

## NET-Trial additional File 1: overview of criteria for CT scanning in adults.

&	MAA NSW [1] and NSW ITIM [2]	SIGN [3]	NICE [4] and NZGG [5]	ACEP/CDC [6]	Canadian CT Head Rule (CCTHR) [7]	New Orleans Criteria (NOC) [8]	NEXUS-II criteria [9]	CT in Head Injury Patients (CHIP) criteria [10]
<b>Age</b>	√ (>65) <sup>#</sup>	√ (≥65) IF LOC/amnesia	√ (≥65) IF LOC/amnesia	√ (≥65) <b>OR</b> >60 IF LOC/amnesia	√ (≥65) IF LOC / amnesia / witnessed disorientation	√ (>60) IF LOC/amnesia	√ (≥65)	√ (≥60) <b>OR</b> 40-60 (minor <sup>^</sup> )
<b>GCS score</b>	√ (<15 2 hrs post-injury) <b>OR</b> Deteriorating GCS <b>OR</b> Persistent abnormal alertness / behaviour / cognition	√ (<15 2 hrs post-injury <b>OR</b> after 1 hr of obs) <b>OR</b> Deteriorating level of consciousness	√ (<15 2 hrs post-injury)	√ (<15)	√ (<15 2 hrs post-injury) IF LOC / amnesia / witnessed disorientation	Their definition only included patients with GCS 15	Abnormal alertness / behaviour	√ (<15) <b>OR</b> Deteriorating GCS (≥2 points (1 hr after presentation)) <b>OR</b> Deteriorating GCS 1 point 1 hr after presentation (minor) √ (PTA ≥ 4 hrs)
<b>Amnesia</b>	Anterograde or retrograde >30 mins ([1] only) <b>OR</b> Persistent abnormal A-WPTAS score (<18 4 hrs post-injury)	√ (retrograde >30 mins)	√ (for events > 30 mins before impact)	√ (deficits in short term memory IF LOC/amnesia)	√ (before impact ≥ 30 mins) IF LOC / amnesia / witnessed disorientation	√ (deficits in short term memory - anterograde) IF LOC/amnesia		<b>OR</b> persistent anterograde (minor) <b>OR</b> PTA of 2 to 4 hrs (minor)
<b>Suspected skull fracture</b>	√ Clinical suspicion of skull fracture	√ (basal, depressed or penetrating)	√ (open or depressed <b>OR</b> signs of basal)	√ (physical signs of basilar)	√ (open or depressed <b>OR</b> any sign of basal) IF LOC / amnesia / witnessed disorientation		√	√ (Clinical signs)
<b>Vomiting</b>	√ (≥2) [1] √ (especially if recurrent) [2]	2	√ (>1)	√	√ (≥2) IF LOC / amnesia / witnessed disorientation	√ IF LOC/amnesia	√ (persistent)	√
<b>Coagulopathy</b>	√ (e.g. Warfarin; alcoholic)	√ IF LOC/amnesia/ neurological feature	√ IF LOC/amnesia	√	Exclusion criterion for applicability rule	Not evaluated due to low numbers of patients with coagulopathy	√	√ (use of therapy)
<b>Post traumatic seizure</b>	√ (prolonged, focal or delayed)	√	√	√ IF LOC/amnesia		√ IF LOC/amnesia		√
<b>LOC</b>	√ (>5 mins)	√	√	√				√ (minor)
<b>Focal neurological deficit</b>	√	√	√	√			√	√ (minor)
<b>Headache</b>	√ (persistent, severe)	√ (severe and persistent)		√ IF LOC/amnesia <b>OR</b> severe √ IF LOC/amnesia		√ IF LOC/amnesia		
<b>Drug and alcohol intoxication</b>	√ (clinically obvious) [1] only					√ IF LOC/amnesia		
<b>Trauma</b>	√ (multi-system) <sup>#</sup> <b>OR</b> Large scalp hematoma or laceration ([2] only) <sup>#</sup>			√ (visible, above clavicle IF LOC/amnesia) (Multi-system trauma is exclusion criterion)		√ (visible, above clavicle) IF LOC/amnesia	√ (scalp hematoma)	
<b>Dangerous \$ mechanism of injury</b>	√ <sup>#</sup>	√	√ IF LOC/amnesia	√	√ IF LOC / amnesia / witnessed disorientation			√ <b>OR</b> fall any elevation (minor) √ (contusion skull (minor))
<b>Other</b>	√ (Known neurosurgery / neurological impairment) <sup>#</sup> √ (Delayed presentation or re-presentation) <sup>#</sup>							

