist expertise in trauma care. Thus, the previous arrangement for a circuit to have a road emergency ambulance on-site for transport to the nearest hospital is generally not appropriate for the severely injured driver.

Most Australian states have a State Trauma System which emphasises the transport of seriously injured patients and patients with a high potential for serious injury (such as drivers who crash at high speed) directly to a Trauma Service, bypassing closer hospitals.

On the basis of this, the NMAC favours arrangements that emphasise early Basic Life Support at the scene and the Medical Centre, then transport of an injured race participant from the circuit Medical Centre directly to a hospital with a Trauma Service rather than emergency ambulance transport to the nearest hospital.

In metropolitan areas, there is very likely to be an emergency ambulance available to be called to the circuit within 16 minutes and road transport to the hospital Trauma Service within 60 minutes. In rural areas (>80km from a Trauma Service), there should emphasis on early aero-medical evacuation using a Helicopter Emergency Medical Service (HEMS) as a priority and less emphasis on immediate availability of road ambulance for transport to the nearest rural hospital.

Given that response to the scene, extrication of the driver, Basic Life Support, transport to the Medical centre and a Secondary Survey would take at least 20 minutes, there should be adequate time to respond an ambulance/ Helicopter Emergency Medical Service from off-site.

Therefore, the requirement that there be an emergency ambulance actually on scene for a circuit race event is considered unnecessary if the services outlined in the Motorsport Australia Requirements (MAMSR) are instituted.

MOTORSPORT AUSTRALIA ALTERNATIVE MEDICAL SERVICE / REQUIREMENTS (MAMSR)

MEDICAL SERVICES AT MOTOR SPORT EVENTS

1. MEDICAL PLAN:

All circuit race events to have a medical response plan to ensure that the proper planning has been undertaken prior to the conduct of the event.

Event organisers are required to meet the minimum requirement for their particular event as required by regulations contained in Motorsport Australia Alternative Medical Service Requirements (MAMSR) at motor sport events.

If an organiser of an event plans to conduct more than one competition of the same status and at the same venue, they may lodge a common Medical Response Plan if the contents of that plan, following review at suitable intervals, remain unchanged during a calendar year.

In planning medical services that include a Patient Transport Vehicle (in lieu of an emergency Ambulance) organisers must provide a medical service that includes the following:

- A Chief Medical Officer who must be a medical practitioner (doctor)
- A Chief Medical Officer or a Paramedic see (as per Section 3.1.4.3 of the Motorsport Australia Medical Service Requirements at Motor Sport Events) acting as the Medical Services Coordinator for the event.
- Appropriately trained and experienced medical personnel to provide Basic Life Support to an injured person (see Attachment A)
- A suitable rapid response vehicle to enable the medical personnel to reach the scene safely and quickly (see Attachment B)
- Medical equipment appropriate for initial trauma management at the scene (see Attachment C)
- A Patient Transport Vehicle (PTV) that provides stretcher transport from the scene of the injury to the circuit medical centre (see Attachment D)
- A circuit medical centre (see Attachment E)

The medical plans detailing the above are forwarded to Motorsport Australia and assessed to make sure they meet the relevant regulations and requirements before a permit is issued.

The plan should be detailed in such a way which follows the format contained in the Example Medical Response Plan. The 'example plan' is presently contained in the General Regulations / Medical Services at Motor Sport Events *(https://www.motorsport.org.au/docs/default-source/manual/general-regulations/gr10-alternative-medical-services-2018-1.pdf?sfvrsn=89769916_9)*

If any of the above parts of the service are unable to be supplied, then an emergency ambulance must be on-site during any competition.

At each event no practice, qualifying or competition may commence unless the specified medical officer/s, paramedical personnel, ambulances, other vehicles and equipment are in attendance. If during a competition the required personnel or vehicles have left the circuit then practice or competition must be suspended until the required personnel and vehicles are again present.

2. TRANSPORT FROM CIRCUIT MEDICAL CENTRE TO HOSPITAL

This must be undertaken only by

- A Helicopter Emergency Medical Service (HEMS), or
- A road emergency ambulance, or
- A Non-Emergency Patient Transport (NEPT) vehicle (as per the relevant Non-Emergency Patient Transport state Acts/Regulations). **Note:** NEPT are only permitted to undertake patient transport where the patient has been assessed by a registered medical practitioner and is deemed to be stable and suitable for transport by NEPT.

3. MEDICAL SERVICES FOR THE PUBLIC AT CIRCUIT RACE EVENTS

The CMO shall be responsible for the trackside medical services and must approve the separate and independent medical service provided for the public.

Even if the medical service intended for the public is organised by a different body to that provided for the track, it must remain under the supervision of the CMO of the event. The details of the public service must be included in the Medical Response Plan for the event.

No vehicle from the public medical service may enter the competition area of the race track without authorisation from Race Control.

