Head injuries in Children

Assessment:

Full history and examination as per ATLS / APLS guidelines

Imaging - see Network Guideline for Trauma Imaging – Head and Neck Trauma

Consider safeguarding and document history prior to transfer.

Referral:

Patient presenting to Trauma Unit or Local Emergency Hospital ED.

When to involve a neurosurgeon:

· Discuss the care of all patients with new abnormalities on imaging with a neurosurgeon.

· Regardless of imaging, discuss with neurosurgery if there is:

- Persisting reduced GCS after initial resuscitation
- Unexplained confusion for more than 4 hours
- Deterioration in GCS after admission – pay greater attention to motor response
- Focal neurological signs
- Seizure without full recovery
- Definite or suspected penetrating injury
- CSF leak
- Continuing signs of significant head injury (e.g. persistent vomiting, severe headache).

Patients presenting to JCUH MTC See appendix 1 or North Tees TU see appendix 2

Transfer to MTC ED when:

- There is a need for level 2 or 3 care.
- Both teams agree that the patient requires involvement from the neurosurgery team to prevent further deterioration.

Transfer:

Follow NTN Secondary Transfer Pathway

Patient presenting to MTC.

ED team to assess head injury and scan if indicated.

Discussion with the on-call registrar for neurosurgery if:

·There are new abnormalities on imaging

· Regardless of imaging, there is:

- Persisting reduced GCS after initial resuscitation
- Unexplained confusion for more than 4 hours
- Deterioration in GCS after admission – pay greater attention to motor response
- Focal neurological signs
- Seizure without full recovery
- Definite or suspected penetrating injury
- CSF leak
- Continuing signs of significant head injury (e.g. persistent vomiting, severe headache).

Admission under neurosurgery at RVI if:

- There is a head injury requiring surgical intervention, e.g. evacuation of mass lesion, ventricular drainage, decompressive craniectomy, elevation of depressed skull fracture, ICP monitoring or PICU support
- There is clinical risk of acute deterioration and need for close observation

Patients who do not need to be admitted under neurosurgery, either in a TU or MTC, should be admitted under the general paediatric team for a period of observation.

Observation as per NICE Guidance NG232:

Ensure that in-hospital observation of people with a head injury is only done by professionals competent in assessing head injuries.

For people admitted for head injury observation, the minimum acceptable documented neurological observations are: GCS score, pupil size and reactivity, limb movements, respiratory rate, heart rate, blood pressure, temperature and blood oxygen saturation.

Carry out and record observations on a half-hourly basis until there is a GCS score of 15. Observations for people with a GCS score of 15 should start after the initial assessment in the emergency department and the minimum frequency should be:

- half-hourly for 2 hours, then
- 1 hourly for 4 hours, then
- 2 hourly

Revert to half-hourly observations and follow the original frequency schedule for people with a GCS score of 15 who deteriorate at any time after the initial 2-hour period.

Urgently reassess a person with a head injury if they have any of these signs of neurological deterioration:

- agitation or abnormal behaviour
- a sustained (that is, for at least 30 minutes) drop of 1 point in GCS score (give more weight to a drop of 1 point in the motor response score of the GCS score)
- any drop of 3 or more points in the eye opening or verbal response scores of the GCS score, or 2 or more points in the motor response score
- severe or increasing headache, or persistent vomiting
- new or evolving neurological symptoms or signs such as pupil inequality or asymmetry of limb or facial movement.

A supervising doctor should do the appraisal.

Discharge:

Patients may be discharged after a normal CT scan or a period of observation as long as:

- GCS 15
- Parents /carers given appropriate discharge information:
    - Head injury information and information on post concussive symptoms. Available on Healthier Together North East (www.nenc-healthiertogether.nhs.uk)
    - Direct to the Child Brain Injury Trust (CBIT) app (CBIT in Hand) or CBIT website (childbraininjurytrust.org.uk) for further information and support.
- There is suitable care and supervision at home
- There are no ongoing safeguarding concerns

Information/Follow up from RVI MTC will include:

Documentation including mechanism of injury, history, examination and investigations sent to GP and family.

School Fit Note prepared for school and family (see separate School Fit Note guidance).

Paediatric Major Trauma Rehab Team telephone review at 2 weeks and 3 months post injury for patients >5years (admitted to GNCH only)

Neurosurgical follow up as per individual consultant.

