

# LRI Children's Hospital

## Neurological Observation Following Minor Head Injury in Children

Staff relevant to:	Nurses and clinicians working within the Children's Hospital caring for Children who have experienced a minor head injury.
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### **1. Introduction and who this guideline applies to**

To provide guidance for nurses and nurse associates undertaking neurological observation within the Children's Hospital following minor head injury Glasgow Coma Scale (GCS) 12-15.

Nurses must have completed the 'Clinical Competencies for Registered Nurses' section titled 'Neurological assessment of Infant/Child' to undertake neurological observations independently.

Nursing associates must have completed the 'Clinical Competencies for Registered Nursing Associates' section titled 'Neurological assessment of Infant/Child' to undertake neurological observations independently.

Student nurses and student nursing associates, who have been assessed by their mentor as competent, may also carry out this task under the supervision of a registered nurse.

For Emergency Department guidance please refer to SOP C141/2016 [Time-Critical Transfer of the Sick or Injured Child UHL Paediatric Emergency Department Guideline](#)

This guideline is not for use in cases of infants dropped in hospital – please see [Accidentally Dropped Baby UHL Childrens Hospital Guideline](#)

This guideline will follow the recommendations made in the Nice Pathway: Observations of patients with head injury in hospital (2021). Further supporting evidence will be added where necessary.

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## **2. Person with head injury admitted to hospital for observation**

Patients, who have sustained a head injury, will be admitted to the Children's Hospital for observation and continuing care. The below are examples of reasons the patient with a head injury will be required to be admitted.

- Patients with new, clinically significant abnormalities on imaging.
- Patients whose GCS has not returned to 15 after imaging, regardless of the imaging results.
- When a patient has indications for CT scanning but this cannot be done within the appropriate period, either because CT is not available or because the patient is not sufficiently cooperative to allow scanning.
- Or because if in the clinicians opinion, the risk of CT scan is higher than the risk of the serious brain injury and observation is a reasonable balanced approach
- Continuing worrying signs (for example, persistent vomiting, severe headaches) of concern to the clinician.
- Other sources of concern to the clinician (for example, drug or alcohol intoxication, other injuries, shock, suspected non-accidental injury, meningism, cerebrospinal fluid leak).

## 2.1 Making observations

### Resources:

Neurological assessment charts are available on nervecentre. If these cannot be accessed use the Children's Hospital neurological observation chart which includes information appropriate to child's age/stage of development (appendix 1)

### Monitoring equipment:

Blood pressure monitor, pen torch, thermometer, clock/watch with second hand, oxygen saturation monitor.

The minimum acceptable neurological observations are:

Glasgow Coma Score (GCS)

Pupil size and reactivity

Limb movements

TPR, BP and oxygen saturations

<p><b>Check</b> Establish knowledge of the child in normal circumstances</p>	<p>Behaviour, sleep pattern, colour, limb weaknesses, pre-existing medical conditions. Sustained any other injuries, ingested any medication e.g. narcotics or sedatives</p>
<p><b>Observe</b> Neurological status, vital signs and patient condition</p>	<p>Complete a neurological assessment including pupil reaction and document all findings on nervecentre. If electronic devices not available then document on the Children's Hospital neurological monitoring chart (appendix 1)</p> <p>Score neurological observation accurately to enable trends for improvement or deterioration.</p> <p>Document accurate vital signs, on nervecentre or on an age appropriate PEWS chart, including TPR, SaO2 and BP with each set of observations.</p>
<p><b>Monitor</b> Frequency schedule</p>	<ul style="list-style-type: none"> <li>• GCS &lt; 15 monitor every 30 minutes</li> <li>• GCS = 15 monitor every 30 minutes for 2 hours, every 60 minutes for 4 hours and 2 hourly thereafter.</li> <li>• Increase to every 30 minutes if GCS deteriorates to less than 15. Restart above frequency schedule following any deterioration.</li> <li>• See section 3 for guidance on doctor review should concerns arise.</li> <li>• Frequency of observations may change following a CT, see section 4.</li> </ul>

## 2.2 Patient changes during observation that need review

**If at any point the GCS changes in any way or you or the parents are concerned by changes, examples below, an urgent review by the supervising doctor should be requested.**

- Development of agitation or abnormal behaviour
- A sustained (that is, for at least 30 minutes) drop of 1 point in GCS score (greater weight should be given to a drop of 1 point in the motor response score of the GCS).
- Any drop of 3 or more points in the eye-opening or verbal response scores of the GCS, or 2 or more points in the motor response score.
- Development of 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.

