1. Aim/Purpose of this Guideline
The aim of this document is to inform clinicians in Cornwall on management of patients presenting with acute stroke.

2. The Guidance
**Clinical Guideline for Acute Stroke Management**

**Admission with Suspected Acute Stroke**

**Does the Patient Need Hospital Admission?**

**Pre-alert by ambulance crew to ED, ED call 4444**

- Admit patients to RCHT with:
  - Acute Stroke (<6hrs)
  - Disabling stroke
  - And/or swallowing problems
  - Crescendo TIA

**Admission is Required**

- Emergency Department assessment
  - IS ONSET OF SYMPTOMS < 6 hours?

  **YES**
  - Follow thrombolysis/thrombectomy pathway
  - Refer immediately to Daily TIA clinic by email cornwalltiaclinic@nhs.net

  **NO**

1. Arrange urgent CT brain stating side of stroke, call stroke nurse via switch
2. Arrange ECG and Bloods (FBC, CRP, ESR, Electrolytes, Lipids, glucose, clotting)
3. Complete history and examination using Stroke Admission Proforma
4. Complete swallow screen
5. Complete prescribing on EPMA including iv fluids if patient unable to swallow
6. Transfer patient directly to Acute Stroke Unit, consultant review within 14 hours
7. For patients with reduced mobility use intermittent compression stockings for thromboembolic prophylaxis

**Admission is Not Required**

**Refer immediately to Daily TIA clinic by email cornwalltiaclinic@nhs.net**

Use online TIA clinic Proforma

TIA and stroke patients must be advised that they cannot drive for at least one month

**Nutrition/ Hydration**

Assess swallow, if impaired start iv fluids and NG feeding within 24 hours of admission

**Antihypertensive treatment** is recommended only if there is a hypertensive emergency such as:

- intracerebral haemorrhage (see below)
- hypertensive encephalopathy or hypertensive nephropathy, hypertensive cardiac failure/myocardial infarction
- aortic dissection
- pre-eclampsia/eclampsia

Consider isoket or labetolol infusion for gradual reduction of blood pressure (see hypertension guidelines in stroke)

**Blood Glucose**

Aim for blood glucose 4-11mmol/l,

**Oxygen therapy**

Give oxygen, if oxygen saturation < 95% on air

**Mobility**

Aim for mobilisation when clinical condition permits, Physiotherapy assessment within 24 hours of admission

**Temperature**

Aim for temperature < 37.5, consider paracetamol, treat concurrent infections

**Ischaemic stroke**

**Treatment:**

- Start 300mg aspirin stat orally or rectally daily for 2 weeks, then change to 75mg clopidogrel od lifelong
- Add proton pump inhibitor in addition to aspirin in older patient or history of dyspasia.
- If allergic to aspirin give clopidogrel.
- If PEG planned change clopidogrel to aspirin 7 days pre procedure
- If crescendo TIA please discuss use of antplatelets or heparin on a case by case basis with stroke consultant.
- Start secondary prevention as per guidelines.

**Investigation:**

- Book carotid duplex if anterior circulation stroke and patient fit for surgery or possible dissection
- Consider prolonged ECG to exclude AF (24 hr ECG or r-test)
- Consider further tests after discussion with stroke consultants
- Consider CT brain angiogram if suspicion of artery dissection
- Repeat CT brain scan if large MCA stroke& clinical deterioration within 48 hours without evidence of other cause. If evidence of malignant MCA infarct, age <60 and neurological deterioration contact neurosurgeons.

**Haemorrhagic stroke**

**Treatment:**

- Blood pressure reduction has shown to reduce overall size of bleed. Aim for target systolic BP of 140 within 6 hours after stroke, if patient on coumarin derivatives (e.g.warfarin) consider reversal of clotting with prothrombin complex concentrate and vitamin K.

- If patient on enoxaparin or fondaparinux consider reversal with concomitant LMWH

- Prescribe Intermittent compression stockings

- Consider referral for neurosurgical opinion (contact Derriford team).

**Investigations:**

Consider CT brain angiogram if aneurysm rupture suspected, discuss with radiologist.

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Clinical Guideline for Acute Stroke Management  
Page 2 of 8
These guidelines are intended for use as an aid to decision-making, to assist with the effective care of stroke patients and thus to achieve a uniformly high standard of acute management of stroke. They are intended to provide guidance that clinicians may need at the key decision points in the prevention of recurrent stroke or TIA. They are based on NICE/RCP Guidance where this is available, but are not intended to provide ‘rules’ for every possible eventuality in stroke management and should be used pragmatically. As the process of stroke care develops, they will be superseded by updated versions.