Neurology follow up in the acquired brain injury clinic if:

1. Child/YP had an inpatient stay under the neuro rehabilitation team due to their brain injury
2. Child/YP has a traumatic brain injury with parenchymal injury on scan **and** a period of prolonged encephalopathy

General Paediatric or Community Paediatric follow up:

- Child <1y with moderate to severe head injury.
- No routine follow up with General Paediatrics - advice given around post concussive symptoms, red flags. Advise to see GP if prolonged symptoms, or present acutely to ED if there is acute deterioration.

Author	Christopher Cowie Becky Tweddle Anna Brough
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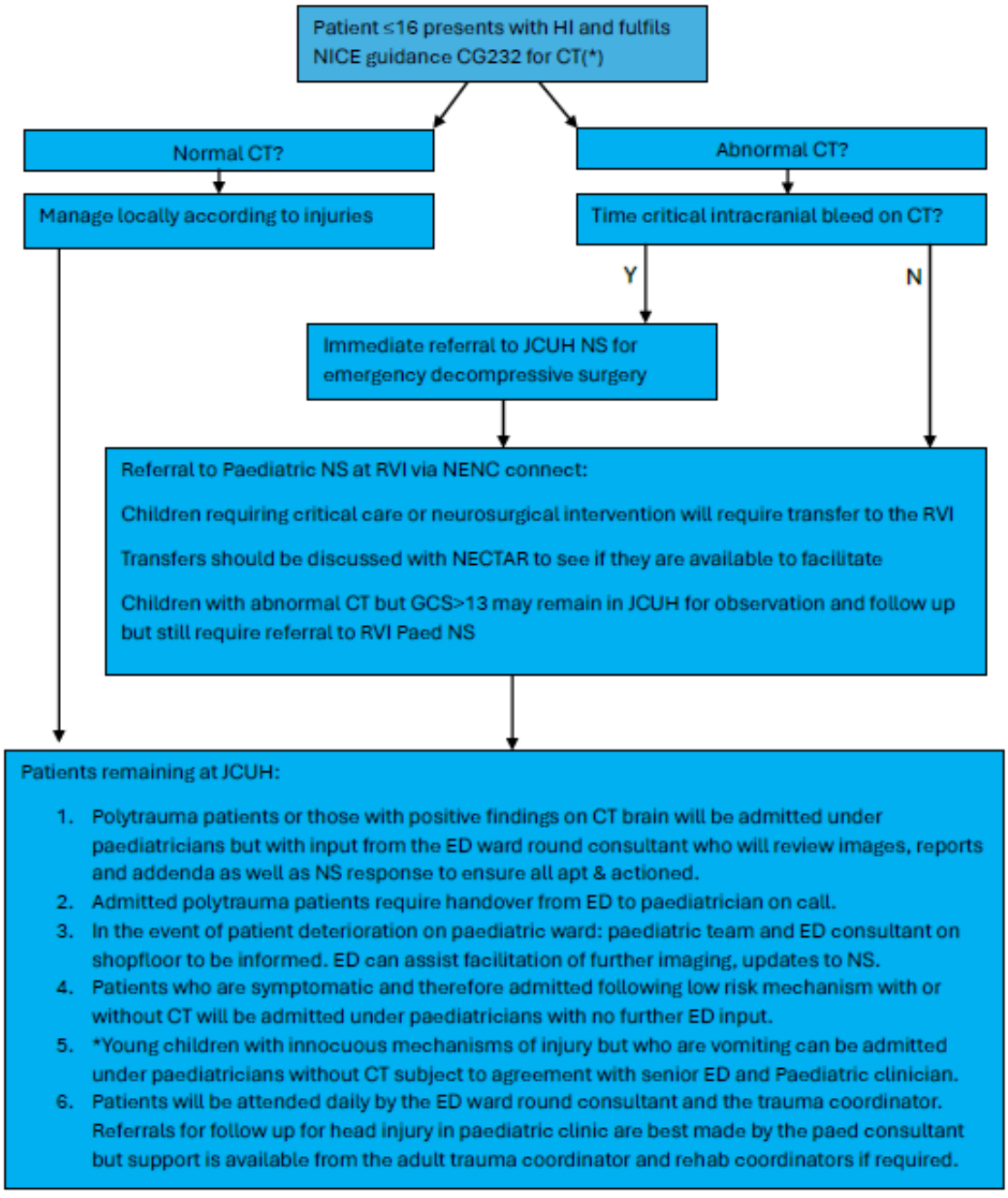
Related Information	
Updates:	

