

# Improving the quality of CT brain requests for patients with acute confusion and reductions in GCS

## A closed loop Quality Improvement Project

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### Introduction

- Computed tomography (CT) of the brain plays a crucial role in identifying pathologies responsible for acute confusion and reductions in Glasgow Coma Score (GCS)
- The quality of information included on radiological request forms is essential to both radiographers and radiologists, with inadequate detail leading to avoidable delays and a reduction in diagnostic accuracy
- CT brain requests were assessed using a standardised point scoring system, depending on the level of detail included:

Current status of patient	0-2
Patient background	0-2
History/examination findings	0-2
Intended management plan	0-2
<b>Total</b>	<b>0-8</b>

- Requests from the Care of the Elderly (COTE) wards and Medical Admissions Unit (MAU) during December 2025 were included, yielding a mean score of 3.01 (n=86)
- This prompted a Quality Improvement Project (QIP) to improve the quality of CT head requests using the PDSA (Plan-Do-Study-Act) model

### Plan

- Aim: to improve the quality of CT brain requests submitted to investigate acute confusion and reduced GCS between December 2025 and February 2026, from AMU and the COTE wards

### Do

- 2 interventions were implemented to drive improvement:
  - A targeted teaching session
  - Educational posters (figure 1)
- Recollection of data for February 2026, using the same standardised point scoring system
- Challenges
  - Attendance to teaching session
  - Interaction with posters in busy work environments

### Study

Month	Mean Score
December 2025	3.01 (n=86)
January 2026	<i>Intervention implemented</i>
February 2026	3.35 (n=78)

- P-value = 0.036
- The data demonstrates a modest, but significant, improvement in CT brain request quality

### Act


- The QIP project was successful at its aim of improving the quality of CT brain requests
- Repeated educational interventions and re-auditing is needed to confirm the sustainability of the QIP
- Additional PDSA cycles would be required to achieve further improvement e.g. adding prompts to radiology request forms to help improve compliance

Figure 1

### CT Head Checklist

What to include on a CT head request for new onset confusion and/or reduction in GCS

Patient status	
Considerations for transferring and scanning the patient	
Does the patient lack capacity?	✓
Oxygen requirement?	✓
Infection control concerns?	✓
Patient baseline	
Known pathology e.g. dementia, previous stroke, tumour, shunt	✓
Is the patient on an anticoagulant / antiplatelet?	✓
History / examination	
Timings: onset / progression of confusion and/or ↓ in GCS	✓
Associated signs / symptoms e.g. headache, seizure, focal neurology, infection	✓
Any fall / head injury?	✓
Management	
How would the requested imaging change the management plan?	
Pathology you are querying	✓
Next steps if the pathology is confirmed e.g. start stroke pathway	✓



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