Attachment A:

Medical Personnel

At each event, there must be a "Chief Medical Officer" who is a medical practitioner (doctor) registered in Australia with experience in the organisation of a medical service at a motor racing event. Alternatively, an experienced ambulance paramedic or ambulance officer would be suitable to coordinate the medical response, acting as the Medical Services Coordinator.

In addition, the medical service requires one or more of:

- Medical practitioners with additional training and experience in emergency medicine, such as an emergency physician, ICU specialist or Anaesthetist or a doctor holding current EMST certification
- Ambulance intensive care paramedics (defined as a person currently employed by a state ambulance service in the role of an operational ambulance paramedic who undertakes all advanced life support skills such as intubation and intravenous cannulation)
- Ambulance paramedics (defined as a person currently employed by a state ambulance service in the role of an operational ambulance paramedic who undertakes some advanced life support skills such as insertion of laryngeal mask airway and intravenous cannulation)
- Ambulance officers (defined as a person currently employed by a state ambulance service in the role of an operational ambulance officer who does not undertake any advanced life support skills)
- Patient Care Attendants or Patient Care Officer (defined as a person currently employed by a registered NEPT provider)
- First-aid trained personnel with recent (within two years) employment as an operational ambulance paramedic
- Registered nurses with recent (within two years) experience as a paid employee of an emergency department that received major trauma

The role of Medical Personnel:

- To provide clinical governance to medical personnel
- To provide medical services to competitors
- To provide medical services to officials, teams, event management and spectators
- To assist event organisers in arranging the most suitable medical response for the event
- To assist event organisers in the development of a medical response plan that will be submitted to Motorsport Australia for approval

The role of the CMO:

- Organise and coordinate the operation of the medical services at the event
- Assess, where necessary, a competitor's fitness to compete in the event or rejoin the event after an accident/ injury

Note: Ambulance officers and paramedics are not legally able to administer drugs or perform some medical procedures (ie, intubation of the airway) unless on duty for a state ambulance service.

Attachment B:

Medical Intervention Vehicle:

An emergency vehicle must be available to transport medical personnel to the scene of an incident. This vehicle must have the following characteristics:

- A vehicle that is appropriate in type and safety for its purpose
- If driving on public roads, the vehicle must be road worthy and able to be road registered
- If a track specific vehicle without road registration, the vehicle must be checked by the Chief Scrutineer or their delegate and assessed as being safe and appropriate for the activity scrutineering at the event
- Has warning beacons and signage
- Has radio communication with Race Control

This vehicle may be:

- A specific Medical Intervention Vehicle
- An emergency ambulance (as defined in Attachment D)
- A NEPT (as defined in Attachment D)
- A PTV (as defined in Attachment D)

The vehicle is expected to carry the emergency first aid equipment as outlined in Attachment C.

Attachment C:

Equipment required at the scene of a casualty

Purpose: to provide effective first aid at the scene of an incident during extrication:

- Oxygen administration equipment (400L cylinder/ tubing/ mask)
- Airway support equipment (eg, Bag and Mask, Guedel airways)
- Cervical spine collars
- Kendrick Extrication Device (KED)
- Spine board
- Defibrillator
- Pelvic binder
- Immediate burn treatment – water
- Arterial Tourniquets
- Suction equipment
- Splinting devices for arm and leg fractures
- Compression bandages
- Pain relief; ie, inhaled methoxyflurane (or intranasal fentanyl-medical practitioner only)

In the case of driver entrapment, further equipment will need to be readily available such as:

- Airway support equipment (LMA and crico-thyroidotomy kit)
- IV equipments such as IV cannulae, giving sets and fluids

Other services also need to be available to deploy to the incident scene including:

- Fire suppression capability
- Rescue equipment (eg, cutters, spreaders and other equipment to enable safe extrication of a trapped driver)

Attachment D:

Emergency Ambulances, Non-Emergency Patient Transport and Patient Transport Vehicles

1. Purpose: To provide safe stretcher transport for a casualty from the scene of an incident on the circuit to a medical centre at the circuit.
2. The definitions of an Emergency Ambulance, Non-Emergency Patient Transport and Patient Transport Vehicle are:

2.1 EMERGENCY AMBULANCE:

A vehicle that is legally authorised to provide stretcher transport on public roads under emergency conditions (ie, lights and sirens) under authority of state and territory governments; ie, Ambulance Victoria, Ambulance Service of New South Wales, Queensland Ambulance Service, St John Ambulance (WA), South Australian Ambulance Service, ACT Ambulance Service, Tasmanian Ambulance Service, and Northern Territory Ambulance Service.

An emergency ambulance is typically staffed by ambulance officer, ambulance paramedics or ambulance intensive care paramedics.

An emergency ambulance is equipped with all the first aid materials outlined in Attachment C.

