Aims

- To discuss the principles of scene management
- To enable EMRS to interact appropriately with other emergency services on scene
- To discuss types of entrapment and extrication methods

Background

Working in the prehospital environment is often challenging, usually in very different conditions to the controlled situation in which most doctors normally work. It is vital in these situations to have structured approach to the overall scene management.

In many cases other emergency services will already be on scene and an understanding of how these services function and how to interact with the different personnel is required.

**All doctors undertaking prehospital missions should attend one of the training days at the Strathclyde Fire & Rescue Technical Rescue Training Centre**

Application

EMRS Team members
SAS Airwing Paramedics
Policy

1. Prior to arrival on scene
   - If time allows there may be opportunity for discussion prior to arrival
   - If so, from the given information formulate a rough plan and allocate roles (e.g. if more than one casualty splitting the team)
   - If possible survey the scene from the air (it may be beneficial to ask the pilot to do one circuit overhead prior to landing). Use the opportunity to gain as much information as possible including an assessment of hazards.
   - Identify a landing site and how you will get from there to the incident scene
   - Once on the ground deplane safely (see SOP – Prehospital (HEMS) mission activation) and wait for all members of the team so that everyone arrives on scene at the same time
   - Don’t forget personal protective equipment (PPE) (see SOP – Safety at Scene) – you will need to put this on prior to entering the scene

2. Arrival at Scene
   - All team members should arrive simultaneously.
   - Do not be tempted to rush in and start assessing patients, it is much more valuable to stop and allow 10 seconds to briefly assess the scene and collect your thoughts.
   - Think in terms of safety first – always ask yourself if the scene is safe to approach and if not what needs to be done to make it safe?
   - Identify other emergency services on scene and who is in charge of each of the services.
   - The fire service has overall responsibility for scene safety. It is therefore vital that you speak to the lead fire officer to establish whether it is safe for you to enter the scene. The lead fire officer can be indentified either by his specific helmet (yellow with two black bands or white) or wearing a red coloured tabard with the words “Incident Commander”
   - Often you will be approached initially by a member of the ambulance service and given clinical information about number of casualties and injuries. If so introduce the team and ask to speak to the first crew on scene and get a handover from them
   - Once you have established that it is safe to approach the casualty and make an initial clinical assessment
   - If the casualty is trapped you may be asked by the fire service about the amount of time available for extrication. Alternatively you may wish to impart the urgency of extrication to the fire service. Communication should be done via the lead fire officer
3. Scene Management

All prehospital scenes can be thought of as mini-major incidents. Often at least one if not all three emergency services will be on scene. It is therefore essential that you understand the roles and responsibilities of these services on scene and have a structure approach to managing the scene.

- **Police** have overall responsibility for scene control and for gathering forensic evidence
- **Fire** service are responsible for scene safety and extrication of casualties
- **Ambulance** service are responsible for treating and transporting casualties

As with major incidents a CSCATT structured approach can be used

- **Command and Control**
  - establish who is in charge of each service
  - do not assume that you are taking over the medical management of the patient
  - discuss with the ambulance crews on scene prior to assuming command

- **Safety** (see SOP – Safety at Scene)
  - should be established at the outset and continuously re-evaluated
  - think in terms of self, team, patient and scene

- **Communication**
  - Ensure there is adequate and appropriate communication between the emergency services
  - Initial communication should be with lead fire officer to ensure scene safety
  - Use first name rather than title – people work more effectively as a team when on first name terms

- **Assessment**
  - think in terms of scene assessment and patient assessment
  - aim to empower the medical attendants rather than take over

- **Triage**
  - in multiple casualty situations assess priority by using triage sieve and sort
  - for individual patients triage to facility that can deal with all the patient’s injuries
  - DO NOT alter standard triage pathways unless clear indication to do so
• **Treatment**
  - aim is to enable rapid safe evacuation of the patient
  - only do the minimum required to ensure this, do not delay transfer for unnecessary procedures
  - the vast majority of ‘advanced procedures’ should be done after extrication

• **Transport**
  - Add 30 minutes to proposed flight time to establish total transfer time by air
  - If road transfer is <30 minutes this would be the preferred option
  - Non-ventilated patients should be GCS 15 if air transport is being considered

4. **Scene Safety at Road Traffic Crashes**

The following actions should be considered/performed by the police and fire service before treating casualties:

- Traffic flow stopped and roads closed where necessary to ensure scene safety
- Fuel/chemical leaks identified and dealt with by the fire service
- Vehicles stabilised/secured in position
- Ignition turned off +/- battery disconnected and handbrake applied on all vehicles involved
- Airbag restraints applied to protect from undeployed airbags (if available) – otherwise remain clear of undeployed devices

5. **Entrapment**

Entrapment is commonly encountered at the roadside and usually associated with extensive vehicle deformity with intrusion into the passenger compartment. This typically leads to problems with access to the patient both for assessment but also treatment. Inevitably full assessment and transfer to hospital is delayed and the patient may be exposed to hazards and the environment for a prolonged period of time.

