Safe Rationalisation of Computed Tomography Imaging within Anticoagulated Inpatient Falls – Local Guidelines versus NICE Recommendations

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Background

- National Institute for Health and Care Excellence (NICE) guidelines for management of head injuries on anticoagulation were updated in 2023.
  They recommend computed tomography (CT) imaging to be considered within 8 hours if clinically appropriate [NG232].[1]
- The Newcastle upon Tyne Hospitals NHS Foundation Trust (NUTH) current local inpatient falls protocol recommends that all patients who have fallen with suspected head injury, on anticoagulation but in the absence of neurological changes or other underlying risk factors, should undergo CT imaging.
- Assessment of outcomes in this patient subset may support changing local guidelines to reflect NICE guidance, to reduce CT imaging volume and associated resources, without compromising care.

Aim

To evaluate whether revision of the NUTH inpatient falls protocol to reflect NICE recommendations would be a safe and cost-effective proposal, for adults with suspected head injury on anticoagulation, in the absence of other risk factors.

Method

- Retrospective analysis of single centre (Freeman Hospital) inpatient adult non-contrast CT head scans over a 4-month period - April to July 2024.
- Scan inclusion criteria: indication of adult inpatient fall with suspected head injury, on active anticoagulation as the solitary risk factor *(Table 1).*
- Review of CT head report to establish whether new haemorrhagic pathology present.

Table 1: Inclusion and exclusion criteria for retrospective analysis of CT head outcomes performed as part of the Falls Protocol Assessment

Inclusion Criteria	Exclusion Criteria
Adult inpatients (>18 years old)	Child inpatients (<18 years old)
Non-Contrast CT Head Scans	Contrast CT Head Scans
Indication of inpatient fall with suspected head injury with anticoagulation as solitary risk factor for intracranial haemorrhage	Indication of inpatient fall with suspected head injury with other risk factors for intracranial haemorrhage
Anticoagulation Treatment: Direct Oral Anticoagulants (DOACs), Therapeutic Dose Low Molecular Weight Heparin, Warfarin, Antiplatelet Treatment (excluding low dose aspirin monotherapy)	Prophylactic low molecular weight heparin or low dose aspirin monotherapy

Results

- 550 inpatient adult non-contrast CT head scans were performed at the Freeman Hospital during the study period.
- 172 (31.2%, median age 77) of these scans were performed following an inpatient fall.
- Of the 172 scans, 72 (42.4%) were performed with anticoagulation as the solitary risk factor (*Figure 1*).
- None (0%) had haemorrhagic pathology and therefore no neurosurgical intervention was required.

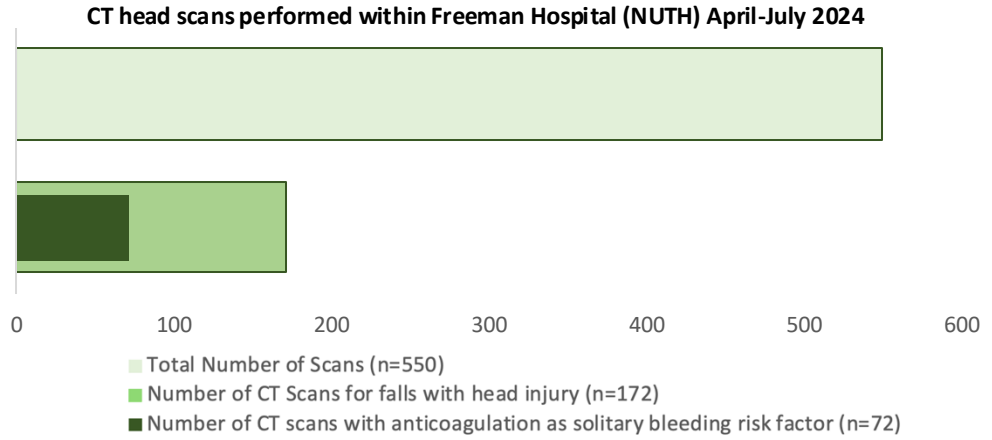

Figure 1: Bar graph demonstrating proportion of adult inpatient, non-contrast CT head scans performed within Freeman Hospital (NUTH) between April 2024 and July 2024 as part of Falls Protocol Assessment

Conclusion

The data supports a review of Trust guidelines to align with NICE recommendations which emphasise clinical judgement and shared decision making.
Whilst maintaining patient safety in this patient subset, this change should:

- Save at least £30,000 annually by reducing CT volume (£133 per scan).[2]
- Free up CT scanner and reporting time – potentially reducing the number of CT head scans performed by 13%.
- Reduce radiation exposure and overall clinical workload.

References

1 National Institute for Health and Care Excellence (NICE). *Head injury: assessment and early management NICE guideline [NG232]*. 2023.
2 NHS England. *2022/23 National Cost Collection Data Publication.* 2024.