

## **6.5 CEREBROVASCULAR DISEASE**

A stroke is a localised neurological deficit with a vascular cause, lasting longer than 24 hours. It is usually due to either a blockage of the blood vessels to the brain, or by a bleed into the brain. The risk factors already described for Coronary Heart Disease (CHD) are associated with an increased risk of stroke. A transient ischaemic attack (TIA) causes similar symptoms as a stroke, but lasts less than 24 hours. This is a strong indicator of the risk of a more serious stroke.

## SERVICE FRAMEWORK FOR CARDIOVASCULAR HEALTH AND WELL BEING

### Overarching standard 29:

All patients with suspected transient ischaemic attack should have rapid specialist assessment<sup>1</sup> and investigation to confirm the diagnosis and should have a management plan urgently put in place to reduce short term and long term cardiovascular complications. (See also Standard 35)

#### Rationale:

A transient ischaemic attack (TIA) indicates unstable brain ischaemia with a high early stroke risk and is a medical emergency.

#### Evidence:

CREST guidelines for the investigation and management of transient ischaemic attack 2006 <http://www.crestni.org.uk/publications-show?txtid=3907>

National Clinical Guidelines for Stroke 2004

<http://www.rcplondon.ac.uk/pubs/books/stroke/index.htm>

N.I. Stroke Strategy: Improving stroke services in Northern Ireland

<http://www.dhsspsni.gov.uk/showconsultations?txtid=26878>

National Institute for Health and Clinical Excellence (NICE) Stroke: The diagnosis and acute management of stroke and transient ischaemic attacks (2008) <http://www.nice.org.uk/Guidance/CG68>

American Stroke Association 'Guidelines for prevention of stroke in patients with ischaemic stroke or transient ischaemic attack' (2006)

<http://stroke.ahajournals.org/cgi/content/full/37/2/577?ck=nck>

#### Responsibility for delivery / implementation

Health and Social Care Board

Public Health Agency

HSC Trusts

## SERVICE FRAMEWORK FOR CARDIOVASCULAR HEALTH AND WELL BEING

### Quality Dimension

#### **Safe**

Assessment of patients with suspected TIA is carried out by those with appropriate specialist skills and experience

#### **Timely**

All suspected TIA patients are risk stratified using the ABCD2 score. People with a suspected TIA at high risk of stroke (e.g. an ABCD2 score of 4 or greater) in whom vascular territory or pathology is uncertain undergo urgent brain imaging (preferably MR with DWI\*) within 24 hours of onset of symptoms.

#### **Effective**

Effective preventive treatment is instituted immediately. Those who are candidates for carotid intervention undergo carotid ultrasound as soon as possible after the event and no later than 1 week post event. Carotid endarterectomy, where indicated, is performed within 2 weeks of the event.

#### **Efficient**

Rapid access TIA clinics are available to coordinate specialist assessment, investigation and management as rapidly as possible.

#### **Equitable**

Patients should have access to the same level of services for the assessment, investigation and management of TIA regardless of domicile.

#### **Patient Centred**

All confirmed TIA patients are provided with appropriate information on their condition, lifestyle advice<sup>2</sup> and a secondary prevention plan.

**SERVICE FRAMEWORK FOR CARDIOVASCULAR HEALTH AND WELL BEING**

<b>Performance Indicator:</b>	<b>Data source</b>	<b>Anticipated Performance Level</b>	<b>Date to be achieved by</b>
Percentage of confirmed TIA patients at high risk of early stroke (ABCD2 score 4 or above) who undergo specialist assessment <b>AND</b> , where clinically indicated, urgent brain imaging (preferably by MRI DWI) within 24 hours <sup>3</sup>	As per Regional Stroke Strategy	70%	March 2012
		90%	March 2013
MRI DWI, where clinically indicated, should be available as first choice brain imaging for all TIA patients within 24 hours, 7 days a week, for high risk patients and within 7 days for lower risk patients		All Trusts to provide or ensure access by another provider	March 2012
Percentage of TIA patients requiring carotid endarterectomy who undergo surgery within 2 weeks of index event		25%	March 2011
		40%	March 2012

## SERVICE FRAMEWORK FOR CARDIOVASCULAR HEALTH AND WELL BEING

Percentage of confirmed TIA patients seeking medical attention who receive appropriate antiplatelet and statin therapy within 24 hours of the index event		70%	March 2012
		95%	March 2013

### NOTES / DEFINITIONS

- 1 Specialist Assessment: This is assessment carried out by 1 or more member(s) of the stroke specialist team, which includes a physician with appropriate skills and training. In view of the need for rapid carotid and neuro-imaging in many such patients this assessment is likely to take place in an acute hospital setting e.g. stroke unit or neuro-vascular clinic
- 2 Lifestyle advice should include the following as applicable to each patient: Smoking cessation advice, alcohol intake, diet, exercises, and driving.
- 3 Where MRI DWI is not available CT brain scan should be available within 24 hours of index event where indicated. MRI DWI should be available within 72 hours for selected cases where specialist feels it is required. This interim measure is necessary as MRI access is currently limited and 7-day access is currently not available.