Appendix 1

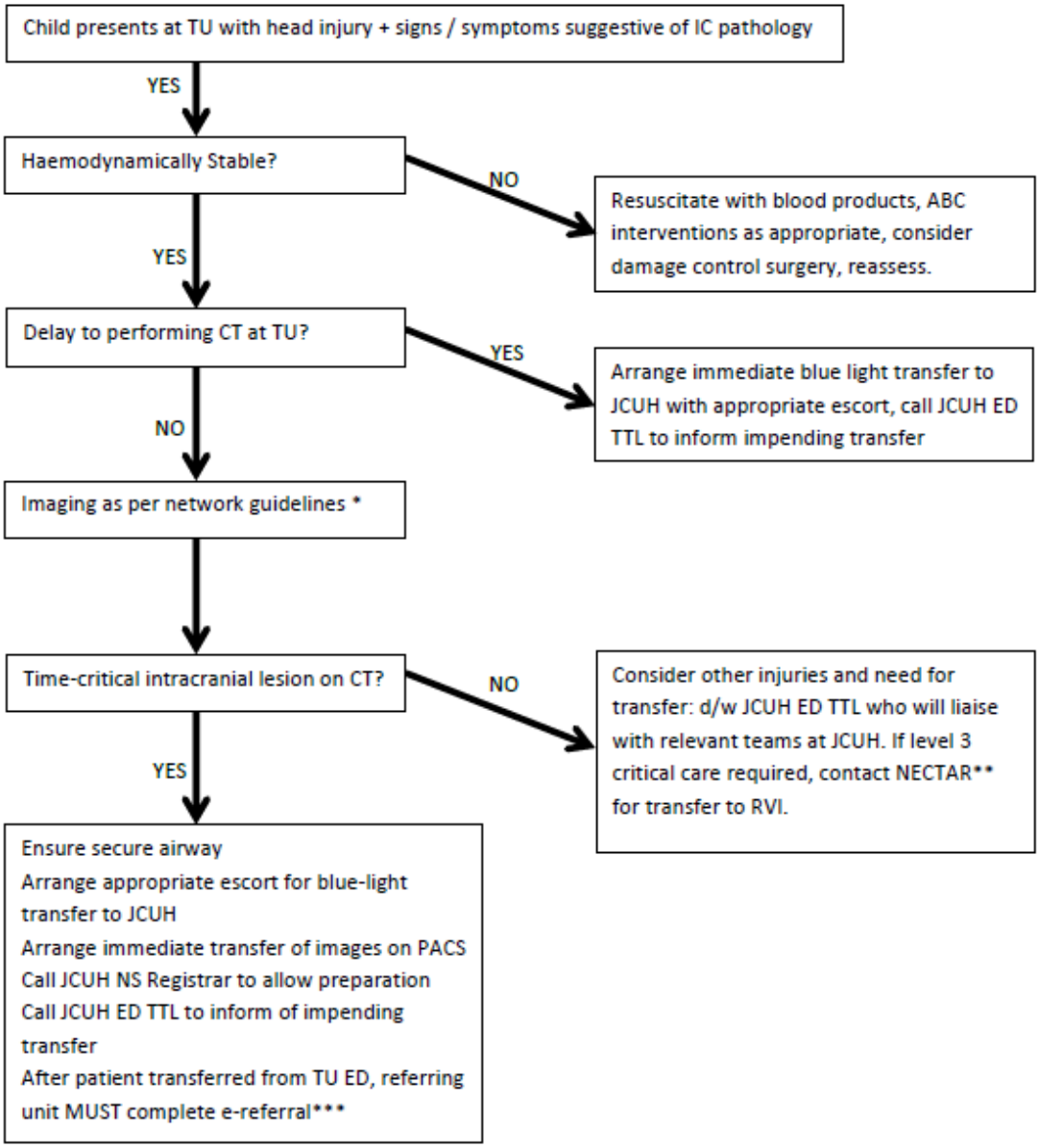
PAEDIATRIC HEAD INJURY AT JCUH



Laura Evans August 2024

Appendix 2

Child with Head Injury at North Tees



Contact numbers:
JCUH ED TTL: 01642 850 850 extn 56477 (no direct external line)
JCUH NS SpR: 01642850850 "neurosurgical registrar"

*taken from NICE recommendations & RCR "trauma in children" guideline

**NECTAR contact number: 0191 2826699

*** NENC connect

Laura Evans Sept 2022