NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE

Health and social care directorate

Quality standards and indicators

Briefing paper

Quality standard topic: Stroke

Output: Prioritised quality improvement areas for development.

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Contents

1 Introduction

This briefing paper presents a structured overview of potential quality improvement areas for stroke. It provides the Committee with a basis for discussing and prioritising quality improvement areas for development into draft quality statements and measures for public consultation.

1.1 Structure

This briefing paper includes a brief description of the topic, a summary of each of the suggested quality improvement areas and supporting information.

If relevant, recommendations selected from the key development source below are included to help the Committee in considering potential statements and measures.

1.2 Development source

The key development sources referenced in this briefing paper is:

- Stroke rehabilitation: Long-term rehabilitation after stroke (2013) NICE guideline CG162 [Next review date December 2015]
- Stroke: Diagnosis and initial management of acute stroke and transient ischaemic attack (TIA) (2008) NICE guideline CG68 [Review decision made May 2014 not to update the guideline, next review date December 2015].

2 Overview

2.1 Focus of quality standard

This quality standard will cover diagnosis and initial management, acute-phase care, rehabilitation and long-term management of stroke in adults (over 16).

It will replace the existing quality standard for stroke.

2.2 Definition

Stroke is defined by the World Health Organization[1] as a clinical syndrome consisting of 'rapidly developing clinical signs of focal (at times global) disturbance of cerebral function, lasting more than 24 hours or leading to death with no apparent cause other than that of vascular origin'. A transient ischaemic attack (TIA) is defined as stroke symptoms and signs that resolve within 24 hours. However, there are

[1] Hatano S (1976) Experience from a multicentre stroke register: a preliminary report. Bulletin of the World Health Organization 54: 541–53.

limitations to these definitions. For example, they do not include retinal symptoms (sudden onset of monocular visual loss), which should be considered as part of the definition of stroke and TIA. A non-disabling stroke is defined as a stroke with symptoms that last for more than 24 hours but later resolve, leaving no permanent disability.

Symptoms of stroke include numbness, weakness or paralysis, slurred speech, blurred vision, confusion and severe headache. The symptoms of a TIA usually resolve within minutes or a few hours at most, and anyone with continuing neurological signs when first assessed should be assumed to have had a stroke.

2.3 Incidence and prevalence

Stroke is a major health problem in the UK. It accounted for over 56,000 deaths in England and Wales in 1999, which represents 11% of all deaths[2]. Most people survive a first stroke, but often have significant morbidity. Each year in England, approximately 110,000 people have a first or recurrent stroke and a further 20,000 people have a TIA. More than 900,000 people in England are living with the effects of stroke, with half of these being dependent on other people for help with everyday activities[3].

In England, stroke is estimated to cost the economy around £7 billion per year. This comprises direct costs to the NHS of £2.8 billion, costs of informal care of £2.4 billion and costs because of lost productivity and disability of £1.8 billion[4]. A National Stroke Strategy was developed by the Department of Health in 2007. This outlines an ambition for the diagnosis, treatment and management of stroke, including all aspects of care from emergency response to life after stroke.

2.4 Management

Stroke mortality rates in the UK have been falling steadily since the late 1960s. The development of stroke units following the publication of the Stroke Unit Trialists' Collaboration meta-analysis of stroke unit care[5], and the further reorganisation of services following the advent of thrombolysis, have resulted in further significant

2 Mant J, Wade DT, Winner S (2004) Health care needs assessment: stroke. In: Stevens A, Raftery J, Mant J et al., editors, Health care needs assessment: the epidemiologically based needs assessment reviews, First series, 2nd edition. Oxford: Radcliffe Medical Press, p141–244.

[3] National Audit Office (2005) Reducing brain damage: faster access to better stroke care. (HC 452 Session 2005–2006). London: The Stationery Office.

[4] Mant J, Wade DT, Winner S (2004) Health care needs assessment: stroke. In: Stevens A, Raftery J, Mant J et al., editors, Health care needs assessment: the epidemiologically based needs assessment reviews, First series, 2nd edition. Oxford: Radcliffe Medical Press, p141–244.

[5] Stroke Unit Trialists' Collaboration (1997) Collaborative systematic review of the randomised trials of organised inpatient (stroke unit) care after stroke. British Medical Journal (Clinical Research Ed) 314:1151–9

improvements in mortality and morbidity from stroke (as documented in the National sentinel stroke audit[6]).

Despite improvements in mortality and morbidity, people with stroke need access to effective rehabilitation services. Stroke rehabilitation is a multidimensional process, which is designed to facilitate restoration of, or adaptation to the loss of, physiological or psychological function when reversal of the underlying pathological process is incomplete. Rehabilitation aims to enhance functional activities and participation in society and thus improve quality of life.

Key aspects of rehabilitation care include multidisciplinary assessment, identification of functional difficulties and their measurement, treatment planning through goal setting, delivery of interventions which may either effect change or support the person in managing persisting change, and evaluation of effectiveness.

2.5 National Outcome Frameworks

Tables 1–3 show the outcomes, overarching indicators and improvement areas from the frameworks that the quality standard could contribute to achieving.

[6] Intercollegiate Stroke Working Party (2014) National sentinel stroke clinical audit 2014: public report for England, Wales and Northern Ireland. London: Royal College of Physicians.

Table 1 NHS Outcomes Framework 2015–16

Domain	Overarching indicators and improvement areas
1 Preventing people from dying prematurely	***Overarching indicators*** 1a Potential Years of Life Lost (PYLL) from causes considered amenable to healthcare i Adults 1b Life expectancy at 75 i Males ii Females ***Improvement areas*** **Reducing premature mortality from the major causes of death** 1.1 Under 75 mortality rate from cardiovascular disease (PHOF4.4*)
2 Enhancing quality of life for people with long-term conditions	***Overarching indicator*** 2 Health-related quality of life for people with long-term conditions (ASCOF 1A**) ***Improvement areas*** **Ensuring people feel supported to manage their condition** 2.1 Proportion of people feeling supported to manage their condition **Improving functional ability in people with long-term conditions** 2.2 Employment of people with long-term conditions(ASCOF 1E**, PHOF 1.8*) **Enhancing quality of life for carers** 2.4 Health-related quality of life for carers (ASCOF 1D**)
3 Helping people to recover from episodes of ill health or following injury	***Overarching indicators*** 3b Emergency readmissions within 30 days of discharge from hospital (PHOF 4.11*) ***Improvement areas*** **Improving recovery from stroke** *3.4 Proportion of stroke patients reporting an improvement in activity/lifestyle on the Modified Rankin Scale at 6 months* **Helping older people to recover their independence after illness or injury** 3.6 i Proportion of older people (65 and over) who were still at home 91 days after discharge from hospital into reablement/rehabilitation service (ASCOF 2B[1]*) ii Proportion offered rehabilitation following discharge from acute or community hospital (ASCOF 2B [2]*)

4 Ensuring that people have a positive experience of care	***Overarching indicators*** 4b Patient experience of hospital care 4c *Friends and family test* *4d Patient experience characterised as poor or worse* *ii Hospital care* ***Improvement areas*** **Improving people's experience of outpatient care** 4.1 Patient experience of outpatient services **Improving hospitals' responsiveness to personal needs** 4.2 Responsiveness to inpatients' personal needs **Improving people's experience of accident and emergency services** 4.3 Patient experience of A&E services **Improving the experience of care for people at the end of their lives** 4.6 Bereaved carers' views on the quality of care in the last 3 months of life **Improving people's experience of integrated care** *4.9 People's experience of integrated care (ASCOF3E**)*
5 Treating and caring for people in a safe environment and protecting them from avoidable harm	***Overarching indicators*** *5a Deaths attributable to problems in healthcare* *5b Severe harm attributable to problems in healthcare* ***Improvement areas*** **Reducing the incidence of avoidable harm** 5.1 Deaths from venous thromboembolism (VTE) related events 5.2 Incidence of healthcare associated infection (HCAI) i MRSA ii C. difficile *5.3 Proportion of patients with category 2, 3 and 4 pressure ulcers* **Improving the culture of safety reporting** 5.6 Patient safety incidents reported
Alignment with Adult Social Care Outcomes Framework and/or Public Health Outcomes Framework * Indicator is shared ** Indicator is complementary Indicators in italics in development	

Table 2 The Adult Social Care Outcomes Framework 2015–16

Domain	Overarching and outcome measures
1 Enhancing quality of life for people with care and support needs	***Overarching measure*** 1A Social care-related quality of life (NHSOF2**) ***Outcome measures*** **People manage their own support as much as they wish, so they are in control of what, how and when support is delivered to match their needs** 1B Proportion of people who use services who have control over their daily life 1C Proportion of people using social care who receive self-directed support, and those receiving direct payments **Carers can balance their caring roles and maintain their desired quality of life** 1D Carer-reported quality of life (NHSOF 2.4**) **People are able to find employment when they want, maintain a family and social life and contribute to community life, and avoid loneliness or isolation** 1I Proportion of people who use services and their carers, who reported that they had as much social contact as they would like
2 Delaying and reducing the need for care and support	***Overarching measure*** 2A Permanent admissions to residential and nursing care homes, per 100,000 population ***Outcome measures*** **Everybody has the opportunity to have the best health and wellbeing throughout their life, and can access support and information to help them manage their care needs** **Earlier diagnosis, intervention and reablement means that people and their carers are less dependent on intensive services** 2B Proportion of older people (65 and over) who were still at home 91 days after discharge from hospital into reablement/rehabilitation services (NHSOF 3.6 [1]*) *Placeholder 2E The effectiveness of reablement services* **When people develop care needs, the support they receive takes place in the most appropriate setting and enables them to regain their independence** 2C Delayed transfers of care from hospital, and those which are attributable to adult social care

3 Ensuring that people have a positive experience of care and support	***Overarching measure*** **People who use social care and their carers are satisfied with their experience of care and support services** 3A Overall satisfaction of people who use services with their care and support 3B Overall satisfaction of carers with social services *Placeholder 3E The effectiveness of integrated care* ***Outcome measures*** **Carers feel that they are respected as equal partners throughout the care process** 3C The proportion of carers who report that they have been included or consulted in discussions about the person they care for **People know what choices are available to them locally, what they are entitled to, and who to contact when they need help** 3D The proportion of people who use services and carers who find it easy to find information about support **People, including those involved in making decisions on social care, respect the dignity of the individual and ensure support is sensitive to the circumstances of each individual** This information can be taken from the Adult Social Care Survey and used for analysis at the local level.
Alignment with NHS Outcomes Framework and/or Public Health Outcomes Framework * Indicator is shared ** Indicator is complementary Indicators in italics in development	

Table 3 Public health outcomes framework for En0gland, 2013–2016

Domain	Objectives and indicators
1 Improving the wider determinants of health	***Objective*** Improvements against wider factors that affect health and wellbeing and health inequalities ***Indicators*** 1.8 Employment for those with long-term health conditions including adults with a learning disability or who are in contact with secondary mental health services (NHSOF 2.2*, ASCOF 1E**)
4 Healthcare public health and preventing premature mortality	***Objective*** Reduced numbers of people living with preventable ill health and people dying prematurely, whilst reducing the gap between communities ***Indicators*** 4.3 Mortality rate from causes considered preventable (NHSOF 1A**) 4.4 Under 75 mortality rate from all cardiovascular diseases (including heart disease and stroke) (NHSOF 1.1*) 4.11 Emergency readmissions within 30 days of discharge from hospital (NHSOF 3b*) 4.13 Health-related quality of life for older people
Alignment with Adult Social Care Outcomes Framework and/or NHS Outcomes Framework * Indicator is shared ** Indicator is complementary Indicators in italics in development	

3 Summary of suggestions

3.1 Responses

In total 21 stakeholders responded to the 2-week engagement exercise 06/05/15 – 20/05/15.

Stakeholders were asked to suggest up to 5 areas for quality improvement. Specialist committee members were also invited to provide suggestions. The responses have been merged and summarised in table 4 for further consideration by the Committee.

Full details of all the suggestions provided are given in appendix 4 for information.

Table 4 Summary of suggested quality improvement areas

Suggested area for improvement	Stakeholders
Rapid recognition of symptoms and diagnosis • Prompt recognition of symptoms of stroke and TIA • Assessment of people who have had a suspected TIA, and identifying those at high risk of stroke	NISN, SCM
Specialist care for people with acute stroke • Specialist stroke units • Brain imaging for the early assessment of people with acute stroke	BASP, ISWP, LSCN, NHSE, NISN, RCP, SA, SCM, UKNG-RCR
Pharmacological treatments for people with acute stroke • Thrombolysis with alteplase • Blood pressure control	BASP, BHS, SA
Organising health and social care for people needing rehabilitation after stroke • Orthotics • Transfer of care from hospital to community	BAPO, BASP, COT, CSP, ISWP, LSCN, NHSE, NISN, RCP, SA, SCM, TSDHC
Planning and delivering stroke rehabilitation • Intensity of stroke rehabilitation • Types of stroke rehabilitation • Providing support and information	BSRM, COT, CSP, ISWP, LSCN, NHSE, NISN, PCNS, RCP, RCSLT, SA, SCM, TPT, TSDHC
Long-term health and social support • Six month review • Goal planning	BASP, COT, LSCN, NHSE, PCNS, RCP, SA, SCM
Additional areas • Thrombectomy • Mechanical clot retrieval • Atrial fibrillation • Palliative care • Continence • Venous thromboembolism • Vascular imaging • Measurement tools • Mobile stroke units	BASP, BI, BSNR & RCR, CSP, ISWP, M, NHSE, PCNS, RCP, SA, SCM, TSDHC, UKNG-RCR

Suggested area for improvement	Stakeholders
BAPO, British Association of Prosthetists and Orthotists BASP, British Association of Stroke Physicians BHS, British Hypertension Society BI, Boehringer Ingelheim BSNR & RCR, British Society of Neuroradiologists (BSNR) / The Royal College of Radiologists (RCR) BSRM, British Society of Rehabilitation Medicine COT, College of Occupational Therapists CSP, The Chartered Society of Physiotherapy ISWP, Intercollegiate Stroke Working Party LSCN, London Strategic Clinical Network M, Medtronic NHSE, NHS England NISN, Northern Ireland Stroke Network PCNS, Primary Care Neurology Society RCP, Royal College of Physicians RCSLT, Royal College of Speech and Language Therapists SA, Stroke Association SCM, Specialist Committee Member TPT. Thomas Pocklington Trust TSDHC, Torbay & Southern Devon Health & Care Trust UKNG-RCR, UK Neurointerventional Group (Royal College of Radiologists)	

4 Suggested improvement areas

4.1 Rapid recognition of symptoms and diagnosis

4.1.1 Summary of suggestions

Prompt recognition of symptoms of stroke and TIA

A stakeholder highlighted that all people with suspected stroke should receive a record of onset of symptoms, the Face Arm Speech Test (FAST) as well as blood glucose and blood pressure measured, which enables rapid recognition which can instigate prompt treatment. The stakeholder also highlighted that those who present with symptoms not detected using FAST should be assessed using a neurological assessment.