\*Magnetic Resonance with Diffusion Weighted Imaging

**SERVICE FRAMEWORK FOR CARDIOVASCULAR HEALTH AND WELL BEING**

Appendix 1: ABCD<sup>2</sup> Score

A (Age)	Age $\geq$ 60 yrs	Score: 1
B (BP)	BP $\geq$ 140/90	Score: 1
C (Clinical features)		
Unilateral weakness		Score: 2
Speech impairment without weakness		Score: 1
D (Duration)		
Duration $\geq$ 60 mins		Score: 2
Duration $\geq$ 10-59 mins		Score: 1
Diabetes		Score: 1

Total Score:

Maximum Score is 7

## SERVICE FRAMEWORK FOR CARDIOVASCULAR HEALTH AND WELL BEING

### Overarching standard 30:

All patients with suspected acute stroke should have rapid access to specialist assessment<sup>1</sup>, appropriate brain imaging and emergency treatment, including thrombolysis.

#### Rationale:

Stroke is a medical emergency 'Time is Brain'. Urgent investigation and management in the initial hours after onset, including thrombolysis, can minimise brain damage, reduce death rate and long term disability and is cost effective.

There is now good evidence for the benefits of thrombolysis (clot-busting treatment) in eligible patients with acute ischaemic stroke. The earlier such treatment is given after the onset of symptoms, the more effective it is. It is estimated that approximately 10% of acute stroke patients could be eligible for treatment within 3 hours of symptom onset.

#### Evidence:

National Clinical Guidelines for Stroke (2004)

<http://www.rcplondon.ac.uk/pubs/books/stroke/index.htm>

National Institute for Health and Clinical Excellence (NICE) Ischaemic stroke (acute) – Alteplase (2007) <http://www.nice.org.uk/Guidance/TA122>

National Audit Office Report "Reducing brain damage, faster access to better stroke care" (2005) <http://www.nao.org.uk/stroke/>

#### Responsibility for delivery / implementation

HSC Trusts

## SERVICE FRAMEWORK FOR CARDIOVASCULAR HEALTH AND WELL BEING

### Quality Dimension

#### **Safe**

Thrombolysis should only be delivered within the parameters of the NICE 2007 guidance 'Ischaemic stroke (acute) – Alteplase' in designated hospitals<sup>2</sup> with identified hyperacute stroke beds<sup>3</sup> following assessment by a specialist acute stroke team.

#### **Timely**

The timely and rapid progression of the patient through the appropriate care pathway is essential to better outcomes.

#### **Effective**

Thrombolysis for acute ischaemic stroke given at the right time improves patient outcomes.

#### **Efficient**

Acute stroke services should be organised to allow patients rapid access to appropriate imaging, specialist assessment and management.

#### **Patient Centred**

Notwithstanding the need for urgency in delivering thrombolysis, patients and carers need appropriate and timely information in making informed decisions at this difficult time. These needs must be represented in treatment protocols, and evidence of such consultation documented.

**SERVICE FRAMEWORK FOR CARDIOVASCULAR HEALTH AND WELL BEING**

<b>Performance Indicator:</b>	<b>Data source</b>	<b>Anticipated Performance Level</b>	<b>Date to be achieved by</b>
Percentage of eligible acute stroke patients who, following an appropriate assessment, receive thrombolysis within 3 hours of onset of symptoms of stroke.	As per Regional Stroke Strategy	50%	March 2011
		75%	March 2012
Percentage of acute stroke patients who have brain imaging within 24 hours of the stroke event.		85%	March 2011
		95%	March 2012

**NOTES / DEFINITIONS**

- <sup>1</sup> Specialist assessment is assessment carried out by a specialist stroke service, which includes a physician with appropriate stroke specialist training. Such a team also includes other professionals with appropriate training such as: a specialist nurse, allied health professionals (e.g. physiotherapist, occupational therapist, speech therapist), and radiologist.
- <sup>2</sup> A designated hospital is one, which has an agreed protocol and procedures in place for ensuring that patients who may benefit from thrombolysis have rapid access to appropriate specialist assessment and investigation (including brain imaging) and management to enable this treatment to be safely delivered.
- <sup>3</sup> A hyperacute stroke care is one is able to assess and investigate stroke patients within 3 hours of onset of stroke symptoms to assess suitability for and administer thrombolysis.

