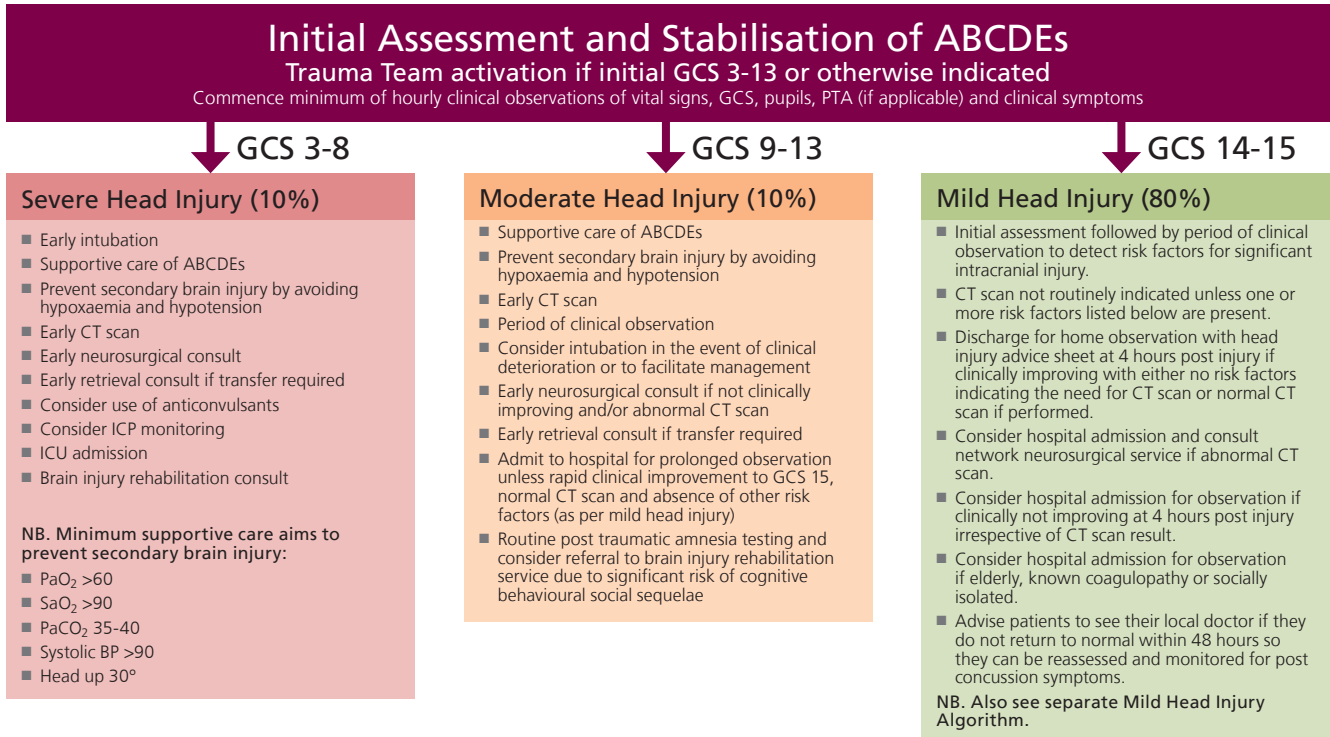


Algorithm 1:

Initial Management of Adult Closed Head Injury



Risk factors indicating potentially significant mild head injury		
<ul style="list-style-type: none"> ■ GCS <15 at 2 hours post injury ■ Deterioration in GCS ■ Focal neurological deficit ■ Clinical suspicion of skull fracture ■ Vomiting (especially if recurrent) ■ Known coagulopathy / bleeding disorder 	<ul style="list-style-type: none"> ■ Age >65 years ■ Post traumatic seizure ■ Prolonged loss of consciousness (>5 min). ■ Persistent post traumatic amnesia (AWPTAS <18/18)* ■ Persistent abnormal alertness / behaviour / cognition* ■ Persistent severe headache* 	<ul style="list-style-type: none"> ■ Large scalp haematoma or laceration.** ■ Multi-system trauma** ■ Dangerous mechanism** ■ Known neurosurgery / neurological deficit.** ■ Delayed presentation or representation**
* particularly if persists at 4 hours post time of injury **clinical judgement required		

What should be done when patients with closed head injury acutely deteriorate?	
<p>Early signs of deterioration</p> <ul style="list-style-type: none"> ■ Confusion ■ Agitation ■ Drowsiness ■ Vomiting ■ Severe headache <p>Late signs of deterioration</p> <ul style="list-style-type: none"> ■ Decrease in GCS by two or more points ■ Dilated pupil(s) ■ Focal neurological deficit ■ Seizure ■ Cushing's response – bradycardia and hypertension 	<p>Clinical approach</p> <ul style="list-style-type: none"> ■ Resuscitate ABCDEs and exclude non head injury cause ■ Supportive care of ABCDEs ■ Early intubation if indicated ■ Immediate CT scan ■ If clinical or CT evidence of raised ICP/mass effect consult with network neurosurgical and retrieval services re; <ul style="list-style-type: none"> - short term hyperventilation to PaCO₂ 30-35 - bolus of mannitol (1g/kg) - local burr holes/craniectomy when more than 2 hours from neurosurgical care - prophylactic anti-convulsants

When should patients with closed head injury be transferred to hospitals with neurosurgical facilities?	
<p>Potential indications</p> <p>Patient with severe head injury</p> <p>Patient with moderate head injury if:</p> <ul style="list-style-type: none"> ■ clinical deterioration ■ abnormal CT scan ■ normal CT scan but not clinically improving ■ CT scan unavailable. <p>Patient with mild head injury if:</p> <ul style="list-style-type: none"> ■ clinical deterioration ■ abnormal CT scan ■ normal CT scan but not clinically improving within 4-6 hours post injury ■ mild head injury with CT scan unavailable, particularly if: <ul style="list-style-type: none"> - Persistent GCS<15 - Deterioration in GCS - Focal neurological deficit - Clinical suspicion of skull fracture - Persistent abnormal mental status - Persistent vomiting - Persistent severe headache - Known coagulopathy (particularly if age >65 or INR >4) 	<p>Clinical approach</p> <ul style="list-style-type: none"> ■ When in doubt consult you network neurosurgical service. ■ Patients with closed head injuries should be observed in facilities that can manage any complications that are likely to arise. Clinical judgment regarding risk of deterioration is required and neurosurgical consultation may be appropriate. ■ Patients with closed head injuries should be transferred to the nearest appropriate hospital with neurosurgical facilities if there is significant risk of intracranial injury. The transfer of patients to hospitals with CT scan facilities but without neurosurgical services should be avoided.

AMRS (adult)	1800 650 004
formerly the MRU	
NETS (children)	1300 362 500
Network neurosurgical service	<input style="width: 100px; height: 20px;" type="text"/>