Assessment of people who have had a suspected TIA, and identifying those at high risk of stroke

Stakeholders identified that people who are at high risk, or who have a suspect TIA need specialist management as soon as possible. This includes assessment with a validated scoring system such as ABCD^2 and if indicated specialist assessment within 24 hours.

4.1.2 Selected recommendations from development source

Table 5 below highlights recommendations that have been provisionally selected from the development sources that may support potential statement development. These are presented in full after table 5 to help inform the Committee's discussion.

Table 5 Specific areas for quality improvement

Suggested quality improvement area	Suggested source guidance recommendations
Prompt recognition of symptoms of stroke and TIA	**Prompt recognition of symptoms of stroke and TIA** NICE CG68 Recommendations 1.1.1.1 (KPI) to 1.1.1.3
Assessment of people who have had a suspected TIA, and identifying those at high risk of stroke	**Assessment of people who have had a suspected TIA, and identifying those at high risk of stroke** NICE CG68 Recommendations 1.1.2.1 and 1.1.2.2 (KPIs)

Prompt recognition of symptoms of stroke and TIA

NICE CG68 – Recommendation 1.1.1.1 (key priority for implementation)

In people with sudden onset of neurological symptoms a validated tool, such as FAST (Face Arm Speech Test), should be used outside hospital to screen for a diagnosis of stroke or TIA.

NICE CG68 – Recommendation 1.1.1.2

In people with sudden onset of neurological symptoms, hypoglycaemia should be excluded as the cause of these symptoms.

NICE CG68 – Recommendation 1.1.1.3

People who are admitted to accident and emergency (A&E) with a suspected stroke or TIA should have the diagnosis established rapidly using a validated tool, such as ROSIER (Recognition of Stroke in the Emergency Room).

Assessment of people who have had a suspected TIA, and identifying those at high risk of stroke

NICE CG68 – Recommendation 1.1.2.1 (key priority for implementation)

People who have had a suspected TIA (that is, they have no neurological symptoms at the time of assessment [within 24 hours]) should be assessed as soon as possible for their risk of subsequent stroke using a validated scoring system, such as ABCD[2.]

NICE CG68 – Recommendation 1.1.2.2 (key priority for implementation)

People who have had a suspected TIA who are at high risk of stroke (that is, with an ABCD[2] score of 4 or above) should have:

- aspirin (300 mg daily) started immediately
- specialist assessment[7] and investigation within 24 hours of onset of symptoms
- measures for secondary prevention introduced as soon as the diagnosis is confirmed, including discussion of individual risk factors.

4.1.3 Current UK practice

Prompt recognition of symptoms of stroke and TIA

The Sentinel Stroke Audit National Audit Programme (SNNAP) presents national and hospital level data on hospital admissions for stroke in England and Northern Ireland. In the quarter Oct–Dec 2014 it was reported that 61% of patients had a known time of symptom onset, with 33.6% of these precise and 34.3% best estimates. While no data was available on the use of FAST the SSNAP audit did find that due to delays between onset of stroke and arrival in hospital (median 2h 30m) campaigns such as

[7] NICE guideline CG68. Specialist assessment includes exclusion of stroke mimics, identification of vascular treatment, identification of likely causes, and appropriate investigation and treatment.

ACT FAST are still needed to improve public understanding, as well as the requirement to work with ambulance services to reduce arrival time[8].

Assessment of people who have had a suspected TIA, and identifying those at high risk of stroke

While no published evidence of the use of ABCD[2], in terms of specialised assessment the SNNAP found that 87.4% of patients were assessed by a nurse trained in stroke management within 24 hours, and 76.5% were assessed by a stroke specialist consultant physician within 24 hours[9].

[8] Royal College of Physicians (2015) Sentinel Stroke National Audit Programme (SSNAP): Clinical audit October-December 2014, May 2015
[9] Royal College of Physicians (2015) Sentinel Stroke National Audit Programme (SSNAP): Clinical audit October-December 2014, May 2015

4.2 Specialist care for people with acute stroke

4.2.1 Summary of suggestions

Specialist stroke units

Stakeholders highlighted the importance of stroke unit care and the large body of evidence on the beneficial outcomes it can give. It should be available for all people with stroke or with suspected stroke. The quicker people are admitted to specialist stroke units the better their potential outcomes may be and stakeholders suggested this should be within 4 hours of arrival in hospital.

Brain imaging for the early assessment of people with acute stroke

Stakeholders identified the importance of prompt CT scans (within 1 hour) for people with a suspected stroke. This demonstrates the ability of A&E departments to respond rapidly to stroke and also enable specialist management such as thrombolysis to take place.

4.2.2 Selected recommendations from development source

Table 6 below highlights recommendations that have been provisionally selected from the development sources that may support potential statement development. These are presented in full after table 6 to help inform the Committee's discussion.

Table 6 Specific areas for quality improvement

Suggested quality improvement area	Suggested source guidance recommendations
Specialist stroke units	**Specialist stroke units** NICE CG68 Recommendation 1.3.1.1 (KPI)
Brain imaging for the early assessment of people with acute stroke	**Brain imaging for the early assessment of people with acute stroke** NICE CG68 Recommendations 1.3.2.1 (KPI) and 1.3.2.2

Specialist stroke units

NICE CG68 – Recommendation 1.3.1.1 (key priority for implementation)

All people with suspected stroke should be admitted directly to a specialist acute stroke unit[10] following initial assessment, either from the community or from the A&E department.

Brain imaging for the early assessment of people with acute stroke

NICE CG68 – Recommendation 1.3.2.1 (key priority for implementation)

Brain imaging should be performed immediately[11] for people with acute stroke if any of the following apply:

- indications for thrombolysis or early anticoagulation treatment
- on anticoagulant treatment
- a known bleeding tendency
- a depressed level of consciousness (Glasgow Coma Score below 13)
- unexplained progressive or fluctuating symptoms
- papilloedema, neck stiffness or fever
- severe headache at onset of stroke symptoms.

NICE CG68 – Recommendation 1.3.2.2

For all people with acute stroke without indications for immediate brain imaging, scanning should be performed as soon as possible[12].

4.2.3 Current UK practice

Specialist stroke units

The SSNAP reported that in the quarter Oct–Dec 2014 56.9% of all stroke patients were directly admitted to a stroke unit within 4 hours of clock start[13] (not necessarily onset of symptoms) with a median time of 3 hours and 41 minutes, although median time from symptom onset to arrival at a stroke unit was 7 hours and 10 minutes.

[10] NICE guideline CG68. An acute stroke unit is a discrete area in the hospital that is staffed by a specialist stroke multidisciplinary team. It has access to equipment for monitoring and rehabilitating patients. Regular multidisciplinary team meetings occur for goal setting.
[11] NICE guideline CG68. The GDG felt that 'immediately' is defined as 'ideally the next slot and definitely within 1 hour, whichever is sooner', in line with the National Stroke Strategy.
[12] NICE guideline CG68. The GDG felt that 'as soon as possible' is defined as 'within a maximum of 24 hours after onset of symptoms'.
[13] Royal College of Physicians (2015) Sentinel Stroke National Audit Programme (SSNAP): Clinical audit October-December 2014, May 2015 'Clock start' is used to signify the time at which the 'clock starts' for measuring key timings. This is arrival in most instances (patients newly arriving in hospital) but will be the onset of symptoms time for patients already in hospital at time of stroke

Brain imaging for the early assessment of people with acute stroke

The SSNAP reported that in the quarter Oct–Dec 2014 44% of all stroke patients had a brain scan within 1 hour of arrival, and 93% within 24 hours of arrival[14].

[14] Royal College of Physicians (2015) Sentinel Stroke National Audit Programme (SSNAP): Clinical audit October-December 2014, May 2015

4.3 Pharmacological treatments for people with acute stroke

4.3.1 Summary of suggestions

Thrombolysis with alteplase

Stakeholders highlighted that treatment with thrombolysis can significantly reduce morbidity and mortality in those in who it is indicated, with acute stroke.

Blood pressure control

A stakeholder suggested that control of hypertension after stroke or TIA can control risk factors to prevent further stroke. The stakeholder highlighted that hypertension is the biggest risk factor for stroke and therefore it should be targeted.

4.3.2 Selected recommendations from development source

Table 7 below highlights recommendations that have been provisionally selected from the development sources that may support potential statement development. These are presented in full after table 7 to help inform the Committee's discussion.

Table 7 Specific areas for quality improvement

Suggested quality improvement area	Suggested source guidance recommendations
Thrombolysis with alteplase	**Thrombolysis with alteplase** NICE CG68 Recommendations 1.4.1.1 to 1.4.1.4
Blood pressure control	**Blood pressure control** NICE CG68 Recommendations 1.5.3.1 and 1.5.3.2 **Long-term health and social support** NICE CG162 Recommendation 1.11.6

Thrombolysis with alteplase

NICE CG68 – Recommendation 1.4.1.1

Alteplase is recommended for the treatment of acute ischaemic stroke when used by physicians trained and experienced in the management of acute stroke. It should only be administered in centres with facilities that enable it to be used in full accordance with its marketing authorisation.

NICE CG68 – Recommendation 1.4.1.2

Alteplase should be administered only within a well organised stroke service with:

- staff trained in delivering thrombolysis and in monitoring for any complications associated with thrombolysis
- level 1 and level 2 nursing care staff trained in acute stroke and thrombolysis[19]
- immediate access to imaging and re-imaging, and staff trained to interpret the images.

NICE CG68 – Recommendation 1.4.1.3

Staff in A&E departments, if appropriately trained and supported, can administer alteplase for the treatment of acute ischaemic stroke provided that patients can be managed within an acute stroke service with appropriate neuroradiological and stroke physician support.

NICE CG68 – Recommendation 1.4.1.4

Protocols should be in place for the delivery and management of thrombolysis, including post-thrombolysis complications.

Blood pressure control

NICE CG68 – Recommendation 1.5.3.1

Anti-hypertensive treatment in people with acute stroke is recommended only if there is a hypertensive emergency with one or more of the following serious concomitant medical issues:

- hypertensive encephalopathy
- hypertensive nephropathy
- hypertensive cardiac failure/myocardial infarction
- aortic dissection
- pre-eclampsia/eclampsia
- intracerebral haemorrhage with systolic blood pressure over 200 mmHg.

NICE CG68 – Recommendation 1.5.3.2

Blood pressure reduction to 185/110 mmHg or lower should be considered in people who are candidates for thrombolysis.

NICE CG162 – Recommendation 1.1.16

For guidance on secondary prevention of stroke, follow recommendations in Lipid modification (NICE clinical guideline 67), Hypertension (NICE clinical guideline 127), Type 2 diabetes (NICE clinical guideline 87) and Atrial fibrillation (NICE clinical guideline 36).

4.3.3 Current UK practice

Thrombolysis with alteplase

The SSNAP reported that in the quarter Oct–Dec 2014 82.2% of eligible patients were given thrombolysis (eligible according to the Royal College of Physicians (RCP) guideline minimum threshold) of which 57.0% were treated within 1 hour[15].

Blood pressure control

No published studies on current practice were highlighted for this suggested area though the SSNAP reported that 72.6% of patients were taking antihypertensives on admission[16].

[15] Royal College of Physicians (2015) Sentinel Stroke National Audit Programme (SSNAP): Clinical audit October-December 2014, May 2015
[16] Royal College of Physicians (2015) Sentinel Stroke National Audit Programme (SSNAP): Clinical audit October-December 2014, May 2015

4.4 Organising health and social care for people needing rehabilitation after stroke

4.4.1 Summary of suggestions

Orthotics

A stakeholder highlighted the need for timely access to specialist orthotic services for people who have had a stroke with impaired mobility. This would enable improvements in walking by providing the full range of lower limb orthoses.

Transfer of care from hospital to community

Stakeholders identified early supported discharge services as a key area to improve outcomes such as patient satisfaction and length of stay for stroke rehabilitation; it is also at a lower cost than other rehabilitation services. Access and standards of early supported discharge services can be varied across the health service.

4.4.2 Selected recommendations from development source

Table 8 below highlights recommendations that have been provisionally selected from the development sources that may support potential statement development. These are presented in full after table 8 to help inform the Committee's discussion.

Table 8 Specific areas for quality improvement

Suggested quality improvement area	Suggested source guidance recommendations
Orthotics	**Stroke unit** NICE CG162 Recommendation 1.1.2
Transfer of care from hospital to community	**Transfer of care from hospital to community** NICE CG162 Recommendations 1.1.8 (KPI) and 1.1.9

Orthotics

NICE CG162 – Recommendation 1.1.2

An inpatient stroke rehabilitation service should consist of the following:

- a dedicated stroke rehabilitation environment
- a core multidisciplinary team (see recommendation 1.1.3) who have the knowledge, skills and behaviours to work in partnership with people with stroke and their families and carers to manage the changes experienced as a result of a stroke
- access to other services that may be needed, for example

- continence advice
- dietetics
- electronic aids (for example, remote controls for doors, lights and heating, and communication aids)
- liaison psychiatry
- orthoptics
- orthotics
- pharmacy
- podiatry
- wheelchair services

Transfer of care from hospital to community

NICE CG162 – Recommendation 1.1.8 (key priority for implementation)

Offer early supported discharge to people with stroke who are able to transfer from bed to chair independently or with assistance, as long as a safe and secure environment can be provided.

