Joint Trust Guideline: The Assessment and Management of Adult Inpatients (following a fall) with Actual or Suspected Head Injury

Document Control:

For Use In:	Norfolk and Norwich University Hospitals (NNUH), James Paget University Hospitals (JPUH)		
	All inpatient areas		
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Document Authors:	Dr Ruth Rallan, Consultant in Older Peoples Medicine, Dr Suzanne Docherty Consultant Haematologist, Mr Lennel Lutchman Spinal Consultant		
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2	March 2020	Dr R Rallan	References and document updated
3	February 2024	Dr R Rallan	Updated to new Trust Docs template

Previous Titles for this Document:

Previous Title/Amalgamated Titles	Date Revised
None	Not applicable

Note which Trust, where applicable.

Distribution Control

Printed copies of this document should be considered out of date. The most up to date version is available from the Trust Intranet.

Consultation

The following were consulted during the development of this document:
Falls Steering Group (NNUH)
Mazhar Zaidi (JPUH)
OPM Clinical Governance Committee, all OPM Consultants and Nursing Sisters on OPM wards
Clinical Guidelines Assessment Panel

Monitoring and Review of Procedural Document

The document owner is responsible for monitoring and reviewing the effectiveness of this Procedural Document. This review is continuous however as a minimum will be achieved at the point this procedural document requires a review e.g. changes in legislation, findings from incidents or document expiry.

Relationship of this document to other procedural documents

This document is a clinical guideline applicable to Acute Collaborative, NNUH and JPUH; please refer to local Trust's procedural documents for further guidance.

Guidance Note

This guideline has been approved by the Trust's Clinical Guidelines Assessment Panel as an aid to the diagnosis and management of relevant patients and clinical circumstances. Not every patient or situation fits neatly into a standard guideline scenario and the guideline must be interpreted and applied in practice in the light of prevailing clinical circumstances, the diagnostic and treatment options available and the professional judgement, knowledge and expertise of relevant clinicians. It is advised that the rationale for any departure from relevant guidance should be documented in the patient's case notes.

The Trust's guidelines are made publicly available as part of the collective endeavour to continuously improve the quality of healthcare through sharing medical experience and knowledge. The Trust accepts no responsibility for any misunderstanding or misapplication of this document**.**

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Contents Page

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Quick reference

Commence Neurological observations if witnessed head injury (any trauma except superficial facial injury)**or unwitnessed fall with head injury** and **any of the following** are present:

- External bruising, swelling or laceration to head
- Symptoms suggesting brain injury (vomiting, headache, dizziness, altered consciousness or behaviour)
- On *therapeutic* anti-coagulation* (not thromboprophylaxis)
- Pain or tenderness of head

Consider C-spine immobilisation +/- imaging (see full guideline below)

If GCS ≤ 8 ensure early involvement of Anaesthetics to manage airway

Glasgow Coma Scale (GCS) 15/15 when found
½ hourly neurological observations for 2 hours **Then 1 hourly neurological observations for 4 hours** **Then 2 hourly neurological observations to continue 24 hours or until reviewed by doctor** ***If GCS drops at any time change observations to ½ hourly***
Request urgent medical review if **any** of: • Agitation / change in behaviour • GCS falls by 3 points (eyes / verbal) or 2 points (motor) • Any other fall in GCS if sustained for 30 minutes or more • Persistent vomiting or severe headache

GCS < 15/15 when found
Urgent medical review (<15 minutes) **½ hourly neurological observations to continue until Computerised Tomography (CT) scan or** **GCS reaches 15: then follow protocol above**
• For patients who are normally confused with no change in usual behaviour & have GCS 14/15 (E4 V4 M6) post fall, follow the GCS 15/15 protocol above

CT Head (within 1 hour) if any of the following are present[2]

- GCS ≤12 initially or GCS < 15 persisting at least 2 hours post injury
    - Unless GCS 14/15 (E4 V4 M6) in a patient who is normally confused and shows no change in normal behaviour 2 hours post injury
- Suspected skull fracture (including basal skull eg haemotympanum, CSF leakeage from ear/ nose, Battles sign)
- Post-traumatic seizure
- Focal neurological deficit
- >1 episode of vomiting within four-hour period

CT Head (within 8 hours) if any of the following are present

- Loss Of Consciousness (LOC) or amnesia since injury *plus* any of:
    - Age ≥65 years *or*
    - History of bleeding disorder *or*
    - Dangerous mechanism of injury (fall from height ≥1m or 5 stairs) *or*
    - >30 minutes of amnesia for events before injury