# [1] notes that clinical judgement is required with these criteria; ^ [10] Minor = CT only indicated in the presence of at least 2 minor criteria

#### & Entry criteria / description of population

- [1] Guideline relevant for adults who sustain a mechanical injury or blow to the head from external forces (excluding complicated closed head injury; moderate/severe TBI; acquired brain injury; cerebral haemorrhage; skull fracture). Criteria include: 1) one or more of the following: confusion or disorientation, LOC <30 mins, PTA <24 hrs, and/or transient neurological abnormalities e.g. focal signs, seizures, intracranial lesions not requiring surgery; 2) GCS 14 or 15 at 30 mins post-injury or later upon presentation for health care; 3) GCS 13 at 30 mins post-injury or later upon presentation for health care and a normal CT scan. These manifestations must not be due to alcohol, drugs, medications and caused by other injuries.
- [2] Patients with initial GCS score of 14 or 15 on arrival at hospital following acute blunt head trauma (with or without a definite history of LOC or amnesia).
- [3] Patients with a history of a blow to the head or the presence of a scalp wound or those with evidence of altered consciousness after a relevant injury. Mild defined as GCS 13 to 15.
- [4] Any trauma to the head – other than superficial injuries. Mild defined as GCS 13 to 15.
- [5] TBI defined as acute brain injury resulting from mechanical energy to the head from external physical forces. Operational criteria include: confusion or disorientation; LOC; PTA; other neurological abnormalities such as focal neurological signs, seizure and / or intracranial lesion. These manifestations must not be due to alcohol, drugs, medications and caused by other injuries. Mild defined as GCS 13 to 15.
- [6] Inclusion criteria for relevance of guidance are: non-penetrating trauma to the head, presentation to the ED within 24 hrs of injury, GCS 14 or 15 on initial evaluation in ED, age 16 or greater. Exclusion criteria include: penetrating trauma; patients with multi-system trauma; GCS < 14 on initial evaluation in the ED, and age < 16 years.
- [7] Minor head injury defined as witnessed LOC, definite amnesia, or witnessed disorientation in patient with GCS 13 to 15
- [8] Minor head injury defined as LOC in patients with normal findings on brief neurological exam and GCS 15. LOC defined as witnessed or patient unable to remember the traumatic event.
- [9] Blunt head trauma patients – sub-population ‘minor’: GCS 15
- [10] Minor head injury patients defined as blunt injury to the head who have a normal or minimally altered level of consciousness on presentation (GCS 13 to 15 and max LOC 15 mins and PTA max 60 mins)

#### § Definitions regarding dangerous mechanisms

- [1, 2] Motor vehicle accident ejection / roll-over; pedestrians / cyclist hit by vehicle; falls > own height or five stairs; falls from horses / cycles etc.; focal blunt trauma, e.g. bat / ball / club.
- [3] Pedestrian struck by motor vehicle, occupant ejected from vehicle, significant fall from height, or significant assault (e.g. blunt trauma with weapon)
- [4, 5] Pedestrian struck by motor vehicle, occupant ejected from vehicle, or fall from height of greater than one metre or five stairs
- [6] Ejection from motor vehicle, a pedestrian struck, fall from a height > 3 feet or 5 stairs
- [7] Pedestrian struck by vehicle, occupant ejected from motor vehicle, fall from elevation ≥ 3 feet or 5 stairs
- [10] Pedestrian or cyclist versus vehicle OR ejected from vehicle

#### List of abbreviations

A-WPTAS, Abbreviated Westmead Post Traumatic Amnesia Scale; CT, Computed Tomography; ED, Emergency Department; GCS, Glasgow Coma Scale; hr(s), hour(s); LOC, Loss Of Consciousness; (m)TBI, (mild) Traumatic Brain Injury; mins, minutes; PTA, Post Traumatic Amnesia;

#### References

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