NICE CG162 – Recommendation 1.1.9

Early supported discharge should be part of a skilled stroke rehabilitation service and should consist of the same intensity of therapy and range of multidisciplinary skills available in hospital. It should not result in a delay in delivery of care.

4.4.3 Current UK practice

Orthotics

The Audit Commissions fully equipped report found that most trusts provide a small-scale orthotic service with only 20% of trusts employing their own orthotists. In the report orthotics is considered to be a fragmented service with poor equity of access as well as large waiting times. Though not focusing particularly on people with stroke waiting times for orthoses range from around 2 weeks to up to 8 weeks average wait[17].

Transfer of care from hospital to community

The SSNAP reported that in the quarter Oct–Dec 2014 only 29.3% were treated by a skilled Early Supported Discharge team[18].

[17] Audit commission (2000). Fully equipped: the provision of equipment to older or disabled people by the NHS and social services in England and Wales.
[18] Royal College of Physicians (2015) Sentinel Stroke National Audit Programme (SSNAP): Clinical audit October-December 2014, May 2015

4.5 Planning and delivering stroke rehabilitation

4.5.1 Summary of suggestions

Intensity of stroke rehabilitation

Stakeholders highlighted the need for people who have had a stroke to receive a minimum intensity of stroke rehabilitation. They highlighted that this was 45 minutes of each active therapy for a minimum of 5 days a week for continued benefit in both hospital and in the community. This would provide faster and better outcomes.

Types of stroke rehabilitation

Stakeholders suggested a number of stroke rehabilitation services that required quality improvement. This included access to physiotherapy and movement services, visual impairment services, psychological services (including emotional needs), vocational services and communication (speech and language therapies). These services were all felt to be varied across the health service, and potentially benefit all people who have had stroke. Stakeholders also identified that further research may be necessary for rehabilitation specific to stroke.

Providing support and information

Stakeholders highlighted that good information and support is required for people who have had a stroke and their carers. This is due to the life changing nature of a stroke which can leave people feeling unprepared for what is to come. Providing information and support can help prevent further strokes and also improve the likelihood of recovery post-stroke. There was also particular concern raised by a stakeholder about the information and access to support that people in care homes receive.

4.5.2 Selected recommendations from development source

Table 9 below highlights recommendations that have been provisionally selected from the development sources that may support potential statement development. These are presented in full after table 9 to help inform the Committee's discussion.

Table 9 Specific areas for quality improvement

Suggested quality improvement area	Suggested source guidance recommendations
Intensity of stroke rehabilitation	**Intensity of stroke rehabilitation** NICE CG162 Recommendations 1.2.16 (KPI) to 1.2.18

Types of stroke rehabilitation	**Emotional functioning** NICE CG162 Recommendations 1.5.1 (KPI) to 1.5.4 **Vision** NICE CG162 Recommendations 1.6.1 to 1.6.4 **Communication** NICE CG162 Recommendations 1.8.1 to 1.8.3 and 1.8.11, 1.8.12 and 1.8.15 **Movement** NICE CG162 Recommendations 1.9.1 to 1.9.3 **Return to work** NICE CG162 Recommendations 1.10.5 (KPI) and 1.10.6
Providing support and information	**Providing support and information** NICE CG162 Recommendations 1.3.1 to 1.3.4

Intensity of stroke rehabilitation

NICE CG162 – Recommendation 1.2.16 (key priority for implementation)

Offer initially at least 45 minutes of each relevant stroke rehabilitation therapy for a minimum of 5 days per week to people who have the ability to participate, and where functional goals can be achieved. If more rehabilitation is needed at a later stage, tailor the intensity to the person's needs at that time.

NICE CG162 – Recommendation 1.2.17

Consider more than 45 minutes of each relevant stroke rehabilitation therapy 5 days per week for people who have the ability to participate and continue to make functional gains, and where functional goals can be achieved.

NICE CG162 – Recommendation 1.2.18

If people with stroke are unable to participate in 45 minutes of each rehabilitation therapy, ensure that therapy is still offered 5 days per week for a shorter time at an intensity that allows them to actively participate.

Types of stroke rehabilitation

Emotional functioning

NICE CG162 – Recommendation 1.5.1 (key priority for implementation)

Assess emotional functioning in the context of cognitive difficulties in people after stroke. Any intervention chosen should take into consideration the type or complexity of the person's neuropsychological presentation and relevant personal history.

NICE CG162 – Recommendation 1.5.2

Support and educate people after stroke and their families and carers, in relation to emotional adjustment to stroke, recognising that psychological needs may change over time and in different settings.

NICE CG162 – Recommendation 1.5.3

When new or persisting emotional difficulties are identified at the person's 6‑month or annual stroke reviews, refer them to appropriate services for detailed assessment and treatment.

NICE CG162 – Recommendation 1.5.4

Manage depression or anxiety in people after stroke who have no cognitive impairment in line with recommendations in Depression in adults with a chronic physical health problem (NICE clinical guideline 91) and Generalised anxiety disorder (NICE clinical guideline 113).

Vision

NICE CG162 – Recommendation 1.6.1

Screen people after stroke for visual difficulties.

NICE CG162 – Recommendation 1.6.2

Refer people with persisting double vision after stroke for formal orthoptic assessment.

NICE CG162 – Recommendation 1.6.3

Offer eye movement therapy to people who have persisting hemianopia after stroke and who are aware of the condition.

NICE CG162 – Recommendation 1.6.4

When advising people with visual problems after stroke about driving, consult the Driver and Vehicle Licensing Agency (DVLA) regulations.

Communication

NICE CG162 – Recommendation 1.8.1

Screen people after stroke for communication difficulties within 72 hours of onset of stroke symptoms.

NICE CG162 – Recommendation 1.8.2

Each stroke rehabilitation service should devise a standardised protocol for screening for communication difficulties in people after stroke.

NICE CG162 – Recommendation 1.8.3

Refer people with suspected communication difficulties after stroke to a speech and language therapist for detailed analysis of speech and language impairments and assessment of their impact.

NICE CG162 – Recommendation 1.8.11

When persisting communication difficulties are identified at the person's 6‑month or annual stroke reviews, refer them back to a speech and language therapist for detailed assessment, and offer treatment if there is potential for functional improvement.

NICE CG162 – Recommendation 1.8.12

Help and enable people with communication difficulties after stroke to communicate their everyday needs and wishes, and support them to understand and participate in both everyday and major life decisions.

NICE CG162 – Recommendation 1.8.15

Offer training in communication skills (such as slowing down, not interrupting, using communication props, gestures, drawing) to the conversation partners of people with aphasia after stroke.

Movement

NICE CG162 – Recommendation 1.9.1

Provide physiotherapy for people who have weakness in their trunk or upper or lower limb, sensory disturbance or balance difficulties after stroke that have an effect on function.

NICE CG162 – Recommendation 1.9.2

People with movement difficulties after stroke should be treated by physiotherapists who have the relevant skills and training in the diagnosis, assessment and management of movement in people with stroke.

NICE CG162 – Recommendation 1.9.3

Treatment for people with movement difficulties after stroke should continue until the person is able to maintain or progress function either independently or with assistance from others (for example, rehabilitation assistants, family members, carers or fitness instructors).

Return to work

NICE CG162 – Recommendation 1.10.5 (key priority for implementation)

Return-to-work issues should be identified as soon as possible after the person's stroke, reviewed regularly and managed actively. Active management should include:

- identifying the physical, cognitive, communication and psychological demands of the job (for example, multi-tasking by answering emails and telephone calls in a busy office)
- identifying any impairments on work performance (for example, physical limitations, anxiety, fatigue preventing attendance for a full day at work, cognitive impairments preventing multi-tasking, and communication deficits)
- tailoring an intervention (for example, teaching strategies to support multi-tasking or memory difficulties, teaching the use of voice-activated software for people with difficulty typing, and delivery of work simulations)
- educating about the Equality Act 2010 and support available (for example, an access to work scheme)
- workplace visits and liaison with employers to establish reasonable accommodations, such as provision of equipment and graded return to work.

NICE CG162 – Recommendation 1.10.6

Manage return to work or long-term absence from work for people after stroke in line with recommendations in Managing long-term sickness and incapacity for work (NICE public health guidance 19).

Providing support and information

NICE CG162 – Recommendation 1.3.1

Working with the person with stroke and their family or carer, identify their information needs and how to deliver them, taking into account specific impairments such as aphasia and cognitive impairments. Pace the information to the person's emotional adjustment.

NICE CG162 – Recommendation 1.3.2

Provide information about local resources (for example, leisure, housing, social services and the voluntary sector) that can help to support the needs and priorities of the person with stroke and their family or carer.

NICE CG162 – Recommendation 1.3.3

Review information needs at the person's 6-month and annual stroke reviews and at the start and completion of any intervention period.

NICE CG162 – Recommendation 1.3.4

NICE has produced guidance on the components of good patient experience in adult NHS services. Follow the recommendations in Patient experience in adult NHS services (NICE clinical guidance 138)

4.5.3 Current UK practice

Intensity of stroke rehabilitation

The SSNAP reported that in the quarter Oct–Dec 2014 that for people receiving occupational therapy, physiotherapy and speech and language therapy the median number of minutes of therapy on the day was 40 minutes, 34minutes and 31 respectively. The SNNAP report also highlighted that there are days that people are not receiving any rehabilitation therapy at all, which would bring down these median times[19]. The Stroke Association's report struggling to recover, found that while people valued the support offered in rehabilitation there was limited availability, leading to associated health problems such as anxiety. Forty-three percent of people wanted more support from the health services, with the biggest priority (23%) being physiotherapy[20].

Types of stroke rehabilitation

The SSNAP reported that in the quarter Oct–Dec 2014 on occupational therapy, physiotherapy and speech and language therapy. Of minutes of therapy required, for occupational therapy 74.3% were received, physiotherapy 70.9% were received and speech and language therapy 37% were received[21]. The struggling to recover report highlighted that those of working age often do not receive appropriate support to return to work[22].

Providing support and information

[19] Royal College of Physicians (2015) Sentinel Stroke National Audit Programme (SSNAP): Clinical audit October-December 2014, May 2015
[20] Stroke Association (2015). Struggling to recover
[21] Royal College of Physicians (2015) Sentinel Stroke National Audit Programme (SSNAP): Clinical audit October-December 2014, May 2015
[22] Stroke Association (2015). Struggling to recover

The struggling to recover report highlighted survivors of stroke and their carers are not always made aware of or provided with information. In England around 30% of respondents were not aware of information to help support themselves and/or their carers.[23].

[23] Stroke Association (2015). Struggling to recover

4.6 Long-term health and social support

4.6.1 Summary of suggestions

Six month review

Stakeholders highlighted the need for long term review and follow up, and in particular identified the need for a 6 month review and annually thereafter. This should be completed as people's condition, needs and support can change in the long run and services need to be tailored appropriately.

Goal planning

A stakeholder identified the need for multi-disciplinary team goal planning. This is associated with better rehabilitation outcomes.

4.6.2 Selected recommendations from development source

Table 10 below highlights recommendations that have been provisionally selected from the development sources that may support potential statement development. These are presented in full after table 10 to help inform the Committee's discussion.

Table 10 Specific areas for quality improvement

Suggested quality improvement area	Selected source guidance recommendations
Six month review	**Long-term health and social support** CG162 Recommendation 1.11.5 (KPI)
Goal planning	**Planning and delivering stroke rehabilitation** CG162 Recommendations 1.2.8 and 1.2.12 **Long-term health and social support** CG162 Recommendation 1.11.3

Six month review

NICE CG162 – Recommendation 1.11.5 (key priority for implementation)

Review the health and social care needs of people after stroke and the needs of their carers at 6 months and annually thereafter. These reviews should cover participation and community roles to ensure that people's goals are addressed.

Goal planning

NICE CG162 – Recommendation 1.2.8

Ensure that people with stroke have goals for their rehabilitation that:

- are meaningful and relevant to them
- focus on activity and participation
- are challenging but achievable
- include both short-term and long-term elements.

NICE CG162 – Recommendation 1.2.12

Review people's goals at regular intervals during their stroke rehabilitation.

NICE CG162 – Recommendation 1.11.3

Encourage people to focus on life after stroke and help them to achieve their goals. This may include:

- facilitating their participation in community activities, such as shopping, civic engagement, sports and leisure pursuits, visiting their place of worship and stroke support groups
- supporting their social roles, for example, work, education, volunteering, leisure, family and sexual relationships
- providing information about transport and driving (including DVLA requirements; see www.dft.gov.uk/dvla/medical/aag).

4.6.3 Current UK practice

Six month review

The SSNAP reported that though the vast majority of people after stroke are eligible to receive a 6 month review, it is currently only happening in 19.2% of cases.[24].

Goal planning

The SSNAP reported that 87.6% of people had rehabilitation goals agreed by a multi-disciplinary team within 5 days[25].

[24] Royal College of Physicians (2015) Sentinel Stroke National Audit Programme (SSNAP): Clinical audit October-December 2014, May 2015
[25] Royal College of Physicians (2015) Sentinel Stroke National Audit Programme (SSNAP): Clinical audit October-December 2014, May 2015

4.7 Additional areas

Summary of suggestions

The improvement areas below were suggested as part of the stakeholder engagement exercise. However they were felt to be either unsuitable for development as quality statements, outside the remit of this particular quality standard referral or require further discussion by the Committee to establish potential for statement development.

There will be an opportunity for the QSAC to discuss these areas at the end of the session on 01/07/15.