## SERVICE FRAMEWORK FOR CARDIOVASCULAR HEALTH AND WELL BEING

### Overarching standard 31:

All patients who have had a stroke should have their rehabilitation delivered by a Specialist Stroke Rehabilitation Team<sup>1</sup> in a Stroke Unit<sup>2</sup>, starting immediately after admission to hospital. Specialist stroke rehabilitation focuses on assessing the individual needs of patients and, in consultation with the patient and their family/carer(s), addressing them in the most effective way. Ongoing specialist rehabilitation needs, as defined by the Team, should continue to be delivered by a Specialist Stroke Rehabilitation Team

### Rationale:

Stroke Units improve mortality and outcome in a cost-effective way in patients admitted to hospital with an acute stroke<sup>3</sup>. For selected patients, following their in-patient stay, an early supported discharge service, with rehabilitation in the community delivered by a Specialist Stroke Rehabilitation Team, can lead to a reduction in long-term dependency and in admission to institutional care, as well as a shorter hospital stay<sup>4</sup>.

### Evidence:

Stroke Unit Trialists' Collaboration. Organised inpatient (stroke unit) care for stroke. *Cochrane Database of Systematic Reviews* 2007, Issue 4. Art. No.: CD000197. DOI: 10.1002/14651858.CD000197.pub2

<http://mrw.interscience.wiley.com/cochrane/clsysrev/articles/CD000197/frame.html>

Early Supported Discharge Trialists. Services for reducing duration of hospital care for acute stroke patients. *Cochrane Database of Systematic Reviews* 2005, Issue 2. Art. No.: CD000443. DOI: 10.1002/14651858.CD000443.pub2

<http://mrw.interscience.wiley.com/cochrane/clsysrev/articles/CD000443/frame.html>

National clinical guidelines for stroke Third edition published by Royal College of Physicians Intercollegiate Stroke Working Party 2008

<http://www.rcplondon.ac.uk/pubs/brochure.aspx?e=250>

### Responsibility for delivery / implementation

Health and Social Care Board  
Public Health Agency  
HSC Trusts

## SERVICE FRAMEWORK FOR CARDIOVASCULAR HEALTH AND WELL BEING

### Quality Dimension

#### **Safe**

All patients with stroke should have rehabilitation provided by appropriately trained staff working in an appropriate environment.

#### **Timely**

All patients should be admitted to a stroke unit at the earliest opportunity and remain there for as long as their rehabilitation needs dictate. Rehabilitation should commence as soon as the patient's condition allows.

#### **Effective**

Rehabilitation by a Specialist Stroke Team in a Stroke Unit, followed up in appropriate cases by specialist stroke rehabilitation in the community saves lives, prevents long term disability and avoids unnecessary institutionalisation.

#### **Efficient**

Specialist stroke rehabilitation significantly reduces hospital stay.

#### **Equitable**

All stroke patients should have access to specialist stroke rehabilitation for as long as required.

#### **Patient Centred**

Specialist stroke rehabilitation focuses on assessing the individual needs of patients and addressing them in the most effective way.

**SERVICE FRAMEWORK FOR CARDIOVASCULAR HEALTH AND WELL BEING**

<b>Performance Indicator:</b>	<b>Data source</b>	<b>Anticipated Performance Level</b>	<b>Date to be achieved by</b>
Percentage of stroke patients admitted directly to a specialist stroke unit <sup>5</sup> AND who spend > 90% of their stay in the stroke unit.	HSC Trust PAS data	70%	March 2010
		80%	March 2011
Percentage of stroke patients admitted to a recognised stroke rehabilitation unit <sup>6</sup> capable of providing the professional therapy hours defined in the NI Stroke Strategy, and with specialist assessment completed within the timescales specified in this Strategy document	National Sentinel Audit of Stroke returns HSC Trust Audit data	85%	March 2010
		95%	March 2011
		98%	March 2012
Percentage of stroke patients, discharged from hospital, who continue to receive rehabilitation after discharge by a stroke specialist Early Supported Discharge Team.	National Sentinel Audit of Stroke returns HSC Trust Audit data	30%	March 2011

