



## **Aims:**

- Describe the general principles of scene management when patients are trapped
- Describe the general principles of extrication of a patient from a vehicle
- Define a performance standard for removal of a trapped patient from a vehicle on all 4 wheels

## **Background:**

Fire Services throughout the United Kingdom send officers to the Fire Service Training College at Morton-in-Marsh, Gloucestershire to train in extrication skills. These officers go back to local stations and set up extrication training based on the Morton model. The course typically lasts one or two weeks depending on whether it is for retained or full time fire fighters. HEMS personnel are often invited to join the course for one or two days to take part in practical extrication exercises.

No emergency group has the statutory responsibility to extricate patients from trapped wreckage. It is usual that the Police will secure the outer cordon of an incident and the Fire Service will take control of the inner cordon (the potentially hazardous area). There is national variation in the training and equipment directed at extrication provision in the UK. Not all Fire Services will send personnel to Morton as part of their training. Standards of extrication therefore vary considerably. Certain fire stations throughout the UK operate designated Rescue Tenders. Rescue Tender crews have extended training and carry specialised extrication equipment.

In 1994, a study of 737 road traffic collisions in the UK involving 90 entrapments showed that the average time taken to release a trapped patient was 44 minutes. This is sub-optimal and delays definitive medical treatment.

## **Policy:**

### **Training**

- Locally agreed policies for training of HEMS teams in extrication practices should be agreed
- Joint exercises with other emergency services has been found to be extremely valuable and any opportunities should be taken to participate in such training
- Poor liaison between emergency service commanders and lack of simultaneous activity on scene has been shown to delay extrication, and training should specifically address inter-agency communication in this regard

### **On Scene**

#### **Personal safety and PPE**

- Safety is paramount - helmets and eye protection should be worn at all times as well as high visibility clothing and additional safety equipment as deemed necessary (such as heavy duty protective gloves or ear protectors)
- When approaching the incident site, assess the safety of the scene in order to identify potential hazards (such as road closure, spillages, fire, glass, wreckage and vehicle stability). If attending the incident by air, the pilot will usually orbit the incident site prior to selection of a landing site. This provides the team with good overview of the scene, and hazards can be identified that may not be apparent from ground level
- Prior to entering the potentially hazardous area, introduce yourself to the senior fire fighter and specifically ask about potential hazards. The lead fire fighter will be wearing a white helmet and will often wear a 'Fire Incident Commander' tabard. A Fire Safety Officer may have been designated

## Medical assessment

- Once it is deemed safe to approach, liaise with the ambulance crew treating the patient, take a handover, establish the clinical needs of the patient and discuss the proposed method of extrication in relation to these needs
- Rapidly decide the urgency of extrication that is required:
  1. Immediate – the patient is at imminent risk of death or significant deterioration and should be immediately removed from the vehicle. This usually involves dragging the patient from the car by whatever means possible
  2. Controlled – spinal precautions are adhered to and an extrication plan (see below) is executed depending on the degree of damage to the car, the position of the patient in the vehicle, and the stability/location of the vehicle itself
- Medical interventions should be minimised. Monitoring leads can impede extrication attempts and delay the release of the patient so clinical judgment should dictate the extent of monitoring and intervention required for any given patient
- Administration of sedation or analgesia (typically ketamine) may be required
- If oxygen is used, it must be well clear when the fire fighters are making “hot” cuts

## Extrication process

- There will be a designated fire officer leading the extrication. The Fire Incident Commander will be in overall command but the specifics of the extrication process are usually delegated to this fire fighter
- There are two types of entrapment, which inform the proposed extrication plan
  1. Clinical – the patient is not physically trapped but their medical condition has prevented them from leaving the vehicle (for example, spinal injury or leg fractures)
  2. Physical – the patient is physically trapped by the wreckage
- Fire fighters will often have a 'B Plan' and an 'A Plan' – the 'B Plan' is decided first and is an emergency plan to remove the patient immediately should the need arise. Once the 'B Plan' is in place, the 'A Plan' is the gold-standard extrication for that circumstance with full space creation to allow access and removal with the necessary spinal precautions. Ultimately it is the responsibility of the senior clinician on scene to decide the urgency of extrication, and it is up to the Fire Incident Commander to ensure safe execution of the plan
- There are a number of extrication techniques employed by the Fire Service but the phases of any plan remain constant:
  1. Scene safety and early patient contact
  2. Vehicle stability and glass management
  3. Rapid entry to the vehicle and full access to the patient
  4. Early first cut/spread (B Plan)
  5. Full space creation (A Plan)
  6. Removal and transportation
- During the extrication process, contact should be maintained with the patient to provide reassurance and explanation, to ensure protection from noise/wreckage/glass/machinery, and to identify any clinical deterioration that mandates immediate extrication

## Performance Standard

As a performance standard to expect from the extrication team: patient trapped in a car that is on all 4 wheels with 360 degrees access should not be in the car for more than 15 minutes once extrication equipment is on scene