To reduce inter-observer variability and unnecessary referrals, a second member of staff competent to perform observation should confirm deterioration before involving the supervising doctor. This confirmation should be carried out immediately. Where a confirmation cannot be performed immediately (for example, no staff member available to perform the second observation) the supervising doctor should be contacted without the confirmation being performed.

**This should be escalated to the nurse in charge and the doctor as appropriate. Immediate action should be taken, it is not appropriate to see if they are better in 30mins/ hour.**

## 2.3 When further imaging is needed

If any of the changes noted in section 2.2 are confirmed, an immediate CT scan should be considered.

If a normal CT scan has been reported but GCS equal to 15 after 24 hours has not been achieved this may require further imaging. If after 24 hours the GCS is still below 15 this will need to be escalated to the nurse in charge and supervising doctor.

## 2.4 Discharge after observation

Patients may be discharged when they have normal levels of consciousness, after all significant symptoms and signs have resolved and providing they have suitable supervision arrangements at home.

Do not discharge patients presenting with head injury until they have achieved GCS equal to 15 or normal consciousness as assessed by the modified GCS, as per the frequency schedule (see page 3)

On discharge, ensure family receive verbal and written advice on observation at home and when to seek further advice – please follow link for information leaflet [yourhealth.leicestershospitals.nhs.uk/library-caring-for-your-child-after-they-have-hurt-their-head](http://yourhealth.leicestershospitals.nhs.uk/library-caring-for-your-child-after-they-have-hurt-their-head) . Printed advice for patients, families and carers should be age-appropriate and include:

- Details of the nature and severity of the injury.
- Risk factors that mean patients need to return to the emergency department
- A specification that a responsible adult should stay with the patient for the first 24 hours after their injury.
- Details about the recovery process, including the fact that some patients may appear to make a quick recovery but later experience difficulties or complications.
- Contact details of community and hospital services in case of delayed complications.
- Information about return to everyday activities, including school, work, sports and driving.
- Details of support organisations.

Inform patients and their families and carers about the possibility of persistent or delayed symptoms following head injury and whom to contact if they experience on-going problems.

### **3. Education and Training**

Medical, nursing and other staff caring for patients with head injury admitted for observation should all be capable of performing the observations.

The acquisition and maintenance of observation and recording skills require dedicated training and this should be made available to all relevant staff.

Specific training is required for the observation of infants and young children.

### **4. Supporting References**

Ferguson-Clark L and Williams C (1998) *Neurological assessment in children*, Paediatric Nursing 10(4) 29-35

Mallett B (1999) *The Royal Marsden NHS Trust of Clinical Procedures*. 4<sup>th</sup> edition Blackwell Science, London

Mooney G and Comerford D (2003) *Neurological observations* Nursing Times 99(17) 23-24



# Appendix 1 Copy of Neurological observation chart

## Neurological Observation Chart

Name		Unit No	Ward	Date
<b>Glasgow Coma Scale</b> *for babies		Time		
Eyes Open	Spontaneously	4		
	To speech/noise*	3		
	To pain	2		
	None	1		
<b>Best Verbal Response</b>	Appropriate phrases, word, smile*, coo*, cry	5		
	Confused, inappropriate words, only cries	4		
	Inappropriate speech, cry*, or scream	3		
	Incomprehensible sound or grunts	2		
	None	1		
<b>Best Motor Response</b>	Obeys commands, normal spontaneous*	6		
	Localised, localised pain*	5		
	Flexes to pain	4		
	Abnormal flexing	3		
	Abnormal extension, extends to pain	2		
	None	1		
		200		
		190		
		180		
		170		
		160		
		150		
		140		
		130		
		120		
		110		
		100		
		90		
		80		
		70		
		60		
		50		
		40		
		30		
		20		
		10		
		0		
		Respiration		
		SaO <sub>2</sub>		
Pupils	Right	Size		
		Reaction		
	Left	Size		
		Reaction		
Record Temperature				
Vomiting?				
Headache?				
Moving all limbs normally?	Arms	Right		
		Left		
	Legs	Right		
		Left		
Head Circumference*				

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