Consider CT Head if on *therapeutic* anticoagulation* with if no other indication for scan

*unfractionated heparin, treatment dose Low Molecular Weight Heparin (LMWH), warfarin and Direct Oral AntiCoagulants (DOAC) (rivaroxaban, dabigatran, apixaban, edoxaban)

1. Introduction

1.1. Rationale

The guideline was initially written and piloted as part of a local initiative to improve post-fall care. In 2011 the NPSA highlighted the importance of identifying injury following inpatient falls to reduce harm[1]. They recommended that all hospitals have a post-fall protocol/guideline to include the frequency and duration of neurological observations and advice on the urgency of medical review & imaging, in line with NICE guidance[2].

1.2. Objective

The objective of this clinical guideline is to:

- Provide guidance for nursing and medical staff on appropriate neurological observations and the urgency of medical review and CT brain scan following an inpatient fall in an adult, in line with current National Patient Safety Agency (NPSA) and National Institute for Health Care and Excellence (NICE) recommendations[1,2]

1.3. Scope

This guideline covers adult inpatients who have had a fall whilst in the hospital and where there is concern that they have sustained a possible or actual head injury.It covers all inpatient areas,

1.4. Glossary

The following terms and abbreviations have been used within this document:

Term	Definition
NNUH	Norfolk and Norwich University Hospitals
JPUH	James Paget University Hospitals
NPSA	National Patient Safety Agency
NICE	National Institute for Health Care and Excellence
GCS	Glasgow Coma Scale
ABC	Airway, breathing and circulation
ED	Emergency Department
CT	Computed Tomography
C-spine	Cervical spine
XR	X-ray
OPM	Older People's Medicine
DOAC	Direct oral anticoagulants
AP	Anterior-posterior
PEG	Odontoid Process/ Peg
EIA	Equality Impact Assessment

2. Responsibilities

Dr Ruth Rallan, Consultant in Older Peoples Medicine, Dr Suzanne Docherty Consultant Haematologist, Mr Lennel Lutchman Spinal Consultant are responsible for reviewing and updating this document.

3. Processes to be followed

Please see Quick Reference page 4 & 5 page. This should be laminated and placed prominently in all relevant ward areas. Instructions on how to assess GCS are found on the back of all neurological observations charts.

The duty of the attending medical doctor is to assess the patient for:

- Medical stability (starting with ABC).
- Need for immobilisation of cervical spine (if GCS<15 on initial assessment, neck pain/tenderness, focal neurological deficit or paraesthesia in extremities-see 3.1 for details). If advice /equipment required for immobilisation, contact the Spinal ward (Gateley at NNUH) or Emergency Department (ED).
- Acute injury sustained during the fall, including the severity of head injury, need for urgent CT brain scan +/- C-spine imaging; and any other injuries that may have occurred e.g. hip fracture.
- Brief consideration of the circumstances and cause for fall, including consideration that the fall may have been due to an acute illness. Also see Joint Trust Guideline for the Medical Evaluation of Patients Presenting with Falls CA5016 Trustdocs ID No: 7506 for more detail on assessment of the underlying causes of falls.

3.1. Investigation of suspected cervical spine injury

- CT Cervical Spine if **any** of the following is present:
  - GCS <13 on initial assessment
  - Patient intubated
  - Patient having other body areas scanned (head injury/ multiple trauma)
  - Clinical suspicion of cervical spine injury and **one** of the following:
    - **Age >65yrs with new neck pain post trauma**[+]
    - Dangerous mechanism of injury
    - Paraesthesia in limbs or other focal peripheral deficit
    - Significant facial or occipital bruising
    - Distracting injury elsewhere
    - Persistent pain for >48hrs even if previous XR normal
  - C-spine XR technically inadequate or suspicious or abnormal
- If CT not indicated and **any** of the following is present
  - Patient is sitting comfortably *or*
  - Patient has walked since injury *or*
  - Patient has no midline cervical tenderness *or*

- Delayed onset of neck pain

Then assess clinically whether patient is able to rotate neck 45º left & right[6]

- if able to do so, no imaging needed
- If **not** able, need CT C-spine if >65yrs, or XR C-spine (AP, lateral and PEG) in younger pts[+]