There are 2 types of entrapment:

- Clinical (or relative) – the patient is ‘trapped’ as a result of their clinical state e.g. unconsciousness or a possible spinal fracture

- Physical (or absolute) – the patient is physically trapped due to deformity of the vehicle or failure of door locks to open

Often there is a combination of both types making extrication more difficult particularly where rapid or immediate extrication is deemed necessary.
6. Extrication Principles

This is the process of a freeing a trapped patient and subsequently removing them from the vehicle. Extrication is the responsibility of the fire service although relies on teamwork from all involved to make it as smooth and rapid as possible.

Identify the most senior fire fighter at scene by the colour and markings on their helmet. The most senior officer at scene will normally be wearing a white helmet (if above the rank of sub officer) and will take an overview of the whole incident. Often a sub officer (yellow helmet with 2 black bands) will lead the extrication.

It is important that the team establishes early contact with the fire officer leading the extrication to advise on the patient’s clinical condition and discuss the proposed method of extrication and likely duration. If during the extrication process the patient’s condition changes then the fire service should modify their technique accordingly.

There are 2 main methods of extrication:

- Immediate – this should only be considered where there is an immediate major risk to life e.g. uncontrollable vehicle fire or imminent patient demise. It involves literally dragging the patient out of the vehicle whilst attempting to maintain spinal control.

- Controlled – full spinal precautions are adhered to (cervical collar, head blocks and spinal board). The exact method of removal depends on vehicle configuration and damage.

Regarding extrication of casualties from vehicles the following points should be noted:-

- Helmets and eye protection should be worn at all times
- Whilst in or around a vehicle rescue gloves should also be worn
- Dust masks should be worn when the fire service is using cutting equipment
- Minimise medical interventions – only carry out what is absolutely necessary prior to extrication
- KEDs (Kendrick Extrication Devices) offer little spinal support, and are time-consuming to apply. They should not be used for the vast majority of extrications
- Cutting equipment is great at doing its job however it is also very noisy and will cut through monitor leads and limbs as easily as through metal!
- Be vigilant to hazards posed by broken glass and sharp metal edges
- Communication and teamwork is vital for a successful extrication

Remember that the fire and ambulance service are used to working in this kind of hazardous environment – take heed to any suggestions or advice they may have to offer!
7. Vehicle Extrication – Specifics

Although cars differ in their design, generic extrication techniques can be applied to most cars. The vehicles themselves have specific terminology relating to their design as below (fig 1).

![Vehicle Structure Diagram]

*Figure 1: Basic terminology relating to vehicle structure*

There are three common techniques used depending on the position of the car:

a) *Car on four wheels – Roof removal and dashboard roll*

This is the commonest type of extrication performed and is **easily achievable within 15 minutes**. The sequence is:

- A, B & C posts cut on both sides
- Roof lifted off
- Ram inserted from base of B pillar to dashboard area on A pillar (fig 2)
- Ram opened up leading to “hyper-extension” of car chassis/backbone with dashboard rolled away from / off patient.
- Seat reclined to full extent with patient held in upright position
- Extrication board (spinal board) slid down back of patient (fig 3)
- Patient and board lowered down onto back of seat
- Patient slid up board then lifted out
b) **Car on side – roof fold down**

- A, B & C posts cut on upper side of car
- Roof folded down (bending A, B & C posts on lower side of car) to lie on ground
- Extrication board slid down side of patient
- Patient rotated onto board then lifted out

c) **Car upside down – boot access**

- Access gained through rear of car (several techniques may be used to create space to achieve this)
- Extrication board slid under patient
- Seatbelt cut and patient lowered onto board in prone position
- Patient lifted/slid out on board

There are many other techniques of creating space around the patient (e.g. removing doors, removing gear levers, bending pedals, removing other panels from car etc) but whilst these may be required the overall aim of rapidly extricating the patient must not be forgotten.