the children's hospital at Westmead

TRAUMA ATTEND: CODE BRAIN - CHW

PRACTICE GUIDELINE ©

DOCUMENT SUMMARY/KEY POINTS

Trauma Attend - Code Brain:

- Is activated when a patient with an acute traumatic intracranial injury requires possible transfer to theatre for immediate life-saving surgery
- Is activated as soon as a moderate or severe intracranial injury is considered *highly likely* in an otherwise stable patient. This may be **PRIOR** to patient arrival in Emergency
- Can **only** be activated by the Emergency Consultant/Fellow
- Can **only** be overturned by the Emergency Consultant/Fellow

This document describes the steps involved to coordinate a "Trauma Attend: Code Brain".

Ideal Call sequence is:

1. Upon ambulance notification send page **Trauma Attend: Code Brain**: Expected Time of Arrival (ETA) at 0000 (2400clock). Neurosurgical and Radiology senior on call to be notified.
2. Patient received by Trauma Team in Resuscitation Area and assessed/stabilised as per Trauma guidelines. Send page if not already sent. Update Radiology team.
3. Patient transferred to medical imaging *ideally within 30 minutes* for CT head
4. If patient requires immediate neurosurgery then transferred directly from medical imaging to operating theatre

This document reflects what is currently regarded as safe practice. However, as in any clinical situation, there may be factors which cannot be covered by a single set of guidelines. This document does not replace the need for the application of clinical judgement to each individual presentation.

Approved by:	SCHN Policy, Procedure and Guideline Committee	
Date Effective:	1st April 2021	**Review Period**: 3 years
Team Leader:	Staff Specialist	**Area/Dept**: Emergency - CHW

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This Guideline may be varied, withdrawn or replaced at any time.

CHANGE SUMMARY

- N/A - New document

READ ACKNOWLEDGEMENT

- Local manager in clinical areas to determine which staff are to read and acknowledge the document.

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Trauma Attend: Code Brain

What is Trauma Attend: Code Brain?

- Used to activate the process for urgent transfer of a patient with a moderate or severe intracranial injury potentially requiring emergency surgery from the Emergency Department to Medical Imaging +/- Operating Theatres.

Aim

- To help staff identify and manage paediatric trauma patients with a potentially significant head injury in a consistent, efficient, safe and timely manner.
- Early notification of senior staff and relevant teams to ensure unhindered access to imaging and theatres
- Reduced door to imaging/theatre time
- Improved standardisation of initial care delivered to these patients

Criteria for Activation

As soon as the patient is identified as highly likely to have:

- Isolated moderate or severe head injury OR
- Moderate/severe head injury with other system injuries that do not require immediate intervention and do not impact on airway/breathing/circulatory functioning.
- Head injury stratification by Glasgow Coma scale (GCS)

  Mild: GCS 14-15

  Moderate: GCS 9-13

  Severe: GCS 3-8

Activation

Page is sent out through 2222 as **'Trauma Attend: Code Brain'**

Trauma Code Brain can be activated for a patient:

Prior to patient arrival in ED:

- By ED Consultant/Fellow when ambulance 'BAT-phone' consistent with child *highly* likely to have significant ISOLATED intracranial injury (i.e. intubated for head injury pre-hospital or traumatic head injury with GCS ≤13 or P/ U on AVPU).
- Patient management reverts to 'Trauma Attend' if polytrauma or criteria for activation is not met.

After patient arrival in ED:

- At any time by ED Consultant/Fellow as directed by standardised ED Trauma Guideline

This Guideline may be varied, withdrawn or replaced at any time.

Trauma Attend: Code Brain can only be *activated* by the *ED Consultant/ Fellow*

Trauma Attend: Code Brain can only be *overturned* by the *ED Consultant/ Fellow*

Protocol

1. A member of staff in ED will call switch on 2222 and state "Trauma Attend: Code Brain in Emergency Department at 0000 (24hour clock)"
2. Switch: Activates "Trauma Attend: Code Brain". The paging system alerts the following teams/departments external to ED: Trauma, Anaesthetics, Operating theatre, Paediatric Intensive Care Outreach Service (PICOS), Radiographer and Social Work.
3. ED senior or delegate
    i. Notifies On call Neurosurgery registrar
    ii. Notifies On call Radiology registrar/fellow (In hours only)
4. Initial care and stabilisation is initiated.
5. Medical imaging procedure is initiated
6. Patient is transported to CT scan post Trauma survey and stabilisation.
7. ED team to handover patient to Operating Theatre team or PICU after disposition is determined in collaboration with Neurosurgery and Trauma teams.

