

Major Trauma

The incidence of major trauma is reducing mainly due to increasing safety of motor vehicles. To deal with major trauma a structured systematic approach is required to allow a better outcome for the patient particularly in the first hours of their injury. To allow this approach to occur ATLS guidelines are used in all cases of major trauma with an appropriately staffed team and a qualified team leader (see below).

3.1. The CRAMS score

To alert the department of patients with significant injuries The CRAMS score is used pre-hospitally by the ambulance staff. This score stands for Circulation, Respiration, Abdomen (& thorax), Motor and Speech. Each aspect is scored out of 2.

A score of 2 is normal, 1 is abnormal, 0 is absent.

Ten is the highest (=normal) score. **Any score of 6 or less indicates severe injury and more than 30% risk of death, and the Trauma Team must be called when the score is this low or lower.** At 7 the call is discretionary, but an A&E senior must be involved. Above 7 the Team is not usually required. Switchboard will summon the Trauma Team if you ask them; specify whether you want the neurosurgeons. Whatever the score, call for senior assistance if the patient is significantly traumatised.

3.2. Team approach in the department

The trauma team should ideally be **present and organised** before the patient arrives. For this to happen the following roles should be fulfilled:

- Team leader: This should be the most senior A&E Doctor on duty. It can be anyone delegated by this person as long as the team leader is at least an ATLS provider. Their job is to initially assess the A, B, C and coordinate the team to best manage the patient.
- Doc 1: to assist in the maintenance of the airway (ideally an anaesthetist)
- Doc 2: to assist in the maintenance of circulation by gaining IV access and arranging blood
- Doc 3: to perform the secondary survey as required
- Nurse 1: to assist in resuscitative measures
- Nurse 2: to assist in resuscitative measures

The team leader should delegate tasks to other members of staff if and when they arrive. This will include radiographers and other specialists.

3.3. Initial assessment

Airway with cervical spine control

Breathing

Circulation with haemorrhage control

Disability

Expose the patient

In the initial assessment of the A, B, C it is necessary to Integrate resuscitative measures, such that when a problem with the airway is discovered it is dealt with immediately .This will involve a team approach as outlined above .

- Pay attention to maintaining the airway (with cervical spine control), oxygenation and fluids until help arrives.
- Record the respiratory rate, Glasgow Coma Scale and systolic BP on all major trauma cases so that accurate audit can be carried out.
- Take blood immediately for grouping and x-matching and establish two good IV lines. Begin with Hartmann's solution or normal saline, up to 2 litres, but use blood after this. Ask for O negative blood if necessary. Group compatible blood is preferable in an emergency. A quick cross match takes 15 minutes. Haemorrhagic shock may be hard to detect especially in young patients, as the BP may be very late in dropping. Pallor, tachycardia, tachypnoea and poor urine output are all reliable early warning signs. Use the table below to determine which class of shock the patient is in.
- Always use the rapid blood warmer in significant blood loss.

Use the trauma form in the resuscitation room as it will help you to go through the primary and secondary surveys in a logical fashion.

Classes of haemorrhagic shock;

Class	% Blood loss (vol)	Sys BP	Pulse	Features	Management
I	10-15 (<750ml)	Normal	<100	Mild anxiety	2 drips. X match. Give crystalloid
II	15-30 (750-1500ml)	Usually normal	>100	Sweaty, Anxious	2 litre bolus of crystalloid
III	30-40 (1500-2000ml)	Drops	>120	Pallor Oliguria Aggressive	Cut down if nec. Cryst + blood immediately
IV	40%+ (>2000)	V low	>140	Confused Collapsed Anuria	Immediate surgery or death will occur

Secondary survey

This occurs when the patient is more stable. It is a meticulous head to toe examination carried out in coordination with X-rays that may be required . In patients who have multiple injuries, especially those who are unconscious, always X ray the cervical spine, chest and pelvis. It is essential to document ALL findings in the trauma patient not only for continuing medical care but also for forensic purposes.

All patients should have at least the following history:

- **Allergies**
- **Medication**
- **Past medical history**
- **Last meal**
- **Events**