Clinical Standard Operating Procedure (SOP)

STROKE THROMBECTOMY

SETTING	Service-wide
FOR STAFF	All staff
PATIENTS	Patients requiring mechanical thrombectomy for ischaemic stroke

Introduction

Mechanical thrombectomy (MT) for ischaemic stroke is provided by North Bristol NHS Trust and University Hospitals Plymouth NHS Trust for patients within the South West within two Integrated Stroke Delivery Networks. The West of England ISDN and NBT MT network cover the Severn region of Retrieve and the SW Peninsula ISDN and UHP MT network cover the Peninsula region.

The aim of MT networks is to facilitate rapid patient transfer and safely minimise the time between onset of ischaemic stroke and reperfusion. Whilst much of this can be addressed by improving processes within acute stroke centres (referring hospitals), communication and within MT centres, there is perceived benefit in streamlining the time critical referral of these patients.

Retrieve have agreed to work with NHS England, the West of England and Peninsula ISDNs and the NBT and UHP MT networks to pilot a modified method of coordinating and delivering these time critical transfers.

Transfer of patients requiring MT

Patients requiring transfer between hospitals to receive MT are time critical. The majority (around 90%) require a time critical 999 SWASFT ambulance with a paramedic. Most patients receive IV rtPA which takes approximately 1 hour to deliver via infusion and, if this is to continue and complete during the transfer, these patients require an appropriately trained nurse escort from the acute stroke centre.

Around 10% of MT patients require a critical care transfer. These include patients:

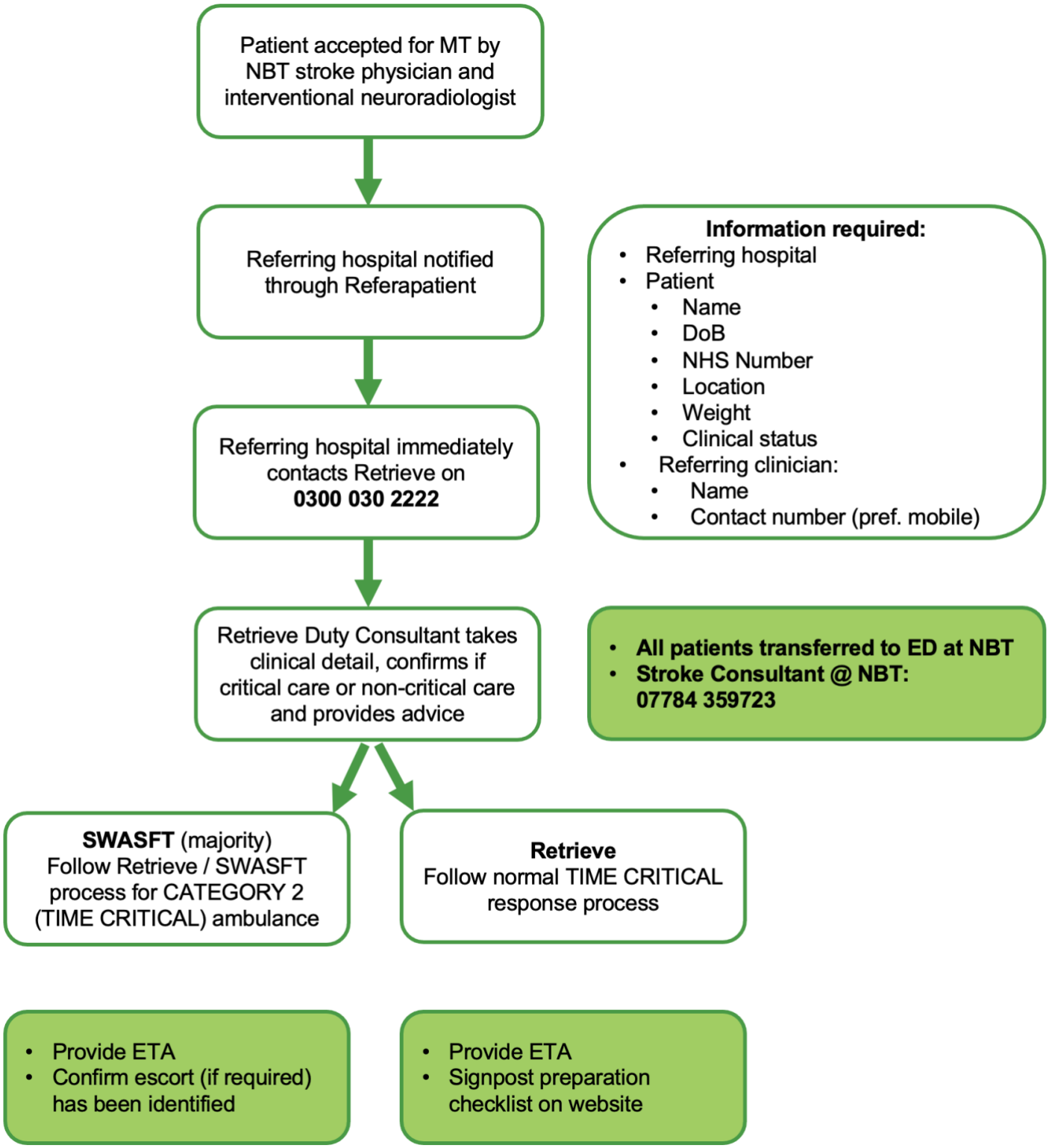
- Requiring blood pressure manipulation (up or down)
- Requiring, or likely to require, airway support owing to a low GCS
- Requiring ongoing seizure management
- With basilar infarcts who are significant risk of deterioration
- With vertebral artery dissection (who are at significant risk of deterioration).