2.2 NON-EMERGENCY PATIENT TRANSPORT (NEPT) VEHICLE:

A vehicle that is legally authorised to provide stretcher transport of medically stable patients on public roads under non-emergency conditions (ie, without lights and sirens) under authority of state and territory governments. A NEPT is typically staffed by a Patient Transport Officers and/or Patient Transport Attendants. Due to legislation requirements, NEPT vehicles must not be referred to as ambulances.

2.3 PATIENT TRANSPORT VEHICLE (PTV):

A vehicle that is equipped to provide stretcher transport of a patient from trackside to a circuit medical centre but not to provide stretcher transport of a patient on public roads. Such a vehicle is typically owned and operated by a private contractor and staffed by personnel trained in first aid. These vehicles must not be referred to as ambulances or “Non-Emergency Transport” vehicles.

- An “ambulance-type vehicle” which is roadworthy and registered and carries Third Party Insurance
- Beacons on the roof that are visible from the rear of the vehicle
- A radio/telephone that is in contact with Race Control
- Seating in the front for two persons and seating in the rear for at least one attendant
- Capacity for at least one medical stretcher which can be secured to the floor of the vehicle and which, when removed from the vehicle can be wheeled to the scene of the injury. The stretcher must have seat belts to restrain the occupant and be able to easily load and unload passenger (ie, Ferno-Washington system)
- Sufficient area next to the stretcher to enable adequate patient treatment
- Rear access doors
- Power supply (12 or 240 volt)
- Adequate interior lighting
- Climate Control including air-conditioning

- Appropriate signage on the side and rear panels that clearly distinguishable a PTV from the state based ambulance service
- Pillows, linen and blankets
- An infection control management plan including cleaning the interior of the vehicle, the disposal of equipment and laundering of linen
- Maintenance of vehicle and equipment are in accordance with manufactures specification
- Suitable restraints for passengers must be in place according to AS/NZS 43350: 1999 Ambulance Restraint Systems
- Vehicle windows are provided with adequate tinting to provide privacy for patients
- Vehicle floor interiors that are smooth, impermeable and seamless

3. THE MEDICAL EQUIPMENT REQUIRED FOR A PTV:

- The provision of oxygen outlet with flow-meter
- An oxygen cylinder containing a minimum of 800L oxygen
- Suction equipment
- A monitor /defibrillator which is able to be appropriately restrained

4. SUITABLE PERSONNEL TO DRIVE THE VEHICLE ON THE CIRCUIT:

- Ambulance officer, paramedic or intensive care paramedic
- A Patient Transport Officer or Patient Transport Attendant
- A registered nurse with appropriate ambulance bridging course
- A student ambulance officer or student paramedic who has completed an advanced driving course
- A person experienced in motor sport and with the specific vehicle they are driving or who hold a Motorsport Australia competition licence

Attachment E:

The Medical Centre:

Purpose: To provide a site for medical treatment whilst awaiting the arrival of an emergency ambulance, Non Emergency Patient Transport or Helicopter Emergency Medical Service:

- May be a permanent or temporary building
- Must have climate control, 240V power, adequate lighting, hot and cold water.
- Has adequate space for the management of at least two patients (minimum 4m x 4m)
- Has at least two hospital-type trolleys
- Is easily accessible from the circuit
- Is connected to a public road to facilitate transport of patients by ambulance, or NEPT to hospital
- Is staffed by appropriately-trained medical personnel
- Has direct telephone contact with the Chief Medical Officer
- Has access to a site for HEMS landing (In rural areas)

Medical equipment required at the circuit Medical Centre (these may be brought in for the event and do not necessarily have to be a permanent part of the Medical Centre equipment)

- Oxygen administration equipment (800L cylinder/ tubing/ mask)
- Portable oxygen resuscitator capable of providing oxygen therapy
- Equipment for intubation (if a trained medical practitioner is present)
  - Laryngoscopes
  - Endotracheal tubes
  - Equipment for “difficult intubation”
  - Bougie
  - Laryngeal mask airways
  - Cricothyroidotomy
- Pulse oximetry and (disposable) capnography
- Suction equipment
- Chest decompression equipment
- Splinting devices for arm and leg fractures
- A pelvic binder for pelvis fractures
- Compression bandages and arterial tourniquet
- Equipment for intravenous crystalloid fluid therapy
- A locked drug box that contains at least the following (if a medical practitioner is present):
  - Drugs for rapid sequence intubation
  - Analgesic drugs
  - Local Anaesthetics
  - Anticonvulsant medication
  - Antibiotics
  - Drugs for advanced cardiac life support (adrenaline/ / amiodarone)
- Sharps containers
- Defibrillator (cardiac monitor if not incorporated in defibrillator) and defibrillation pad set
- Personal protective equipment

- Stethoscope
- Urine bottle
- Bedpan
- Toilet paper
- Drinking water
- Disposable gloves
- Spare ECG electrodes
- Assortment of pads and compression bandages
- Infectious waste bags
- Eye pads
- Sphygmomanometer (not mercury)
- Emesis bags
- Linen to adequately service stretchers
- Alcohol hand rubs