For feedback on this protocol, or for clinical advice in individual cases, contact Dr Frances Harrington, Dr Abhijit Mate, Dr Katja Adie at the Royal Cornwall Hospital, Truro ext 01872 253458, e-mail k.adie@nhs.net.

### CLOTS 3 Study

2876 immobile UK stroke patients were randomly assigned to intermittent pneumatic compression stockings (IPC) or none on admission. Primary outcome was proximal Deep Vein Thrombosis (DVT) up to 30 days after randomisation. DVT occurred in 8.5% of intervention group versus 12.1% in control group. Absolute risk reduction was 3.6% (95% Confidence interval 1.4-5.8%). No significant difference in mortality or falls was noted.

### INTERACT 2 Study

2839 patients following haemorrhagic stroke were randomised to tight systolic BP control <140 within 1 hour of admission versus BP<180. Primary outcome was death or reduced disability. Improved functional outcome was noted with intensive blood pressure reduction. Primary outcome was similar in both groups.

### ROSIER - Recognition of a stroke in the Emergency Room

- assess patient with suspected stroke in the A&E department
- record blood sugar, Glasgow Coma Scale score, blood pressure.

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
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<tbody>
<tr>
<td>Seizure activity</td>
<td>-1</td>
<td>0</td>
</tr>
<tr>
<td>Loss of consciousness</td>
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<tr>
<td>Any new acute onset</td>
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</tr>
<tr>
<td>Facial weakness</td>
<td>+1</td>
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<tr>
<td>Arm weakness</td>
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<td>Leg weakness</td>
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<tr>
<td>Speech impairment</td>
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<td>0</td>
</tr>
<tr>
<td>Visual field defect</td>
<td>+1</td>
<td>0</td>
</tr>
</tbody>
</table>

Asymmetrical
If score >0 assume diagnosis of Stroke
If score 0, -1, -2 stroke diagnosis unlikely but not excluded. Sensitivity 93%, specificity 96%, positive predictive value 96%.

### Carotid artery stenosis and Carotid Endarterectomy

People with stable neurological symptoms from acute non disabling stroke or TIA who have a symptomatic carotid artery stenosis of 50-99% according to North America Symptomatic Carotid Endarterectomy Trial criteria should

- be assessed and referred for carotid endarterectomy within 1 week of onset of stroke or TIA symptoms.
- Undergo surgery within a maximum of 2 weeks
- Receive best medical treatment (control of BP, antiplatelet agents, cholesterol lowering through diet and medication, lifestyle advice)

### References

7. CLOTS Trial Collaboration. Effectiveness of Intermittent pneumatic compression in reduction of deep vein thrombosis in patients who have had a stroke (CLOTS 3). Lancet. 382 (9911): 516-524.
3. Monitoring compliance and effectiveness

<table>
<thead>
<tr>
<th>Element to be monitored</th>
<th>Stroke Audit ensures all patients are admitted to stroke unit as soon as possible</th>
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<tr>
<td>Lead</td>
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<td>Tool</td>
<td>SENTINEL STROKE NATIONAL AUDIT PROGRAMME</td>
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<td>Frequency</td>
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<td>Reporting arrangements</td>
<td>Bimonthly review at Stroke Operational Group Meeting</td>
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4. Equality and Diversity

4.1. This document complies with the Royal Cornwall Hospitals NHS Trust service Equality and Diversity statement which can be found in the ‘Equality, Diversity & Human Rights Policy’ or the Equality and Diversity website.

4.2. Equality Impact Assessment

The Initial Equality Impact Assessment Screening Form is at Appendix 2.
# Appendix 1. Governance Information

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<thead>
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<td>Date Issued/Approved:</td>
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<td>02/07/2014</td>
</tr>
<tr>
<td>Date Valid To:</td>
<td>07/07/2019</td>
</tr>
<tr>
<td>Directorate / Department responsible (author/owner):</td>
<td>Dr Katja Adie, Eldercare Department</td>
</tr>
<tr>
<td>Contact details:</td>
<td>07717714009</td>
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<tr>
<td>Brief summary of contents</td>
<td>Management of Acute Stroke</td>
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<td>Target Audience</td>
<td>RCHT</td>
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<tr>
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<td>Malcolm Stewart</td>
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<tr>
<td>Date revised:</td>
<td>07/07/2017</td>
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<td>Management of Acute Stroke</td>
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<tr>
<td>Approval route (names of committees)/consultation:</td>
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<td>Naomi Wakeley</td>
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<tr>
<td>Signature of Executive Director giving approval</td>
<td>Dr M Stewart</td>
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<tr>
<td>Publication Location (refer to Policy on Policies – Approvals and Ratification):</td>
<td>Internet &amp; Intranet</td>
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<td>Stroke</td>
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<td>Links to key external standards</td>
<td>Governance team to advise</td>
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| Related Documents:      | Advanced Stroke Management Pathway, Stroke Thrombolysis, Secondary Prevention Guidelines Stroke and TIA,
Training Need Identified?  No