Retrieve are uniquely placed to improve the triage and coordination of these transfers, ensuring the most appropriate resource is deployed (a SWASFT Category 2 time-critical ambulance or Retrieve team) as well as the most appropriate clinical escort is provided (paramedic, nurse from Acute Stroke Centre (ASC), critical care escort by referring hospital or Retrieve).

Note that basilar infarcts and vertebral artery dissection patients (who are at significant risk of deterioration) may not be widely recognised as requiring a critical care escort by referring hospital critical care and anaesthesia staff.

Pilot

The Retrieve pilot will commence in the West of England ISDN and operate only during thrombectomy hours (referrals taken 08:00-17:00, 7 days a week) [this is anticipated to increase to 19:00 within the pilot period]. The pilot implementation and performance will be reviewed monthly and learning applied before it is extended to include the South West Peninsula ISDN within 6 months.



Referral process

Patients referred to Retrieve for coordination of time critical transfer will **all have been accepted by the MT centre stroke physician and interventional neuroradiologist on-call.** Following this decision, the stroke physician will notify the referring hospital of this acceptance using the Referapatient system and request that they immediately contact Retrieve. This route has been implemented following feedback on the initial approach which used call conferencing. This new pathway is anticipated to reduce the complexity and improve the efficiency of the process.

Clinical advice

Whilst the transfer of patients for MT is not new, the use of Retrieve to coordinate these transfers is. It is important that this pilot is used to not only improve the rapidity of transport allocation but also the clinical care delivered to patients ahead of transfer and en-route. It is anticipated that the majority of referring clinicians will be unfamiliar with Retrieve or critical care transfer.

It may be appropriate to offer some, or all, of the following advice:

- For all patients:
  - Emphasise the time criticality of the preparation and transfer
  - Encourage pre-transfer preparation, in line with the 'Referring to Retrieve' SOP
  - Ask for patient to be made 'nil by mouth'
  - Encourage discussion about rtPA infusions – these cannot be continued with a paramedic only escort (they are not authorised to use or trained on infusion pumps), so the infusion either needs to be completed or stopped unless a nurse escort is provided. This may require a pragmatic decision by the responsible clinician about the risks and benefits of any delay.
- For those identified as requiring critical care transfer (see above on Page 1):
  - Encourage (and support, as required) early and proactive conversation with local critical care unit / anaesthesia team when Retrieve are unavailable or offline overnight
  - Provide sufficient information to ensure critical care is commenced as soon as possible – including airway management, seizure management and blood pressure control (see below).

MT centre contacts

Peninsula

- TBC

Severn

- Stroke Thrombectomy phone at NBT 07784 359723 (or 'Thrombectomy Consultant on-call' via NBT switchboard 0117 9505050).
- If this person is not contactable, use Stroke Consultant bleep 1290 or stroke registrar bleep 1490 or neurology registrar bleep 1636.

Transfer care

Usual critical care transfer principles apply to the treatment and transfer of these patients. The Association of Anaesthetists 'Safe transfer of the brain injured patient' guidelines from 2019 provide useful physiological parameters to aim for in acute ischaemic stroke:

- Systolic blood pressure:
  - If received rtPA: >140, <185mmHg
  - If not received rtPA: >140, <220mmHg
  - For hypotension: fluids and vasoconstrictors
  - For hypertension: labetalol infusion
- Ventilatory parameters:
  - SpO2 ≥95% (add O2 only if <95%)
  - PaCO2 (if ventilated) 4.5-5.0kPa

Handover

The exact destination of patients being transferred for MT will be stated in the Referapatient reply to the referring hospital when the patient is formally accepted. Usually, it will be the Emergency Department so that time-critical imaging and rapid assessment can be carried out. The referring consultant is responsible for communicating this clearly to the Retrieve DC at point of referral so this can be passed to the transferring team (Retrieve or SWASFT).

- Peninsula: TBC
- Severn: enter through ambulance entrance, ED resus is first on the left. The Neurointerventional Radiology Suite (IR Room 4) is located on Level 2 adjacent to Main Theatres.

A focussed handover must be given to the team present (radiology, stroke, anaesthesia) in line with the 'Handover' SOP. Pertinent details that should be included are:

- Time of onset of symptoms (or wake time)
- Treatments prior to Retrieve arrival (including thrombolysis)
- Treatments en-route
- Current GCS and any other relevant physiology

Review of process and cases

In line with existing Retrieve processes, individual feedback will be sought for each case. The process described in this document is novel and will be rapidly refined in collaboration with the stakeholders, if required.

Retrieve will provide operational data for case review in the monthly thrombectomy governance meetings and will contribute to the quarterly ISDN Oversight Group review of this novel process.

Document Governance

REFERENCES	1. Association of Anaesthetists and Neuro and Anaesthesia Critical Care Society, 2019. Safe transfer of the brain injured patient: trauma and stroke, 2019. https://associationofanaesthetists-publications.onlinelibrary.wiley.com/doi/epdf/10.1111/anae.14866 (accessed 26/11/21)
RELATED DOCUMENTS AND PAGES	
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