Thrombectomy

Stakeholders suggested thrombectomy as an area of emergent practice. Stakeholders felt that evidence thus far suggested that it will be a treatment which is beneficial for some people who have had a stroke. This area is not contained within either of the development sources or other NICE accredited guidelines.

Mechanical clot retrieval

A stakeholder felt mechanical clot retrieval should be an area for quality improvement given its ability to treat people with acute ischaemic stroke and confirmed large-vessel occlusion. While this is covered in NICE interventional procedure guideline 485, these are not usually used for the basis of quality statements, and it is not contained in either of the development source guidance.

Atrial fibrillation

Stakeholders highlighted that atrial fibrillation increases the risk of ischaemic stroke and that treatment with anticoagulation can reduce this risk. This area for quality improvement will be addressed in the upcoming atrial fibrillation quality standard which is due to be published July 2015.

Palliative care

A stakeholder felt that in recognition of severe life-limiting strokes and those which may result in death (around 17%), palliative care should be addressed. There is currently a NICE quality standard on end of life care for adults which was published August 2011 and it would need to be considered if this quality improvement area goes beyond this.

Continence management

A stakeholder felt that assessment and services for incontinence issues need to be easily accessible. While recommendations are mentioned within the source guidance continence management refers to the NICE guidance on urinary incontinence in neurological disease and faecal incontinence. There is currently a NICE quality standard on faecal incontinence, as well as a referred quality standard on neurological problems.

Venous thromboembolism

A stakeholder highlighted that preventing venous thromboembolism in people with stroke can reduce the risk of people having long term complications. Using intermittent pneumatic compression can prevent venous thromboembolism. There is a quality standard on venous thromboembolism prevention including a statement on prophylaxis and it would need to be considered if this quality improvement area goes beyond this.

Vascular imaging

A stakeholder raised vascular imaging as a quality improvement area. This would enable vascular occlusion to be identified. This area is not contained within either of the development sources or other NICE accredited guidelines.

Measurement tools

A stakeholder raised the important of measurement tools. They highlighted that more reliable and sensitive tools are required as tools such as the rankin scale do not give a clear picture. However, it is not in the remit of quality standards to recommend measurement tools, as well as new measurement tools not being contained within either of the development sources or other NICE accredited guidelines.

Mobile stroke units

A stakeholder highlighted the important of mobile stroke unites, and that they can improve the time it takes to confirm a diagnosis of stroke and therefore commence treatment. This area is not contained within either of the development sources or other NICE accredited guidelines.

Appendix 1: Stroke quality standard (2010)

List of statements

Statement 1. People seen by ambulance staff outside hospital, who have sudden onset of neurological symptoms, are screened using a validated tool to diagnose stroke or transient ischaemic attack (TIA). Those people with persisting neurological symptoms who screen positive using a validated tool, in whom hypoglycaemia has been excluded, and who have a possible diagnosis of stroke, are transferred to a specialist acute stroke unit within 1 hour.

Statement 2. Patients with acute stroke receive brain imaging within 1 hour of arrival at the hospital if they meet any of the indications for immediate imaging.

Statement 3. Patients with suspected stroke are admitted directly to a specialist acute stroke unit and assessed for thrombolysis, receiving it if clinically indicated.

Statement 4. Patients with acute stroke have their swallowing screened by a specially trained healthcare professional within 4 hours of admission to hospital, before being given any oral food, fluid or medication, and they have an ongoing management plan for the provision of adequate nutrition.

Statement 5. Patients with stroke are assessed and managed by stroke nursing staff and at least one member of the specialist rehabilitation team within 24 hours of admission to hospital, and by all relevant members of the specialist rehabilitation team within 72 hours, with documented multidisciplinary goals agreed within 5 days.

Statement 6. Patients who need ongoing inpatient rehabilitation after completion of their acute diagnosis and treatment are treated in a specialist stroke rehabilitation unit.

Statement 7. Patients with stroke are offered a minimum of 45 minutes of each active therapy that is required, for a minimum of 5 days a week, at a level that enables the patient to meet their rehabilitation goals for as long as they are continuing to benefit from the therapy and are able to tolerate it.

Statement 8. Patients with stroke who have continued loss of bladder control 2 weeks after diagnosis are reassessed to identify the cause of incontinence, and have an ongoing treatment plan involving both patients and carers.

Statement 9. All patients after stroke are screened within 6 weeks of diagnosis, using a validated tool, to identify mood disturbance and cognitive impairment.

Statement 10. All patients discharged from hospital who have residual stroke-related problems are followed up within 72 hours by specialist stroke rehabilitation services for assessment and ongoing management.

Statement 11. Carers of patients with stroke are provided with a named point of contact for stroke information, written information about the patient's diagnosis and management plan, and sufficient practical training to enable them to provide care.

Appendix 2: Key priorities for implementation (CG68)

Recommendations that are key priorities for implementation in the source guideline and that have been referred to in the main body of this report are highlighted in grey.

Rapid recognition of symptoms and diagnosis

- In people with sudden onset of neurological symptoms a validated tool, such as FAST (Face Arm Speech Test), should be used outside hospital to screen for a diagnosis of stroke or TIA.
- People who have had a suspected TIA who are at high risk of stroke (that is, with an ABCD2 score of 4 or above) should have:
    - aspirin (300 mg daily) started immediately
    - specialist assessment[6] and investigation within 24 hours of onset of symptoms
    - measures for secondary prevention introduced as soon as the diagnosis is confirmed, including discussion of individual risk factors.
- People with crescendo TIA (two or more TIAs in a week) should be treated as being at high risk of stroke, even though they may have an ABCD2 score of 3 or below.

Specialist care for people with acute stroke

- All people with suspected stroke should be admitted directly to a specialist acute stroke unit following initial assessment, either from the community or from the A&E department.
- Brain imaging should be performed immediately for people with acute stroke if any of the following apply:
    - indications for thrombolysis or early anticoagulation treatment
    - on anticoagulant treatment
    - a known bleeding tendency
    - a depressed level of consciousness (Glasgow Coma Score below 13)
    - unexplained progressive or fluctuating symptoms
    - papilloedema, neck stiffness or fever
    - severe headache at onset of stroke symptoms.

Nutrition and hydration

- On admission, people with acute stroke should have their swallowing screened by an appropriately trained healthcare professional before being given any oral food, fluid or medication.

Key priorities for implementation (CG162)

Stroke units

- People with disability after stroke should receive rehabilitation in a dedicated stroke inpatient unit and subsequently from a specialist stroke team within the community.

The core multidisciplinary stroke team

- A core multidisciplinary stroke rehabilitation team should comprise the following professionals with expertise in stroke rehabilitation:
    - consultant physicians
    - nurses
    - physiotherapists
    - occupational therapists
    - speech and language therapists
    - clinical psychologists
    - rehabilitation assistants
    - social workers.

Health and social care interface

- Health and social care professionals should work collaboratively to ensure a social care assessment is carried out promptly, where needed, before the person with stroke is transferred from hospital to the community. The assessment should:
    - identify any ongoing needs of the person and their family or carer, for example, access to benefits, care needs, housing, community participation, return to work, transport and access to voluntary services
    - be documented and all needs recorded in the person's health and social care plan, with a copy provided to the person with stroke.

Transfer of care from hospital to community

- Offer early supported discharge to people with stroke who are able to transfer from bed to chair independently or with assistance, as long as a safe and secure environment can be provided.

Setting goals for rehabilitation

- Ensure that goal-setting meetings during stroke rehabilitation:
  - are timetabled into the working week
  - involve the person with stroke and, where appropriate, their family or carer in the discussion.

Intensity of stroke rehabilitation

- Offer initially at least 45 minutes of each relevant stroke rehabilitation therapy for a minimum of 5 days per week to people who have the ability to participate, and where functional goals can be achieved. If more rehabilitation is needed at a later stage, tailor the intensity to the person's needs at that time.

Cognitive functioning

- Screen people after stroke for cognitive deficits. Where a cognitive deficit is identified, carry out a detailed assessment using valid, reliable and responsive tools before designing a treatment programme.

Emotional functioning

- Assess emotional functioning in the context of cognitive difficulties in people after stroke. Any intervention chosen should take into consideration the type or complexity of the person's neuropsychological presentation and relevant personal history.

Swallowing

- Offer swallowing therapy at least 3 times a week to people with dysphagia after stroke who are able to participate, for as long as they continue to make functional gains. Swallowing therapy could include compensatory strategies, exercises and postural advice.

Return to work

- Return-to-work issues should be identified as soon as possible after the person's stroke, reviewed regularly and managed actively. Active management should include:
  - identifying the physical, cognitive, communication and psychological demands of the job (for example, multi-tasking by answering emails and telephone calls in a busy office)
  - identifying any impairments on work performance (for example, physical limitations, anxiety, fatigue preventing attendance for a full day at work, cognitive impairments preventing multi-tasking, and communication deficits)
  - tailoring an intervention (for example, teaching strategies to support multi-tasking or memory difficulties, teaching the use of voice-activated software for people with difficulty typing, and delivery of work simulations)

  - educating about the Equality Act 2010 and support available (for example, an access to work scheme)
  - workplace visits and liaison with employers to establish reasonable accommodations, such as provision of equipment and graded return to work.

Long-term health and social support

- Review the health and social care needs of people after stroke and the needs of their carers at 6 months and annually thereafter. These reviews should cover participation and community roles to ensure that people's goals are addressed.

Appendix 3: Glossary

ABCD^2 Prognostic score to identify people at high risk of stroke after a TIA. It is calculated based on:

- A – age (≥ 60 years, 1 point)
- B – blood pressure at presentation (≥ 140/90 mmHg, 1 point)
- C – clinical features (unilateral weakness, 2 points; speech disturbance without weakness, 1 point)
- D – Duration of symptoms (≥ 60 minutes, 2 points; 10–59 minutes, 1 point)

The calculation of ABCD2 also includes the presence of diabetes (1 point). Total scores range from 0 (low risk) to 7 (high risk).

Early supported discharge A service for people after stroke which allows transfer of care from an inpatient environment to a primary care setting to continue rehabilitation, at the same level of intensity and expertise that they would have received in the inpatient setting**.**

FAST Face Arm Speech Test. Used to screen for the diagnosis of stroke or TIA:

- Facial weakness – can the person smile? Has their mouth or eye drooped?
- Arm weakness – can the person raise both arms?
- Speech problems – can the person speak clearly and understand what you say?
- Test all three symptoms.

Orthosis A device that supports or corrects the function of a limb or the torso.

Stroke rehabilitation service A stroke service designed to deliver stroke rehabilitation either in hospital or in the community.

Stroke unit An environment in which multidisciplinary stroke teams deliver stroke care in a dedicated ward which has a bed area, dining area, gym, and access to assessment kitchens.

Appendix 4: Suggestions from stakeholder engagement exercise – registered stakeholders

ID	Stakeholder	Suggested key area for quality improvement	Why is this important?	Why is this a key area for quality improvement?	Supporting information
Section 4.1: Rapid recognition of symptoms and diagnosis					
001	Northern Ireland Stroke Network	7 Day services for the Management of TIA	There is excellent clinical evidence for the aggressive management of risk factors and selection for anticoagulation in prevention of stroke in patients with High Risk TIA. These patients should have access to specialist assessment and imaging 7 days a week to ensure assessment and imaging within 24 hours on an outpatient basis.	In Northern Ireland we have 5 health trusts only one of these has 7 day availability of TIA assessment services. High Risk patients may be admitted to hospital for monitoring, but specialist TIA assessment may not be available even for in patients over a weekend. Prompt specialist assessment should be available within 24hours for high risk TIA.	Diagnosis and initial management of TIA (RCP, 2010) Diagnosis and initial management of acute stroke and TIA. National Institute for Health and Care Excellence. (Clinical Guideline CG68). https://www.rcplondon.ac.uk/sites/default/files/transient-ischemic-attack-concise-guideline.pdf
002	SCM 1	Key area for quality improvement 1 Ambulance control coding of suspected stroke calls	It is important for pts suffering acute stroke to receive a prompt ambulance response to enable rapid assessment and early triage and transport to an appropriate receiving facility.	Ambulance services have different levels of response based upon severity of condition, the most life threatening i.e. cardiac arrest codes as R1 and requires and 8 min response. Stroke can be coded in a number of different categories namely R2 (8 mins) or G1 (20 mins). Stroke is a serious condition and should warrant in all cases an R2 response.	AMPDS code set for card 28 (stroke)

ID	Stakeholder	Suggested key area for quality improvement	Why is this important?	Why is this a key area for quality improvement?	Supporting information
				The main determinant between R2 and G1 is time of onset i.e. if time of onset is known and is greater than 3 hours the call will code as G1 or if the time is unknown it will code as G1. This results in a slower response time for the majority of stroke pts who often do not know the time of onset of symptoms	
003	SCM 1	Key area for quality improvement 3 Early pre notification of suspects stroke pt arrival at hospital	To ensure the most appropriate treatment for stroke pts the correct specialist clinicians need to be involved asap. Most evidence supports the need to inform a hospital of pending arrival, however is it not clear when and to which types of pt this is relevant. Often it is only stroke patients with a new onset of less than 3 hours who may be considered for TPA that get pre notified. All stroke pts should be pre notified. This notification should be directly to the stroke team i.e. not to ED who then call the stroke team. Where appropriate pts should be transported direct to the	Stroke pts benefit from early and rapid intervention by stroke specialist clinicians and this should be facilitated immediately by pre notification from ambulance clinicians.	RCP stroke guidelines, JRCALC guidelines