[+]Older patients are at higher risk of cervical fracture with low trauma and x-ray more likely to be inadequate, so CT is investigation of choice

Immobilisation of C-Spine should continue until assessment and/or imaging complete

3.2. Patients on therapeutic anticoagulation[4,5,7]

- If there is a strong suspicion of intracranial bleed in a patient on warfarin, anticoagulation should be reversed immediately (before CT) - see Clinical Guideline CA2085 V10 Trustdocs ID No: 1239.
- If there is a strong suspicion of intracranial bleed in a patient on a DOAC (Direct Oral AntiCoagulants - dabigatran, rivaroxaban, apixaban and edoxaban) follow the Haemorrhage Protocol for Adult Patients receiving DOACs (AS0009.7 Trust Docs ID No: 8717). A Haematologist can also be contacted for advice if necessary.
- Delayed intracranial bleeding can occur in patients on warfarin (even when the initial CT scan is normal). Therefore, International Normalised Ratio (INR) should be monitored closely to achieve a target of 2.0 for 4 weeks following a significant head injury[4].

4. References

1. National Patient Safety Agency (January 2011) Rapid Response Report NPSA/2011/RRR001: Essential Care After an Inpatient Fall
2. NICE (Clinical Guideline 232: Head Injury: Assessment & early management May 2023
3. CA5016 V5.1 Falls Guideline (2022) Norfolk and Norwich University Hospital Trustdocs ID No: 7506
4. BCSH Guideline on oral anticoagulation with warfarin – fourth edition (2011) Keeling et al. BJH (154): 311-324 https://onlinelibrary.wiley.com/doi/10.1111/j.1365-2141.2011.08753.x
5. BCSH Guideline on the management of bleeding in patients on antithrombotic agents (2012) (+ 2019 Addendum). Makris *et al.* BJH (160) 35-46 https://onlinelibrary.wiley.com/doi/full/10.1111/bjh.12107 6. The Canadian C-spine rule for radiography in alert & stable trauma patients. Stiell IG et al JAMA 2001 Oct 17;286(15):1841-8 https://www.ncbi.nlm.nih.gov/pubmed/115972857.

5. Audit of the service to be delivered

Compliance with the process will be monitored through the following:

Key elements	Process for Monitoring	By Whom (Individual / group /committee)	Responsible Governance Committee /dept	Frequency of monitoring
Clinical audit standards: • 100% of patients who fulfilled criteria for neurological observations had observations recorded in line with guidance. • 100% of patients with indication for urgent CT brain had one performed within 8 hours. • 100% of patients with GCS <14 had a medical review within 15 minutes of fall. • 100% of patients were assessed by a doctor for injuries including and for the cause of fall.	Review of selection of cases reported through Incident reporting system	Medical staff within relevant departments	Older Peoples Medicine Clinical Governance at NNUH, other departments within Medical Division	Annual

The audit results are to be discussed at relevant governance meetings including OPM departmental meetings to review the results and recommendations for further action. Then sent to Medical Divisional Governance who will ensure that the actions and recommendations are suitable and sufficient.

6. Appendices

There are no appendices for this document.

7. Equality Impact Assessment (EIA)

Type of function or policy	Existing

Division	Medical Division	**Department**	Older Peoples Medicine
Name of person completing form	Dr Ruth Rallan	**Date**	15/02/24

Equality Area	**Potential Negative Impact**	**Impact Positive Impact**	**Which groups are affected**	**Full Impact Assessment Required YES/NO**
Race	None	None	Patients	No
Pregnancy & Maternity	None	None	Patients	No
Disability	None	None	Patients	No
Religion and beliefs	None	None	Patients	No
Sex	None	None	Patients	No
Gender reassignment	None	None	Patients	No
Sexual Orientation	None	None	Patients	No
Age	None	None	Patients	No
Marriage & Civil Partnership	None	None	Patients	No
EDS2 – How does this change impact the Equality and Diversity Strategic plan (contact HR or see EDS2 plan)?				

- **A full assessment will only be required if: The impact is potentially discriminatory under the general equality duty**
- **Any groups of patients/staff/visitors or communities could be potentially disadvantaged by the policy or function/service**
- **The policy or function/service is assessed to be of high significance**

IF IN DOUBT A FULL IMPACT ASSESSMENT FORM IS REQUIRED

The review of the existing policy re-affirms the rights of all groups and clarifies the individual, managerial and organisational responsibilities in line with statutory and best practice guidance.