   Refer to **Trauma Attend: Code Brain Action plan** for further information

Initial Care and Stabilisation

1. Primary and Secondary Survey.
2. Order CT head on FirstNet.
3. Intubation using Trauma Rapid Sequence Induction (if GCS <8, ongoing seizure, deteriorating conscious level or ABC problems identified) to be undertaken prior to transfer to CT
4. All efforts should be directed to transferring patient immediately to imaging/theatres with no unnecessary delays
5. ONLY immediate life or limb-saving interventions are undertaken
6. Supportive neuroprotective measures:
    - Provide sufficient analgesia (morphine/fentanyl)
    - Maintain O2 saturations >98% with supplemental O2
    - Maintain arterial PCO2 35-40mmHg
    - Maintain blood sugar in normal range (with IV glucose if required)
    - Maintain temp in normal range (<37.5°C) with blankets and overhead lamps as needed. Avoid hyperthermia

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- Maintain systolic BP >95th centile for age with fluids/vasopressors

<1 year	>80mmHg
1-5yrs	>90mmHg
5-14yrs	>100mmHg
>14yrs	>110mmHg

- Head up 30 degrees (if no thoracolumbar injury suspected – tilt whole bed if concerns) and neck in midline position
- If evidence of raised intracranial pressure (posturing, abnormal pupillary response, Cushing's Triad - abnormal breathing pattern, bradycardia, hypertension)
  - Commence hyperosmolar therapies - Hypertonic Saline or Mannitol as per Meds4Kids Dosing Guide (M4K)
  - Consider analgesia bolus (plus sedation and paralysis if intubated)
  - Hyperventilate to end tidal CO2 30-34mmHg (correlate with PCO2)
- If seizures (note focal of greater concern than generalized)
  - Check for hypoglycaemia
  - Commence antiepileptic therapy as per SCHN seizure guidelines

Medical Imaging Procedure

1. Radiology on call notified of case in hours.
2. Radiology on call expedites CT scan availability with radiographer.
3. Radiology team on call notifies ED Medical Team Leader (Ext 52454) of CT scan timing.
4. Medical Imaging receives the CT Head order on FirstNet
5. Out of hours – radiographer receives pager and informs ED Medical Team leader of CT scan timing.

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Trauma Attend: Code Brain Action Plan

Definition:

- A patient with acute moderate or severe head injury potentially requiring emergency neurosurgery

Criteria for Trauma Attend: Code Brain:

- **Head injury**
  - Isolated moderate or severe head injury (GCS<14)
  - Moderate/severe head injury with other system injuries that do not require immediate intervention and do not impact on airway/breathing/circulatory functioning.
- **Trauma Attend: Code Brain can only be activated by the ED Consultant/Fellow**
- **Trauma Attend: Code Brain can only be overturned by the ED Consultant/Fellow**

BAT Call received or Patient arrival to ED

Activator notifies Switchboard **Call 2222 Trauma Attend: Code Brain**
ED team to inform Neurosurgery and Radiology (0800-2300) 1st on call

Switchboard

Activates ***TRAUMA ATTEND: CODE BRAIN to ED – Resus Bed – ETA***
Page Alerts: ED Medical & Nursing seniors, Trauma, Anaesthetics, Operating theatre, PICOS, Radiographer and Social Work

ED Trauma Management

Primary & Secondary survey
Stabilise ABC
Order CT Head +/- other
Send FBC, EUC, Coagulation screen, G+H
Commence Neuroprotective measures

Medical Imaging

Urgently organize CT scan
Receive CT Head request on FirstNet
Liaise with Emergency regarding CT timing

Transport patient to CT scanner (ideally within 30 mins)

Disposition plan: ED Team handover to OT or PICU

This Guideline may be varied, withdrawn or replaced at any time.

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