Version Control Table

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<th>Version No</th>
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<th>Changes Made by (Name and Job Title)</th>
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<td>K Adie, consultant</td>
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All or part of this document can be released under the Freedom of Information Act 2000

This document is to be retained for 10 years from the date of expiry.

This document is only valid on the day of printing

Controlled Document

This document has been created following the Royal Cornwall Hospitals NHS Trust Policy on Document Production. It should not be altered in any way without the express permission of the author or their Line Manager.
Appendix 2. Initial Equality Impact Assessment Screening Form

**Name of service, strategy, policy or project (hereafter referred to as policy) to be assessed:**
Clinical Guideline for Acute Stroke Management

<table>
<thead>
<tr>
<th>Directorate and service area:</th>
<th>Existing</th>
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</thead>
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<tr>
<td>Name of individual completing assessment:</td>
<td>K Adie</td>
</tr>
<tr>
<td>Telephone:</td>
<td>07717714009</td>
</tr>
</tbody>
</table>

1. **Policy Aim**
The aim of this document to inform clinicians on management of patients presenting with acute stroke in Cornwall.

2. **Policy Objectives**
The guidance enables clinical staff to give patients with stroke best chance of recovery.

3. **Policy – intended Outcomes**
Gold standard stroke care

4. **How will you measure the outcome?**
SENTINEL STROKE NATIONAL AUDIT PROGRAMME
Monthly board report

5. **Who is intended to benefit from the Policy?**
Patients with new suspected stroke in Cornwall

6a. **Is consultation required with the workforce, equality groups, local interest groups etc. around this policy?**
This is existing policy and has been widely consulted Clinicians at RCHT, GPs, Managers, Stroke survivors

6b. **If yes, have these groups been consulted?**
This is not a procedure but a clinical guideline. It has been signed off by the eldercare governance group and stroke operational group 7/7/2017 and 13/7/2017 respectively.

6c. **Please list any groups who have been consulted about this procedure.**

7. **The Impact**
Please complete the following table.

<table>
<thead>
<tr>
<th>Equality Strands:</th>
<th>Yes</th>
<th>No</th>
<th>Rationale for Assessment / Existing Evidence</th>
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<tr>
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<tr>
<td><strong>Sex</strong> (male, female, trans-gender / gender reassignment)</td>
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<tr>
<td><strong>Race / Ethnic communities /groups</strong></td>
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Are there concerns that the policy could have differential impact on:

- **Age:** X
- **Sex:** X
- **Race / Ethnic communities /groups:** X
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<tbody>
<tr>
<td>Disability - learning disability, physical disability, sensory impairment and mental health problems</td>
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<td>Religion / other beliefs</td>
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<td>Marriage and civil partnership</td>
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<td>Pregnancy and maternity</td>
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<td>Sexual Orientation, Bisexual, Gay, heterosexual, Lesbian</td>
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</table>

You will need to continue to a full Equality Impact Assessment if the following have been highlighted:
- You have ticked “Yes” in any column above and
- No consultation or evidence of there being consultation - this excludes any policies which have been identified as not requiring consultation. or
- Major service redesign or development

8. Please indicate if a full equality analysis is recommended. | Yes | No | X |

9. If you are not recommending a Full Impact assessment please explain why.

Signature of policy developer / lead manager / director | Date of completion and submission

Names and signatures of members carrying out the Screening Assessment | Human Rights, equality & Inclusion Lead

Please sign and date this form.

**Keep one copy and send a copy to Matron, Equality, Diversity and Human Rights, c/o Royal Cornwall Hospitals NHS Trust, Human Resources Department, Chyvean House, Penventinne Lane, Truro, Cornwall, TR1 3LJ**

A summary of the results will be published on the Trust’s web site.

Signed__________________________________________

Date____________________________________________

Clinical Guideline for Acute Stroke Management