## Acute stroke: CT head reporting time in the hyperacute stroke pathway

## Descriptor

Although guidelines exist for when imaging should be **performed** in acute stroke, there are no definite guidelines for the timeframe within which the CT head study should be **reported** to exclude haemorrhage and stroke mimics. This has implications for patients who meet criteria for thrombolysis. The following template presents a method for the review of the reporting turnaround time in your department and whether a local standard is met.

## Background

Stroke is the 3rd leading cause of death in the United Kingdom with an incidence of 152,000 per year.

In recent years, the centralization of acute stroke services into hyperacute stroke units has occurred with the aim of reducing mortality and hospital stay time by improving thrombolysis rates and timings.

Previous guidelines have recommended that ‘‘imaging should be performed within the next available scanning slot or within 1 hour of assessment’’ (NICE guidelines; Ref. 3)

As there are no specific guidelines available in terms of radiological reporting turnaround time, an agreed internal trust standard should be used.

CT examination of the head is performed as part of the hyperacute stroke pathway. Timely management is important as IV thrombolysis can only be administered within 4.5 hours from the onset of symptoms with diminishing outcome as time elapses. It is thus vital  that each component of the process (clinical assessment, imaging acquisition, imaging processing, imaging interpretation and reporting time) are optimised and compared against an agreed trust standard (3).

The objective of this audit is to determine:

a) Whether local standards exist within your neuroradiology department for the reporting time of CT head imaging in the hyperacute stroke pathway.

b) To audit whether your department meets the local standard.

## The Cycle

### The Standard

The following questions should be answered:

1.Does your neuroradiology department have a template and set timeframe for the reporting of CT head studies performed for the hyperacute stroke pathway?

2. Is this protocol available to the Hyperacute Stroke Unit (HASU)/Stroke Department and to the radiologists reporting the studies?

If yes, then the standard for the audit will be:

*‘Acute stroke thrombolysis studies should be reported within the specified timeframe agreed by the trust score card'*

### Target

100%

## Assess local practice

### Indicators

Duration from:

- when the CT head study has been completed to the provision of a verbal/written report to the HASU/Stroke team

### Data items to be collected

From your HASU Framework metrics, identify all patients having undergone thrombolysis over a 12-month period, including arrival time to hospital and time at which thrombolysis is administered.

For each case, from clinical notes/radiology information system (RIS)/picture archiving and communication system (PACS), document the following times when:

1. CT imaging requested on RIS.

2. Unenhanced CT head study is first available on PACS.

3. First verbal/written report is provided to the HASU stroke physician

Calculate the duration:

**a)** Time from **CT head study completion**to time**validated radiologist report available on RIS**.

b) to d) could be assessed as part of a quality improvement assessment:

b) Time from patient arrival at hospital to issue of verbal report

c) Time from radiologist being informed to issue of verbal/ written report

d) Time from patient arrival at hospital to thrombolysis

Document any incomplete neuroradiology report timings and reasons for possible delays.

If data not available for (some of) these parameters, suggest prospective changes into reporting time documentation for 6 months prior to starting audit.

### Suggested number

Aim for the total number of thrombolysis cases at your centre over a 6-12 month period.

## Suggestions for change if target not met

For those thrombolysis cases in which the agreed reporting timeframe standard were not met, identify if there were:

**-Reporting delays:**

Was the radiologist informed about the need for thrombolysis in advance of the CT study being performed? The radiologist may not always be in attendance with the stroke patient at a thrombolysis call and therefore it is mandatory that the stroke team notifies the radiologist, (preferably, once the patient is on route to the Radiology department or in the hospital).

This will become an important factor as the teleradiology community continues to grow and has the potential of providing HASU reporting cross cover with sites during the day or night.

**-Communication system failure:**

As radiology reporting may not be on-site, it may not be possible to direct communicate with the clinical team in person and there is therefore increased reliance on telecommunication systems.

## Resources

1. Review of HASU thrombolysis framework metrics.

2. Review of RIS/PACS

## References

1. Porter, M.E., Mountford, J., Ramdas, K., and Takvorian, S. Reconfiguring Stroke Care in North Central London. Harvard Business School Case. 712496, June 2012
2. Morris, S., Hunter, R.M., Ramsay, A.I., et al.  Impact of centralising acute stroke services in English metropolitan areas on mortality and length of hospital stay: difference-in-differences analysis. *BMJ* 2014; 349:g4757
3. NICE Guideline NG 128. Stroke and transient ischaemic attack in over 16s: diagnosis and initial management. Published May 2019. Updated April 2022. Available at https://www.nice.org.uk/guidance/ng128

## Editors’ Comments

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