

# South East of Scotland Major Trauma Centre Training and Education



## ICU Trauma Mechanisms of Injury and Injury Patterns

### Front impact RTC:

Bent steering wheel/dashboard knee imprint/windscreen  
bull's-eye fracture

- C-spine fracture
- Anterior flail chest
- Myocardial contusion
- Pneumothorax
- Traumatic aortic disruption
- Fractured spleen or liver
- Head injury
- Posterior fracture/dislocation of hip and/or knee
- Facial fracture



### Side impact RTC:

Contralateral neck sprain

- Head injury
- C-spine fracture
- Lateral flail chest
- Pneumothorax
- Traumatic aortic disruption
- Diaphragmatic rupture
- Fractured spleen, liver or kidney
- Fractured pelvis or acetabulum

### Rear impact RTC:

- C-spine injury
- Head injury
- Soft tissue injury to the neck

## Blunt Injury

### Ejection from vehicle:

Ejection from vehicle precludes meaningful prediction of injury patterns, but places patient at greater risk for virtually all injury mechanisms:

- C-spine injury
- Head injury
- Soft tissue injury to the neck



### Motor vehicle vs pedestrian:

- Head injury
- Traumatic aortic disruption
- Abdominal visceral injuries
- Fractured lower limbs/pelvis



### Fall from height:

- Head injury
- Axial spine injury
- Abdominal visceral injuries
- Fractured pelvis or acetabulum
- Bilateral lower limb fractures – including calcaneal fractures



## ICU Trauma Mechanisms of Injury and Injury Patterns

### Stab wounds:

#### Anterior chest:

Cardiac tamponade; haemothorax;  
pneumothorax; Haemopneumothorax

#### Left thoraco-abdominal:

Injury - Left diaphragm; Spleen;  
Haemopneumothorax

Abdomen: Abdominal visceral injuries

## Penetrating Injury

### Gunshot wounds:

Truncal and extremities  
High likelihood of injury  
Neurovascular injury  
Fractures  
Compartment syndrome

## Thermal Injury

### Thermal burns:

Circumferential eschar on  
extremity or chest

### Electrical burns:

Cardiac arrhythmias  
Myonecrosis

### Inhalation burns:

CO2 poisoning  
Upper airway swelling  
Pulmonary oedema