ID	Stakeholder	Suggested key area for quality improvement	Why is this important?	Why is this a key area for quality improvement?	Supporting information
			hospital CT scanner.		
004	SCM 1	Key area for quality improvement 5 Management of TIAs pre hospital	TIA pts require specialist follow up within either 24 hours of 7 days, high risk 24 hour and low risk the latter. Ambulance crews should be enabled and empowered to risk stratify these pts using ABCD2 and commence an appropriate antiplatelet regime and refer directly to high and low risk clinics, thereby bypassing ED for the most appropriate onward care	To ensure right care, right place first time. Reduced pressures on EDs and on ambulances waiting to offload in EDs, better PE for pts, access to specialist first time and reduction in duplication of work load.	
005	SCM 1	Key area for quality improvement 2 Completion of appropriate care bundle	All stroke patients assessed and managed should always receive the following: record time of onset or unknown, assessment using FAST, blood glucose measurement and blood pressure measurement	The reinforcement of these important aspects of care is crucial. Currently most ambulance have high compliance against these actions, however the FAST test is often not applied or misunderstood and blood glucose measurement often missed.	ACQI framed work (DH) ACQI stroke care bundle performance for ambulance trusts
006	SCM 1	Key area for quality improvement 4 Assessment of non FAST +ve strokes	Although the FAST test has a very high sensitivity there are approx. 10-15% of strokes that do not present with FAST symptoms i.e. posterior circulation strokes. This group of patients often have poorer long term outcomes.	All suspected stroke patients who do not present FAST + should be assessed using a focused neurological assessment; specific training should be given to ambulance clinicians in relation to non-FAST stroke and the appropriate assessment techniques to identify these pts. Focus made on delivering the same level of care to all strokes not just	RCP guidelines

ID	Stakeholder	Suggested key area for quality improvement	Why is this important?	Why is this a key area for quality improvement?	Supporting information
				FAST +ve	
Section 4.2: Specialist care for people with acute stroke					
007	British Association of Stroke Physicians	Prompt access to acute stroke unit care for all patients with acute stroke	The existing NICE guideline mandates admission within 4 hours.	Latest SSNAP data suggests this is only happening for around 60% of stroke patients. Pressure to meet the ED target is likely to make this deteriorate.	https://www.strokeaudit.org/results/national
008	Intercollegiate Stroke Working Party	% of patients with suspected stroke who have a CT scan within the first hour following arrival in A&E	This demonstrates that A&E departments can respond rapidly to suspected stroke admissions, able to provide thrombolysis and other acute treatments, and rapid recognition of intracerebral haemorrhage	SSNAP data demonstrates that this metric is very variably achieved. Trusts which only achieve low percentage on this metric will be unable to provide acute management and are not responding appropriately to people with acute stroke.	NICE Acute Stroke Guideline 2008 had indications for scanning within one hour, and this metric is routinely collected in SSNAP
009	Intercollegiate Stroke Working Party	% of stroke admissions admitted to a stroke unit within 4 hour of arrival in hospital	Stroke unit care is one of the few interventions that have been shown in RCTs and systematic reviews to have a positive effect on outcome. SU care is associated with better performance on process measures known to correlate with outcome. It is an intervention that is applicable to virtually 100% of stroke patients and therefore at a population level is much more powerful than any of the more selective treatments	The quicker people get to a stroke unit the quicker key processes will be carried out. This has an effect on outcome. Rapid transfer to a SU demonstrates that a hospital is organised enough to ensure patients get the right care at the right time. The SSNAP audit shows that about 60% of stroke patients are admitted to a stroke unit within 4 hours of admission to hospital. This figure has hardly changed since the audit was started at the beginning of 2013	Key process indicator for stroke routinely measured in SSNAP.
010	London Strategic	Prompt access to specialist acute stroke	NICE guidelines state that all people with suspected stroke	The most recent Stroke Sentinel National Audit Programme (SSNAP) data indicates	https://www.strokeaudit.org/results/national

ID	Stakeholder	Suggested key area for quality improvement	Why is this important?	Why is this a key area for quality improvement?	Supporting information
	Clinical Network	care	should be admitted directly to a specialist acute stroke unit. This allows prompt access to a stroke skilled multi-disciplinary team thus facilitating the application of vital screening tools such a swallow screening. NICE guidance indicates that swallow screening should be undertaken within 4 hours of admission. Pressure within trusts to achieve A & E targets is likely to impact on bed availability in acute stroke units.	that the national average for stroke unit as first ward of admission within 4 hours was 56.9%. In London direct admission varied from 50.9% to 77%. SSNAP data shows that the national for swallow screen within 4 hours of admission was 68.7%. In London achievement of this metric varied from 56.5% to 97.7%.	
011	NHS England	% of patients with suspected stroke who have a CT scan within the first hour following arrival in A&E	This demonstrates that A&E departments can respond rapidly to suspected stroke admissions, able to provide thrombolysis and other acute treatments, and rapid recognition of intracerebral haemorrhage	SSNAP data demonstrates that this metric is very variably achieved. Trusts which only achieve low percentage on this metric will be unable to provide acute management and are not responding appropriately to people with acute stroke.	NICE Acute Stroke Guideline 2008 had indications for scanning within one hour, and this metric is routinely collected in SSNAP
012	NHS England	% of stroke admissions admitted to a stroke unit within 4 hour of arrival in hospital	Stroke unit care is one of the few interventions that have been shown in RCTs and systematic reviews to have a positive effect on outcome. SU care is associated with better performance on process measures known to correlate with outcome. It is an intervention that	The quicker people get to a stroke unit the quicker key processes will be carried out. This has an effect on outcome. Rapid transfer to a SU demonstrates that a hospital is organised enough to ensure patients get the right care at the right time. The SSNAP audit shows that about 60% of stroke patients are admitted to a stroke unit within 4 hours of admission to hospital. This	Key process indicator for stroke routinely measured in SSNAP.

ID	Stakeholder	Suggested key area for quality improvement	Why is this important?	Why is this a key area for quality improvement?	Supporting information
			is applicable to virtually 100% of stroke patients and therefore at a population level is much more powerful than any of the more selective treatments	figure has hardly changed since the audit was started at the beginning of 2013	
013	Northern Ireland Stroke Network	Direct admission to HASU stroke unit within one hour of stroke symptoms.	The SNAP audit measures performance against admission to stroke unit with 4 hours. The existing NICE QS2 indicated direct admission to SU by ambulance service within 1 hour of ambulance screening. New evidence for the potential of effective endovascular clot retrieval will require an extremely high level of expert decision making and immediate imaging at an acute phase. To implement this requires a pathway favouring direct admission to HASU by Ambulance by passing A/E.	In Northern Ireland and Nationally in region of 50% of patients are directly admitted to a stroke unit. Only patients receiving thrombolysis receive HASU type care. Directly admitting all patients to HASU in this way has been shown by the 2014 London HASU evaluation to reduce mortality and save lives. Such a model will accomplish the goal of 100% direct admission to stroke unit goal.	Mr Clean Trials Swift Prime Escape Extend IA http://2014.strokeupdate.org/consensus-statement-mechanical-thrombectomy-acute-ischemic-stroke ESO consensus statement on thrombectomy Update Impact of centralising acute stroke services in English metropolitan areas on mortality and length of hospital stay: difference-in-differences analysis (BMJ, August 2014) Stroke Unit Trialists' Collaboration (2007) Organised inpatient (stroke unit) for stroke, Cochrane Database of Systematic Reviews,

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					RQIA, 2014, A review of Stroke service in Northern Ireland, The regulation Quality and Improvement Authority Northern Ireland.
014	Royal College of Physicians	% of patients with suspected stroke who have a CT scan within the first hour following arrival in A&E	This demonstrates that A&E departments can respond rapidly to suspected stroke admissions, able to provide thrombolysis and other acute treatments, and rapid recognition of intracerebral haemorrhage	SSNAP data demonstrates that this metric is very variably achieved. Trusts which only achieve low percentage on this metric will be unable to provide acute management and are not responding appropriately to people with acute stroke.	NICE Acute Stroke Guideline 2008 had indications for scanning within one hour, and this metric is routinely collected in SSNAP
015	Royal College of Physicians	% of stroke admissions admitted to a stroke unit within 4 hour of arrival in hospital	Stroke unit care is one of the few interventions that have been shown in RCTs and systematic reviews to have a positive effect on outcome. SU care is associated with better performance on process measures known to correlate with outcome. It is an intervention that is applicable to virtually 100% of stroke patients and therefore at a population level is much more powerful than any of the more selective treatments	The quicker people get to a stroke unit the quicker key processes will be carried out. This has an effect on outcome. Rapid transfer to a SU demonstrates that a hospital is organised enough to ensure patients get the right care at the right time. The SSNAP audit shows that about 60% of stroke patients are admitted to a stroke unit within 4 hours of admission to hospital. This figure has hardly changed since the audit was started at the beginning of 2013	Key process indicator for stroke routinely measured in SSNAP.
016	SCM 2	Key area for quality improvement 1 % of patients with suspected stroke who	This demonstrates that A&E departments can respond rapidly to suspected stroke admissions, able to provide thrombolysis and	SSNAP data demonstrates that this metric is very variably achieved. Trusts which only achieve low percentage on this metric will be unable to provide acute management	NICE Acute Stroke Guideline 2008 had indications for scanning within one hour, and this

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		have a CT scan within the first hour following arrival in A&E	other acute treatments, and rapid recognition of intracerebral haemorrhage	and are not responding appropriately to people with acute stroke.	metric is routinely collected in SSNAP
017	SCM 2	Key area for quality improvement 2 % of stroke admissions admitted to a stroke unit within 4 hour of arrival in hospital	Stroke unit care is one of the few interventions that have been shown in RCTs and systematic reviews to have a positive effect on outcome. SU care is associated with better performance on process measures known to correlate with outcome.	The quicker people get to a stroke unit the quicker key processes will be carried out. This has an effect on outcome. Rapid transfer to a SU demonstrates that a hospital is organised enough to ensure patients get the right care at the right time.	Key process indicator for stroke routinely measured in SSNAP.
018	Stroke Association	Early management of acute stroke including: rapid brain scanning, timely access to and optimal length of stay on a stroke unit and treatment with thrombolysis if appropriate	Rapid scanning of suspected stroke patients within the first hour of arriving of hospital allows provision of thrombolysis and other evidence based treatments and identification of intracranial haemorrhage.	The increase in awareness around the need for rapid action in response to symptoms of stroke assisted by initiatives such as the FAST campaign has meant that patients and those close to them expect that more can be done at the early acute stage after stroke. On scanning Sentinel Stroke National Audit Programme (SSNAP) data shows the 1hr standard is not being met in over half of cases, and there is significant variation by time of day and day of the week admitted. With regard to direct admission to stroke units the SSNAP data indicates less than 60% of patients are admitted to a stroke unit within 4hrs, and that there is significant variation by time of day. The English CCG Outcomes Indicator Set	Scanning: SSNAP collect this data routinely Stroke Units: SSNAP collect data on admission time and duration of stay data both are also CCG Outcomes Indicator Measures. Thrombolysis: SSNAP collect data on this and also a CCG Outcomes Indicator Measure. All of these areas are relevant to key Quality Markers in the Department

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				also includes a measure based on the percentage of people who have had a stroke who are admitted to an acute stroke unit within four hours of arrival to hospital. Such indicators were developed through a process involving NICE to help identify key indicators of CCG outcomes and so could be assumed to have already been judged as important for quality improvement. The most recent CCG Outcomes Indicator results (published December 2014) showed that in 71 CCGs (34.5%), less than 55% of patients were admitted to a stroke unit within 4 hours of admission to hospital. No CCGs were able to ensure that 90% or more of their patients were admitted to a stroke unit within 4 hours of admission. In 13 CCGs, less than 40% of patients were admitted to a stroke unit within 4 hours of admission. With regard to length of stay SSNAP records the percentage of patients that spend at least 90% of stay on stroke unit with latest figure around 84%. The CCG Outcomes Indicator Set also includes a measure based on the percentage of people who have had an acute stroke that spend 90% or more of their hospital inpatient stay on a stroke unit. Once again this would suggest this is an important area for improvement.	of Health's National Stroke Strategy 2007 and also highlighted as areas for further improvement in the Department of Health's Cardiovascular Disease Outcomes Strategy 2013.

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				The results published in December showed that nationally 83.6% of people spent 90% or more of their stay on a stroke unit and this was exceeded in more than half of CCGs (52.8%); however in 3 CCGs this figure was less than 70%. With regard to thrombolysis rates these are measured by SSNAP and recent figures showed around 79% of eligible patients being given thrombolysis. The CCG Outcomes Indicator Set also includes a measure based the percentage of people who have an acute stroke that receive thrombolysis suggesting this is seen as a key area for quality improvement. Results published in December 2014 showed wide variation across the country. The data shows higher rates of thrombolysis concentrated in the London area with pockets of higher rates occurring elsewhere.	
019	Stroke Association	Early management of acute stroke including: rapid brain scanning, timely access to and optimal length of stay on a stroke unit and treatment with thrombolysis if appropriate	There is overwhelming evidence to suggest patients on stroke units have better outcomes than those admitted to and treated on general wards. They are more likely to survive, make a better recovery and spend less time in hospital if they are admitted to a stroke unit, rapidly assessed and receive specialist care from a multi-disciplinary team. Stroke	The increase in awareness around the need for rapid action in response to symptoms of stroke assisted by initiatives such as the FAST campaign has meant that patients and those close to them expect that more can be done at the early acute stage after stroke. On scanning Sentinel Stroke National Audit Programme (SSNAP) data shows the 1hr standard is not being met in over half of cases, and there is significant variation by	Scanning: SSNAP collect this data routinely Stroke Units: SSNAP collect data on admission time and duration of stay data both are also CCG Outcomes Indicator Measures. Thrombolysis: SSNAP

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			unit care is the single most beneficial intervention that can be provided after stroke. Management of eligible patients in a stroke unit will result in long-term reductions in death, dependency and the need for institutional care; therefore a patient should spend the majority of their stay on a stroke unit.	time of day and day of the week admitted. With regard to direct admission to stroke units the SSNAP data indicates less than 60% of patients are admitted to a stroke unit within 4hrs, and that there is significant variation by time of day. The English CCG Outcomes Indicator Set also includes a measure based on the percentage of people who have had a stroke who are admitted to an acute stroke unit within four hours of arrival to hospital. Such indicators were developed through a process involving NICE to help identify key indicators of CCG outcomes and so could be assumed to have already been judged as important for quality improvement. The most recent CCG Outcomes Indicator results (published December 2014) showed that in 71 CCGs (34.5%), less than 55% of patients were admitted to a stroke unit within 4 hours of admission to hospital. No CCGs were able to ensure that 90% or more of their patients were admitted to a stroke unit within 4 hours of admission. In 13 CCGs, less than 40% of patients were admitted to a stroke unit within 4 hours of admission. With regard to length of stay SSNAP records the percentage of patients that spend at least 90% of stay on stroke unit with latest figure around 84%.	collect data on this and also a CCG Outcomes Indicator Measure. All of these areas are relevant to key Quality Markers in the Department of Health's National Stroke Strategy 2007 and also highlighted as areas for further improvement in the Department of Health's Cardiovascular Disease Outcomes Strategy 2013.