## SERVICE FRAMEWORK FOR CARDIOVASCULAR HEALTH AND WELL BEING

### NOTES / DEFINITIONS

- <sup>1</sup> A Specialist Stroke Rehabilitation Team is a team with recognised and specific expertise in stroke rehabilitation. Its membership will include as a minimum a physician with appropriate training, trained nursing, physiotherapy, occupational therapy, speech and language therapy staff; and will have access to appropriate social work and clinical psychology expertise.
- <sup>2</sup> The Acute Stroke Standard of the DHSSPS strategy 'Improving Stroke Services In N. Ireland' specifies that all patients with suspected stroke should be immediately admitted to a Stroke Unit.
- <sup>3</sup> Organised inpatient (Stroke Unit) Care for Stroke: Cochrane Database of Systematic Reviews 2006 Issue 4
- <sup>4</sup> Services for reducing duration of hospital care for acute stroke patients: Cochrane Database of Systematic Reviews 2007 Issue 3.
- <sup>5</sup> The key features of an acute stroke unit are as follows:
  - Continuous physiological monitoring (ECG, oximetry, blood pressure);
  - Access to scanning within 3 hours of admission;
  - A policy of direct admission from A&E;
  - Specialist ward rounds at least 5 times a week; and,
  - Acute stroke protocols.
- <sup>6</sup> Rehabilitation stroke units accept patients after a delay of usually 7 days or more and focus on rehabilitation. This unit may be physically separate from an acute stroke unit or be part of a 'combined' acute and rehabilitation stroke unit. The following criteria should be in place:
  - Consultant physician with responsibility for stroke
  - Formal links with patient and carers organisations
  - Multidisciplinary meetings at least once weekly to plan patients' care
  - Continuous education programmes for staff

## **SERVICE FRAMEWORK FOR CARDIOVASCULAR HEALTH AND WELL BEING**

- Provision of information to patients and carers about stroke

## SERVICE FRAMEWORK FOR CARDIOVASCULAR HEALTH AND WELL BEING

### Overarching standard 32:

All patients who have had a stroke or TIA are reviewed post discharge by primary care services at 6 weeks, 6 months, and annually. Stroke patients with persisting disability at 6 months should be reviewed by a member of a specialist team to determine the need for a further targeted period of rehabilitation. As part of ongoing review referral to neuropsychology services should be considered where appropriate.

### Rationale:

The disabling impact of stroke continues for the lifetime of the stroke survivor. They and their family/carer need continuing support and care including social care, psychological support, counselling, re-enablement and maintenance of mobility. These may not be required by every stroke survivor at all stages, but should be readily accessible.

Patients require review and appropriate treatment and management of risk factors for vascular disease life long after stroke.

Patients should continue to have access to specialist stroke care and rehabilitation after leaving hospital.

Patients and their carers should have their individual psychosocial and support needs reviewed on a regular basis.

Any patient with reduced mobility at 6 months or later after stroke should be assessed for a further period of targeted rehabilitation.

Currently support services and follow up for stroke patients in the community are variable and often inadequate and poorly organised.

### Evidence:

RCP National Clinical Guidelines for Stroke 2004

<http://www.rcplondon.ac.uk/pubs/books/stroke/index.htm>

N.I. Stroke Strategy: Improving stroke services in Northern Ireland

<http://www.dhsspsni.gov.uk/showconsultations?txtid=26878>

Stroke Survivors – Our stories, in our words. Stroke survivor and carer recommendations for improvement of services: A report from the EHSSB stroke patient & carer reference group. June, 2007

<http://www.ehssc.org/pdfs/strokesurvivorsourstoriesinourwords.pdf>

### Responsibility for delivery / implementation

Health and Social Care Board

Public Health Agency

HSC Trusts

Primary Care

## SERVICE FRAMEWORK FOR CARDIOVASCULAR HEALTH AND WELL BEING

### Quality Dimension

#### **Safe**

All stroke survivors should have ongoing assessment of their needs and those of their carer, with particular emphasis on secondary prevention, information, education and support.

#### **Timely**

Formal assessment at critical times following stroke will ensure that needs will be identified and can be addressed in a timely way.

#### **Effective**

Effective intervention will prevent unnecessary recurrence of stroke (and other cardiovascular disease) and reduce the burden of disability resulting from incomplete rehabilitation / re-enablement or from functional deterioration.

#### **Efficient**

Reducing the burden of disability significantly reduces future demands of health and social care services.

#### **Patient Centred**

Services and interventions will be more closely focussed on the identified needs of stroke survivors and their carers.

**SERVICE FRAMEWORK FOR CARDIOVASCULAR HEALTH AND WELL BEING**

<b>Performance Indicator</b>	<b>Data source</b>	<b>Anticipated Performance Level</b>	<b>Date to be achieved by</b>
Percentage of survivors of stroke or TIA who have an appropriate up to date primary care and, where appropriate, specialist review <sup>1</sup>	Province wide stroke register should be developed	Establish common stroke dataset across region and establish baseline	March 2010
		75%	March 2012
		All stroke rehabilitation teams	March 2012
Specialist psychological support <sup>2</sup> should be accessible to all stroke rehabilitation teams to support patients and carers whose team feel require this.			

**NOTES / DEFINITIONS**

<sup>1</sup> Specialist stroke review is a review carried out by a member or members of a recognised specialist stroke team.

<sup>2</sup> The service model for specialist psychological support is being developed by the Regional Stroke Strategy Implementation Group