ID	Stakeholder	Suggested key area for quality improvement	Why is this important?	Why is this a key area for quality improvement?	Supporting information
				The CCG Outcomes Indicator Set also includes a measure based on the percentage of people who have had an acute stroke that spend 90% or more of their hospital inpatient stay on a stroke unit. Once again this would suggest this is an important area for improvement. The results published in December showed that nationally 83.6% of people spent 90% or more of their stay on a stroke unit and this was exceeded in more than half of CCGs (52.8%); however in 3 CCGs this figure was less than 70%. With regard to thrombolysis rates these are measured by SSNAP and recent figures showed around 79% of eligible patients being given thrombolysis. The CCG Outcomes Indicator Set also includes a measure based the percentage of people who have an acute stroke that receive thrombolysis suggesting this is seen as a key area for quality improvement. Results published in December 2014 showed wide variation across the country. The data shows higher rates of thrombolysis concentrated in the London area with pockets of higher rates occurring elsewhere.	
020	UK Neurointerventional Group-Royal College	Improving imaging in acute stroke – so that vascular occlusion and salvageable brain tissue	Without widespread use of vascular imaging it would be inappropriate & wasteful to implement any intra-arterial	Due to novel therapeutic options and RCT evidence, plain CT head can no longer be regarded as adequate imaging in patients presenting with clinical diagnosis of an	See above refs + Menon BK, et al. Multiphase CT Angiography : A New Tool

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	of Radiologists	can be identified	services	acute disabling stroke. Vascular imaging and some form of brain tissue viability assessment is required. CT Angiography (CTA) can be delivered technically readily at time of CT brain imaging. However, investment is required for training/education to support rapid reporting of stroke CTA studies. Optimal method of assessing brain tissue viability remains a research question & should be the subject of randomised trials.	for the Imaging Triage of Patients with Acute Ischemic Stroke. Radiology 2015 January 29 Liebeskind, D. S. et al (2014). Collaterals at angiography and outcomes in the Interventional Management of Stroke (IMS) III trial. Stroke; a Journal of Cerebral Circulation, 45(3), 759–64. Bivard A et al. Perfusion CT in acute stroke: a comprehensive analysis of infarct and penumbra. Radiology. 2013;267(2):543–50.
Section 4.3: Pharmacological treatments for people with acute stroke					
021	British Association of Stroke Physicians	Access to intravenous thrombolysis for patients with acute ischaemic stroke	Thrombolysis for selected patients with ischaemic stroke up to 6 hours after onset reduces disability outcomes. The odds-ratio for the reduction in death or dependency for patients treated with 3 hours is a statistically significant 0.66.	In SSNAP 11% of patients received thrombolysis overall however many units achieve rates in excess of 20%.	Wardlaw JM, Murray V, Berge E, del Zoppo GJ. Thrombolysis for acute ischaemic stroke. Cochrane Database of Systematic Reviews 2014, Issue 7. Art. No.: CD000213. DOI: 10.1002/14651858.CD000

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					213.pub3.
022	British Hypertension Society	Control of hypertension after stroke or TIA	Early control of risk factors, including hypertension is recommended by in the 2012 RCP Guideline on stroke for the prevention of further strokes.	Hypertension is the most powerful risk factor for stroke. The relationship of hypertension with risk of cardiovascular events is log linear; this means that for every 6mm further reduction in diastolic BP there is a 46% reduction in stroke risk (Lancet 1991). Discharge BPs from stroke units or stroke and TIA follow up clinics are not systematically collected. Neither is the frequency of issuing lifestyle advice guidance regularly collected, nor any attempt made to find whether lifestyle change has been achieved or what the BP is at the new, mandatory follow-up appointments after stroke or TIA.	https://www.rcplondon.ac.uk/sites/default/files/national-clinical-guidelines-for-stroke-fourth-edition.pdf http://www.nice.org.uk/guidance/cg68/evidence/cg68-stroke-full-guideline2 http://www.nice.org.uk/guidance/cg127/resources/guidance-hypertension-pdf
023	Stroke Association	Early management of acute stroke including: rapid brain scanning, timely access to and optimal length of stay on a stroke unit and treatment with thrombolysis if appropriate	Thrombolysis is a treatment recommended by NICE and has the potential to reduce long term disability caused by stroke.	The increase in awareness around the need for rapid action in response to symptoms of stroke assisted by initiatives such as the FAST campaign has meant that patients and those close to them expect that more can be done at the early acute stage after stroke. On scanning Sentinel Stroke National Audit Programme (SSNAP) data shows the 1hr standard is not being met in over half of cases, and there is significant variation by time of day and day of the week admitted. With regard to direct admission to stroke units the SSNAP data indicates less than	Scanning: SSNAP collect this data routinely Stroke Units: SSNAP collect data on admission time and duration of stay data both are also CCG Outcomes Indicator Measures. Thrombolysis: SSNAP collect data on this and also a CCG Outcomes Indicator Measure.

ID	Stakeholder	Suggested key area for quality improvement	Why is this important?	Why is this a key area for quality improvement?	Supporting information
				60% of patients are admitted to a stroke unit within 4hrs, and that there is significant variation by time of day. The English CCG Outcomes Indicator Set also includes a measure based on the percentage of people who have had a stroke who are admitted to an acute stroke unit within four hours of arrival to hospital. Such indicators were developed through a process involving NICE to help identify key indicators of CCG outcomes and so could be assumed to have already been judged as important for quality improvement. The most recent CCG Outcomes Indicator results (published December 2014) showed that in 71 CCGs (34.5%), less than 55% of patients were admitted to a stroke unit within 4 hours of admission to hospital. No CCGs were able to ensure that 90% or more of their patients were admitted to a stroke unit within 4 hours of admission. In 13 CCGs, less than 40% of patients were admitted to a stroke unit within 4 hours of admission. With regard to length of stay SSNAP records the percentage of patients that spend at least 90% of stay on stroke unit with latest figure around 84%. The CCG Outcomes Indicator Set also includes a measure based on the percentage of people who have had an	All of these areas are relevant to key Quality Markers in the Department of Health's National Stroke Strategy 2007 and also highlighted as areas for further improvement in the Department of Health's Cardiovascular Disease Outcomes Strategy 2013.

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				acute stroke that spend 90% or more of their hospital inpatient stay on a stroke unit. Once again this would suggest this is an important area for improvement. The results published in December showed that nationally 83.6% of people spent 90% or more of their stay on a stroke unit and this was exceeded in more than half of CCGs (52.8%); however in 3 CCGs this figure was less than 70%. With regard to thrombolysis rates these are measured by SSNAP and recent figures showed around 79% of eligible patients being given thrombolysis. The CCG Outcomes Indicator Set also includes a measure based the percentage of people who have an acute stroke that receive thrombolysis suggesting this is seen as a key area for quality improvement. Results published in December 2014 showed wide variation across the country. The data shows higher rates of thrombolysis concentrated in the London area with pockets of higher rates occurring elsewhere.	
Section 4.4: Organising health and social care for people needing rehabilitation after stroke					
024	British Association of Prosthetists and Orthotists	Key area for quality improvement 1: Timely access to specialist orthotic services for patients with impaired	There is robust evidence that orthoses improve walking in those with impaired mobility post stroke (3).	National reviews have found that access to orthotic services is highly variable (2). As an area which has received little attention (for example orthotic services are not included in the sentinel stroke audit), there may be	(1) Use of ankle foot orthoses following stroke best practice statement (Healthcare improvement Scotland)

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		mobility	Orthotists are able to assess for and provide the full range of available lower limb orthoses, including pre-fabricated and custom foot orthoses, ankle-foot orthoses (AFOs) and knee-ankle-foot orthoses (KAFOs) as appropriate (1). Improved access to orthotic services for both acute and chronic post-stroke patients has the potential to reduce falls and improve mobility.	higher potential for improvements to service delivery and patient outcomes.	http://www.healthcareimprovementscotland.org/previous_resources/best_practice_statement/use_of_ankle-foot_orthoses_fol.aspx (2) Fully equipped (National audit office) http://archive.audit-commission.gov.uk/auditcommission/nationalstudies/health/socialcare/pages/fullyequipped.aspx.html (3) A systematic review and meta-analysis of the effect of an ankle-foot orthosis on gait biomechanics after stroke (Clinical Rehabilitation) http://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0058039/
025	British Association of Stroke Physicians	Access to early supported discharge for stroke survivors	The current NICE guidance for stroke rehabilitation recommends early supported discharge for selected patients.	27% of patients are discharged with access to ESD according to SSNAP but the estimate of the number able to benefit is 40%.	http://www.nice.org.uk/guidance/cg162/evidence
026	College of Occupational Therapists	Key area for quality improvement 4 Continued progress	Structure of stroke services has changed dramatically since the development of stroke specific	Duration and skill mix within ESD services varies, with length of input varying from 2-12 weeks. With acute services moving to	

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		towards standardisation of ESD services	ESD services. It is important that patients are receiving high quality rehabilitation following stroke to maximise potential	earlier discharge for mild- moderate patients it is important that patients receive input equal or superior to that received prior to conception of ESD. In services with short duration ESD, the period of intensive rehabilitation is reduced which may impact negatively on outcomes (functional recovery, anxiety, carer strain, patient experience). Standardisation of what is defined as ESD in line with evidence base would support services to further develop services to provide necessary rehabilitation- including focussing on reintegration into society, returning to previous roles.	
027	College of Occupational Therapists	Key area for quality improvement 5 Dedicated continued specialist rehabilitation	Equity and providing dedicated services to meet patient need	Not all areas have dedicated rehabilitation facilities or teams in the community who can deliver ongoing specialist rehabilitation for those outside of the ESD criteria, or those needing a longer period of specialist rehabilitation to reach their potential. Often in the period post ESD or acute inpatient care, these patients are seen non intensively by generic community teams which may not be appropriate to meet the complex needs of the client group. This is likely to impact negatively on clinical outcomes.	

ID	Stakeholder	Suggested key area for quality improvement	Why is this important?	Why is this a key area for quality improvement?	Supporting information
028	Intercollegiate Stroke Working Party	% of patients discharged to Early Supported Discharge (ESD)	ESD is known to achieve equivalent outcomes to inpatient rehabilitation with better patient satisfaction, shorter LOS and lower cost.	ESD services, while increasing in number, are still not available to all appropriate patients. Currently only 75% of CCGs provide an ESD service and the median proportion of patients discharged to an ESD team is less than 20% compared to an estimated 40% that would benefit.	Key process indicator for stroke routinely measured in SSNAP. A consensus statement on the organisational characteristics of ESD teams: http://www.clahrc-ndl.nihr.ac.uk/clahrc-ndl-nihr/documents/stroke-rehabilitation/1consensusrf2011.pdf
029	London Strategic Clinical Network	Access to stroke specific early supported discharge (ESD) and community neurorehabilitation	Stroke is the largest single cause of disability in adults, costing the NHS over £3 billion per year (National Audit Office, 2010). The National Audit Office (2005) reported that stroke patients occupy one of the largest acute hospital bed days of any patient group. In London approximately 8,000 people each year experience a stroke. Around two thirds of these will survive the acute event and will consequently require rehabilitation. ESD enables patients with rehabilitation needs to return home and receive the same intensity of therapy input as in hospital. A Cochrane review of	The delivery of ESD services varies considerably across the capital, which in part explains the difficulty moving patients through the stroke pathway. ESD is not available in all areas in London. ESD can only be delivered effectively if a stroke or neurorehabilitation community team exists and is able to continue rehabilitation once lower intensity input is required. This type of service is not universally available. According to recent SSNAP data 29.3% of patients are discharged with ESD and 20% with community stroke or neurorehabilitation teams.	https://www.strokeaudit.org/results/national

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			ESD (2005) demonstrated that a median of 41% of stroke survivors met the criteria. ESD was associated with reduced length of stay and better patient outcomes. The National Audit Office report on reducing brain damage (2005) recognised that rehabilitation needs become most apparent once the stroke survivor is at home and therefore community services need to be put in place that can meet these needs. The National Stroke Strategy (2007) highlights that rehabilitation by stroke-skilled professionals should commence as soon as possible after stroke and continue as long as it benefits the stroke survivor and their carers. The National Clinical Guidelines for Stroke (2008) and the NICE 2010 Quality Standards for stroke deem it critical that there is a seamless provision of rehabilitation when the individual transfers from hospital to the community. These guidelines also recommend that stroke rehabilitation should be provided		

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			by a single team with specialist knowledge of and experience in stroke and neurological rehabilitation.		
030	NHS England	% of patients discharged to Early Supported Discharge (ESD)	ESD is known to achieve equivalent outcomes to inpatient rehabilitation with better patient satisfaction, shorter LOS and lower cost.	ESD services, while increasing in number, are still not available to all appropriate patients. Currently only 75% of CCGs provide an ESD service and the median proportion of patients discharged to an ESD team is less than 20% compared to an estimated 40% that would benefit	Key process indicator for stroke routinely measured in SSNAP.
031	Northern Ireland Stroke Network	Follow up with 24 hours of DC by Specialist Stroke ESD/ CRT	Current guidelines recommend follow up with 72 hours of DC. Clarity should be sought around practice of DC patients to Non specialist rehab/ integrated care beds and what level of specialist follow up they receive. ESD models required to follow patients up within 24 hours of DC are described in the more recent NICE CG 162	Northern Ireland has commissioned responsive community stroke teams in each trust that require continued modernisation and investment. There exists concern over a level practice of stroke patient being transferred to non-stroke unit integrated care or rehab beds and it is unclear under which circumstances this is appropriate or not. We have found that around 30% of our hospital activity for stroke patients occurs in such units. Access to specialist stroke team management for those patients managed in non- specialist stroke unit beds or integrated care beds may appropriate in some cases but should not represent routine practice for rehabilitation pathways..	National Institute for Health and Care Excellence. Stroke rehabilitation: long-term rehabilitation after stroke (clinical guideline CG162). 2013. http://guidance.nice.org.uk/CG162. RQIA, 2014, A review of Stroke service in Northern Ireland, The regulation Quality and Improvement Authority Northern Ireland.

ID	Stakeholder	Suggested key area for quality improvement	Why is this important?	Why is this a key area for quality improvement?	Supporting information
032	Royal College of Physicians	% of patients discharged to Early Supported Discharge (ESD)	ESD is known to achieve equivalent outcomes to inpatient rehabilitation with better patient satisfaction, shorter LOS and lower cost.	ESD services, while increasing in number, are still not available to all appropriate patients. Currently only 75% of CCGs provide an ESD service and the median proportion of patients discharged to an ESD team is less than 20% compared to an estimated 40% that would benefit	Key process indicator for stroke routinely measured in SSNAP.
033	SCM 2	Key area for quality improvement 4 % of patients discharged to ESD	ESD is known to achieve equivalent outcomes to IP rehabilitation with better patient satisfaction, shorter LOS and lower cost.	ESD services, while increasing in number, are still not available to all appropriate patients.	Key process indicator for stroke routinely measured in SSNAP.
034	Stroke Association	Early Supported Discharge (ESD)	Early Supported Discharge to a comprehensive stroke specialist and multidisciplinary team (which includes social care) in the community but with a similar level of intensity to stroke unit care can reduce long term dependency and admission to institutional care, as well as releasing hospital beds by reducing length of stay.	Despite being recommended in NICE Stroke Rehabilitation Guidance, the National Stroke Strategy and the Cardiovascular Disease Outcomes Strategy ESD is still not available to all appropriate patients, and there is significant regional variation in availability (median proportion of patients discharged to ESD team is less than 20% compared to an estimated 40% that would benefit). Also, anecdotally, we have heard that in some areas ESD is not being implemented properly. ESD should be of the same intensity as inpatient care and should be stroke specific. A clear quality standard that recommends ESD for applicable patients and outlines	Data on ESD routinely collected by SSNAP. Recommended in n the Department of Health's National Stroke Strategy 2007 and also highlighted as an area for further improvement in the Department of Health's Cardiovascular Disease Outcomes Strategy 2013.

ID	Stakeholder	Suggested key area for quality improvement	Why is this important?	Why is this a key area for quality improvement?	Supporting information
				what an ESD service should consist of would be welcome.	
035	The Chartered Society of Physiotherapy	Access to an Early Supported Discharge team, skilled in treating people who have had a stroke	Access to Early Supported Discharge teams is recommended within NICE guidance.	The SSNAP report states that 29% of patients discharged post stroke are followed up by an Early Supported Discharge team, when it is likely that we should be aiming for 35-40%	Please see the RCP Sentinel Stroke National Audit Programme which audits stroke services against evidence based standards, and national and local benchmarks: https://www.rcplondon.ac.uk/projects/ssnap-clinical-audit
036	Torbay and Southern Devon Health and Care NHS Trust	Key area for quality improvement 4 Access to early supported discharge services	ESD services improve outcome but SSNAP data suggests that people who may benefit are still not getting access	There is still a lack of attention on post acute services for people with stroke-leaving people with greater disability than is necessary	SSNAP audit results for current practice
Section 4.5: Planning and delivery stroke rehabilitation					
037	British Society of Rehabilitation Medicine	The additional area for quality improvement that we would suggests is regarding vocational rehabilitation following stroke	The actions necessary to improve quality would be the availability of vocational rehabilitation programmes for stroke survivors. Indicators of quality improvement could be the number of people engaged in such programmes, the geographical distribution of programmes and the proportion of people with stroke returning to work.	There is some evidence that care in this area is variable and that it requires improvement. A mixed methods study conducted in 2010/11 showed a very patchy and unclear pathway in one county of England1. A qualitative study by the same group showed that commissioners had a poor understanding of VR and that it was not high on their priority list2. Although a review of vocational rehabilitation in stroke in 2011 was inconclusive3, there have been	1. Sinclair et al. Developing stroke-specific vocational rehabilitation: a soft systems analysis of current service provision. Disability and Rehabilitation 2014, 36 (5): 409-417. 2. Radford et al. Commissioning vocational rehabilitation after stroke:

ID	Stakeholder	Suggested key area for quality improvement	Why is this important?	Why is this a key area for quality improvement?	Supporting information
				studies since then indicating higher return to work rates following a VR programme4. As far as I know there are no national data sources for employment rates specifically in stroke survivors, although there is data from the Office for National Statistics on employment rates in all people with disabilities.	Can the Cinderella services get to the ball? A qualitative Journal of Health Services research and Policy 2013, 2013 vol. 18 no. 1 suppl 30-38 3. Baldwin and Brusco, The Effect of Vocational Rehabilitation on Return-to-Work Rates Post Stroke: A Systematic Review. Topics in Stroke Rehabilitation 2011; 18: 562-572 4. Nsteia et al. The effect of a workplace intervention programme on return to work after stroke: A randomised controlled trial. Clin Rehabil October 16, 2014 doi: 0269215514554241
038	College of Occupational Therapists	Key area for quality improvement 3 Continued progress towards psychological screening and support following stroke	Previous NICE quality standard with low mood impacting negatively on rehabilitation outcomes, mortality and dependence	Although improvements have been made in this area screening for low mood remains inconsistent and provision of formal, specialist psychological support following stroke varies significantly across the country. Many services do not have access to psychology or neuro psychology (with less	Sentinel Stroke National Audit Programme (SSNAP) performance

ID	Stakeholder	Suggested key area for quality improvement	Why is this important?	Why is this a key area for quality improvement?	Supporting information
				than 1 psychologist per 100 stroke beds) and often experiencing difficulties accessing IAPT services, especially for those with stroke specific anxiety, cognitive impairment or aphasia.	
039	College of Occupational Therapists	Key area for quality improvement 5 Return to work	Work is an important part of life for many people. Many people wish to return to work following stroke for financial reasons, confidence and esteem. People returning to employment also contribute to the economy and reduce use of benefits	Formal assessment and recommendation regarding returning to work differs widely between services, with some areas having access to specialist vocational rehab services/teams. Occupational Therapists have good knowledge and understanding of factors that may impact on returning to work, particularly higher level cognitive impairments (executive functions), physical ability and environmental adaptations. The more subtle presentations of these deficits can be challenging to identify without stroke specific assessment but could have significant impact on someone's ability to return to work roles	Grant M, Radford K, Sinclair E, Walker M (2014) Return to work after stroke: recording, measuring, and describing occupational therapy intervention. British Journal of Occupational Therapy, 77(9), 457-465.
040	College of Occupational Therapists	Key area for quality improvement 2 Routine screening, assessment and specialist intervention for visual impairment post stroke	Vision is affected following stroke in up to 70% of patients. Some subtle presentations are easily missed and could have profound impact on ability to engage in important activities of daily living.	Screening for visual deficits is recommended however, timing and depth of this screening differs between services.Services vary in relation to the relationship between stroke and orthoptist departments and amount of orthoptist input dedicated to stroke. Pathways of care for visual assessment and intervention would	British and Irish Orthoptic Society (BIOS) stroke pathway/guidance- 2014. Available at: http://www.orthoptics.org.uk/stroke_for_patients

ID	Stakeholder	Suggested key area for quality improvement	Why is this important?	Why is this a key area for quality improvement?	Supporting information
				help standardise this care, ensuring that patients receive the services they require to rehabilitate/address visual disorders, improving ability to engage in ADLs, safety and independence	
041	Intercollegiate Stroke Working Party	Patients with stroke are offered a minimum of 45 minutes of each active therapy that is required for a minimum of 5 days a week for as long as they are continuing benefit both in hospital and in the community	There is evidence of a dose relationship between therapy and outcome with faster and more complete rehabilitation with more intense treatment.	This was set as a QS by NICE in 2010 and has undoubtedly resulted in a greater focus by both hospital and community teams on increasing face to face treatment times. However SSNAP shows that the majority of providers are still not achieving the standard. There would be a major concern that if this standard was withdrawn then the pressure to continue to improve would cease and resources could be diverted away from a critical part of the patient pathway	Routinely collected by SSNAP both in hospital and for all participating teams in the community
042	London Strategic Clinical Network	Access to support for cognitive and emotional sequalae post stroke	People who have experienced stroke and their families repeatedly evaluate psychological care as the least satisfactory aspect of stroke service provision.[6] [7] [8] [9] Unrecognised and untreated psychological difficulties are associated with poorer functional outcomes and quality of life post-stroke [10]. There is evidence that longstanding psychological	Economic modelling has found a Clinical Psychology led multidisciplinary team stepped care approach in stroke to be cost effective through reducing health service contacts in primary care, hospital and care home admissions and prescribing of antidepressants and other medications. It is calculated that this amounts to a saving of around £10 million over two years for the NHS and social care across the UK and a benefit for people who have experienced stroke in quality adjusted life years' worth £463,000 6.	1. The Healthcare Commission 2006 www. health.org.uk 2. Mackenzie A, Perry L, Lockhart E et al (2007) Family carers of stroke survivors: needs, knowledge, satisfaction and competence in caring, Disability and Rehabilitation, 29, 111-121 3. McKevitt,C.; Fudge,N.; Redfern, J.; Sheldenkas,

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			problems increase health service contacts, which, in turn, raise health and social care costs [11].	Access to a clinical psychologist or neuropsychologist varies widely across London from no access to 1.5WTE. According to SSNAP patients in hospital receive psychology input on 9% of days during the period support is required.	A.; Crichton, S.; Rudd, A.; Forster, A.; Young, J.; Nazareth, I.; Silver, L.; Rothwell, P. and Wolfe, C. (2011) Self-reported long term needs after stroke. Stroke 42: 1398-1403 4. Care Quality Commission, 2011, as cited in Morris, 2013. 5. Department of Health, 2007 6. NHS Improvement, 2012 https://www.strokeaudit.org/results/national
043	London Strategic Clinical Network	Access to vocational rehabilitation for people with stroke	Vocational Rehabilitation is a process of 'enabling individuals with either temporary or permanent disability to access, return, or remain in, employment'[1]. Vocational rehabilitation after brain injury such as stroke is challenging – due to complex physical deficits and unseen effects of stroke. It requires a skilled multidisciplinary approach. The requirement to address Vocational Rehabilitation has	Although strategy has acknowledged the need for vocational rehabilitation research has highlighted that 'Health based services supporting people with stroke in returning to work are rare in the UK and meet less than 10% of the estimated need'[4]. Where a person is unable to re-engage in work based activities, it has been estimated that £4 billion in the UK is lost due to dependence on social care and lost productivity. [5] Data indicates that the number of strokes occurring in men aged between 40 and 54	1. British Society of Rehabilitation Medicine, 2000 2. National Clinical Guidelines for stroke (2012) Royal College of Physicians 3. The National Service Framework for Long Term Conditions (2005) Department of Health 4. Turner-Stokes L, McCrone P, Jackson DM, et al. (2013) The Needs

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			been documented widely. In the National Clinical Guideline for Stroke[2] (RCP 2012), it is recommended that every person with a stroke should be asked about work. The National Service Framework for Long Term Conditions prioritised vocational rehabilitation as its sixth quality requirement. [3] The Rehabilitation Guidelines for Stroke (NICE 2013) also promote access to appropriate vocational assessment, rehabilitation and ongoing support.	years has increased by almost 50% in less than 15 years.	and Provision Complexity Scale: a multi centre prospective cohort analysis of met and unmet needs and theirs cost implications for patients with complex neurological disability. BMJ Open 2013:3:e002353. DOI:10.1136/bmjopen-2012-002353 5. Saka, O., McGuire A., Wolfe, C. (2009) Cost of Stroke in the UK. Age Aging (38) 27-32
044	NHS England	Patients with stroke are offered a minimum of 45 minutes of each active therapy that is required for a minimum of 5 days a week for as long as they are continuing benefit both in hospital and in the community	There is evidence of a dose relationship between therapy and outcome with faster and more complete rehabilitation with more intense treatment.	This was set as a QS by NICE in 2010 and has undoubtedly resulted in a greater focus by both hospital and community teams on increasing face to face treatment times. However SSNAP shows that the majority of providers are still not achieving the standard. There would be a major concern that if this standard was withdrawn then the pressure to continue to improve would cease and resources could be diverted away from a critical part of the patient pathway	Routinely collected by SSNAP both in hospital and for all participating teams in the community
045	Northern Ireland Stroke Network	Improving Access to Psychological support for stroke survivors	Current QS evaluated mood and cognition screening. In addition we should also measure what	According to SNAP Organisational Audit availability of psychology pots was not in place in all health trusts at recommended	SNAP Organisational Audit (November, 2014)

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			level (or if any) phycology intervention is currently being provided as this is what is likely to have real patient benefits.	levels.. Psychology intervention is resource intensive and may require innovative inter-professional arrangements in which to deliver meaningful and effect levels of psychological support to stroke patients remain inequity in the access to Psychological support.	DHSSPS (2008) Improving Stroke services in Northern Ireland.
046	Northern Ireland Stroke Network	7 Day Stroke specialist Rehabilitation	Current QS refers to the availability of at least 45 minutes of therapy 5 days a week. However we also require prompt assessment by Stroke Team AHPs to implement evidence around early mobilisation/ rehabilitation and in order to meet NICE Guideline of assessment within 72 hours of admission.	7 day rehabilitation service for stroke is a commissioning priority for Northern Ireland. Implementing this has a financial and funding implication. No 6/7 day rehabilitation services currently exist in northern Ireland stroke units. (SNAP, 2014) The impact of this is that a patient who was fit and able for a pre-72 hour assessment over a weekend or bank holiday would wait an additional weekend period for assessment. Revising the quality standard to reflect access across a 7 day services in addition to 45 minutes over 5 days will assist us to measure access in addition to care delivered.	NICE CG 68/162 DHSSPS (2008) Improving Stroke services in Northern Ireland. DHSSPS. National Institute for Health and Care Excellence. Stroke rehabilitation: long-term rehabilitation after stroke (clinical guideline CG162). 2013. http://guidance.nice.org.uk/CG162.
047	Primary Care Neurology Society	Key area for quality improvement 2	Communication	Although communication and handover improved significantly there is a need for clearer pathway with clear indicators and milestones, This will stream rehab, preventing duplication and waste of	

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				important resource as well as maintain momentum	
048	Primary Care Neurology Society	Key area for quality improvement 5	Psychology support	This remains limited and patchy and needs addressing	
049	Royal College of Physicians	Patients with stroke are offered a minimum of 45 minutes of each active therapy that is required for a minimum of 5 days a week for as long as they are continuing benefit both in hospital and in the community	There is evidence of a dose relationship between therapy and outcome with faster and more complete rehabilitation with more intense treatment.	This was set as a QS by NICE in 2010 and has undoubtedly resulted in a greater focus by both hospital and community teams on increasing face to face treatment times. However SSNAP shows that the majority of providers are still not achieving the standard. There would be a major concern that if this standard was withdrawn then the pressure to continue to improve would cease and resources could be diverted away from a critical part of the patient pathway	Routinely collected by SSNAP both in hospital and for all participating teams in the community
050	Royal College of Speech and Language Therapists	Caregivers of stroke survivors with aphasia should be offered training in how to facilitate communication	There is good evidence that training partners on communication skills improves the quality of conversations that take place between people with aphasia and those partners (Simmons Mackie et al, 2010). Caregivers of stroke survivors with aphasia have more negative stroke-related outcomes than caregivers of non-aphasic survivors, with communication	A review by the Quality Care Commission (Supporting Life after Stroke, 2011) found that support for carers of stroke survivors varied across areas, particularly in relation to aphasia. Many carers had inadequate access to information and support.	Simmons Mackie, N., Raymer, A., Armstrong,E., Holland, A., Cherney, L. (2010) Communication Partner Training in Aphasia: A Systematic Review. Archives of Physical Medicine and Rehabilitation , 91, 12 ,1814 – 1837. Bakas, T., Kroenke, K., Plue, L., Perkins, S.,

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			causing the most distress and difficulty (Bakas et al, 2006).		Williams, L. (2006) Outcomes Among Family Caregivers of Aphasic Versus Nonaphasic Stroke Survivors. Rehabilitation Nursing, 31, 1, 33–42. Quality Care Commission (2011) Supporting life after stroke: A review of services for people who have had a stroke and their carers
051	Royal College of Speech and Language Therapists	Speech and language therapy should be made available to people with chronic aphasia (over 6 months post stroke). Services should exploit technological enhancements to achieve efficiencies, and make chronic provision viable.	There is good evidence that people with chronic aphasia can respond positively to therapy (Pulvermuler et al, 2001). Positive outcomes have been achieved with this population by using technological enhancements, such as computer practice (Palmer et al, 2012) and remote delivery (Woolf et al, 2015).	A review by the Quality Care Commission (Supporting Life after Stroke, 2011) found that although services immediately post stroke had improved, provision post hospital discharge was often limited, particularly for those living with aphasia.	Pulvermuller F, Neininger B, Elbert T, Mohr B, Rockstroh B, Koebbel P, et al (2001) Constraint induced therapy of chronic aphasia after stroke. Stroke, 32: 1621– 1626. Palmer, R., Enderby P., Cooper C., Latimer N, Julious S, Paterson G, Dimairo M, Dixon S, Mortley J, Hilton R, Delaney A, Hughes H (2012) Computer therapy compared with usual care for people with long-

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					standing aphasia poststroke: a pilot randomized controlled trial. Stroke, 43, 7,1904-11 Woolf, C., Caute, A., Haigh, Z., Galliers, J., Wilson, S., Kessie, A., Hirani, S., Hegarty, B. and Marshall, J. (2015). A comparison of remote therapy, face to face therapy and an attention control intervention for people with aphasia: A quasi-randomised controlled feasibility study. Clinical rehabilitation. Quality Care Commission (2011) Supporting life after stroke: A review of services for people who have had a stroke and their carers
052	Royal College of Speech and Language Therapists	Speech and language therapy should be offered intensively to patients when they are ready to receive it. Delivery of intensive speech and	The current consensus is that intensive or greater amounts of therapy is more beneficial than lower intensity or small amounts of therapy, as evidenced by the current recommendation of 45	The RCP (2015) SSNAP data shows that the majority of stroke units are not providing therapy at the recommended intensity. Use of technology could assist with providing greater intensity of therapy.	Royal College of Physicians (2015) Sentinel stroke national audit programme (SSNAP): Clinical audit July – September 2014 public

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		language therapy should exploit specifically designed software programmes and app, for independent therapy practice or practice with a therapist, assistant, or relative	minutes a day of each active therapy for 5 days a week. The Cochrane review of aphasia rehabilitation post stroke (Brady et al 2012) reports some indication of effectiveness of high intensity interventions when compared to low intensity. It has been shown that people with aphasia can practise speech and language therapy exercises on a computer independently or with relatives or volunteers, and find this acceptable (Palmer et al, 2012; 2013)		report Brady MC, Kelly H, Godwin J, Enderby P: Speech and language therapy for aphasia following stroke. Cochrane Database Syst Rev 2012, 5 Palmer R, Enderby P, Cooper C, Latimer N, Julious S, Paterson G, Dimairo M, Dixon S, Mortley J, Hilton R, Delaney A, Hughes H: Computer therapy compared with usual care for people with long standing aphasia post stroke: a pilot randomized controlled trial. Stroke 2012, 43:1904–1911 Palmer R, Enderby P, Paterson G: Using computers to enable self-management of aphasia therapy exercises for word finding: the patient and carer perspective. Int J of

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					Language and Communication Dis 2013, 48:508–521
053	SCM 3	Vocational rehabilitation	Approximately one third of people who sustain a stroke are of working age. Work defines identity, provides structure to the day, is associated with better well being, and ensures an income. The Universal Declaration of Human Rights Article 23.1 states: "Everyone has the right to work, to free choice of employment, to just and favourable conditions of work and to protection against unemployment' Rehabilitation that supports return to work ensures that function is optimised, as the demands of work are usually higher than demands at home.	Vocational rehabilitation is under provided for in the UK. At a conservative estimate less than 10% of the need of people with neurological disabilities is met. VR is cost effective. Studies in other countries suggest a return of investment of 17 fold to the individual and 14 fold to the state	1. Waddell, G and Burton, AK. Is Work Good for Your Health and Well-Being? 2006. Department of Work and Pensions. 2. The Department of Health. The National Service Framework for Long Term Conditions. 2005. 3. The British Society for Rehabilitation Medicine. Vocational Assessment and rehabilitation for people with long term conditions: recommendations for best practice. London, British Society of Rehabilitation Medicine. 4. Audit and Evaluation Directorate. Evaluation of the Canada Pension Plan Disability Vocational Rehabilitation Programme. Internet . 2004. 5.. Kenyon, P, Koshy, P, and Wills-Johnson, N. A

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					Cost Benefit Analysis of Vocational Rehabilitation Services Provided by CRS Australia. 2005. The John Curtin Institute of Public Policy. Discussion Paper Series.
054	SCM 4	Delivery of adequate doses of rehabilitation: 1	Delivering sufficient rehabilitation is important to ensure that stroke survivors make the gains in rehabilitation that they have the potential to. This needs to be delivered by a multi-pronged approach which includes; i) technological solutions	Technology enhanced rehabilitation is an emerging area with multiple restorative technologies in development or deployed in research trials. NHS stroke rehabilitation services needs to be primed to respond to developments in this area.	Cochrane review of upper limb assistive technology in rehabilitation: Mehrholz, J., A. Hadrich, T. Platz, J. Kugler and M. Pohl (2012). "Electromechanical and robot-assisted arm training for improving generic activities of daily living, arm function, and arm muscle strength after stroke." Cochrane Database Syst Rev 6: Cd006876.
055	SCM 4	Delivery of adequate doses of rehabilitation: 2	ii) delivering sufficient doses of rehabilitation through employing sufficient skilled therapists and enhancing this through solutions involving alternative personnel	Using rehabilitation assistants, art and music therapists and volunteers to enhance the amount of time people engage in valuable activities as directed by senior, experienced therapists	Slade, A., et al. (2002). A randomised controlled trial to determine the effect of intensity of therapy upon length of stay in a neurological rehabilitation setting. J Rehabil Med 34(6): 260-266.

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056	SCM 4	Early mobilisation after stroke	Early mobilisation is key to enhancing early recovery and reducing the secondary complications of stroke	Very few stroke survivors mobilise in the early hours and days after stroke. A systematic programme of early mobilisation would have profound benefits	An extensive literature exists on the benefits of early mobilisation e.g. the AVERT studies
057	SCM 4	Additional developmental areas of emergent practice	Powered wheelchair use on rehabilitation units	Providing stroke survivors with an early opportunity to move around the ward and therapy areas in a self-directed way enhances well-being, dignity and quality of life, even in stroke survivors with visual impairments	Salminen, A. L., et al. (2009). Mobility devices to promote activity and participation: a systematic review. J Rehabil Med 41(9): 697-706.
058	Stroke Association	On-going rehabilitation. In particular further focus on Quality Statement 7.	Individuals affected by stroke and their relatives need to receive receive appropriate, tailored flexible rehabilitation as this will affect long term recovery and help reduce long term disability. People who have had a stroke should receive support from stroke skilled services as soon as possible after they have a stroke but as stroke is a condition that can improve over weeks, months and years there must also be access to high quality rehabilitation immediately after transfer from hospital and in the community for as long as a person needs it.	Stroke survivors and carers often talk of their frustration that more access to therapy is not available to them both in hospital and in the community. This can lead to a feeling that the progress that could be made isn't being made. "After an initial six-week input of multi-disciplinary services –OT, physio, speech assessment – following discharge from hospital in 2005 I had nothing offered or provided. Left to get on with it!" (Stroke survivor comment from Stroke Association "Struggling to recover" report 2012) SSNAP data shows there has been progress made over the last couple of years in terms of the intensity of therapy provided by all of the disciplines, although there is still progress to be made. The median number	SSNAP routinely collect data related to this area.

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			There is evidence of a dose relationship between therapy and outcome with faster and more complete rehabilitation with more intense treatment. As such (and in line with Quality Statement 7 and the NICE Stroke Rehabilitation Guidelines) patients with stroke should be offered a minimum of 45 minutes of each active therapy required for a minimum of 5 days a week for as long as are continuing to benefit from it both in hospital and in the community.	of minutes of therapy on the days that patients get any is 40 mins for Occupational Therapy, 33 mins for Physiotherapy and 30 mins for Speech and Language Therapy. However there are days when patients should be getting therapy and when they get none. When these are added in to the equation then the median number of minutes will be lower. The Stroke Association's 2012 report Struggling to recover based on a Daily Life Survey of over 2000 people affected by stroke (https://www.stroke.org.uk/sites/default/files/Struggling_to_recover_report.pdf illustrated that while patients really value the support offered by physiotherapy, occupational therapy and speech therapy, the limited availability of these therapies post hospital causes problems and anxiety. Survivors reported access to therapies as too brief to enable best possible recoveries despite the consensus that stroke specialised rehabilitation should be available for as long as it continues to be of benefit. Of those who answered a question in our Daily Life Survey about support from the NHS, 43% wanted more support, with physiotherapy (29%) cited as the biggest	

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				priority. The 2011 CQC review of support services for people following stroke also found particular problems with availability of stroke specialist physiotherapy and significant delays in accessing speech and language therapy in the community.	
059	Stroke Association	Ensuring patient and carers are adequately informed, prepared and supported on transfer from hospital to the community including joint health and social care planning and carer support.	Good support in the first weeks and months following a stroke enables people to be actively involved in managing their condition, helping them prevent further strokes and achieve their best possible recovery. Health and social care needs assessments are the gateway to stroke survivors getting the right support and services. These assessments should be then turned into a written care plan encompassing health, social and preventative care. Carers of people who have had a stroke can often feel unprepared for their role and often report but can be helped by receiving information about stroke, sources of additional information and support and practical training to	The NICE Stroke Rehabilitation Guidelines recommend a range of systems that should be in place for ensuring that families and carers feel adequately informed, prepared and supported on transfer from hospital to the community including ensuring an agreed health and social care plan is in place. Quality Statement 11: Carers Provisions also recommends measures to ensure that carers receive the support they need. The CCG Outcomes Indicator Set also includes a measure based on people being discharged from hospital with a joint health and social care plan suggesting this is a key area for quality improvement. It is perhaps unclear at present how improvements in these areas are being measured although SSNAP does report on the proportion of applicable patients receiving a joint health and social care plan on discharge and the proportion of patients (although not carers) given a named person	SSNAP currently records some elements of discharge processes related to this area and there is a CCG Outcomes Indicator measure around joint health and social care planning. Better assessment and care planning highlighted as an area for further improvement in the Cardiovascular Disease Outcomes Strategy 2013.

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			enable them to provide care.	to contact after discharge. Both show improvement but also that a number of people are still not receiving these measures of care. We view this area of the pathway key for ensuring people do not fall through the gap between hospital and community services.	
060	The Chartered Society of Physiotherapy	Access to physiotherapy in residential and nursing homes post stroke	Access to services based on patient need regardless of setting is important. Physiotherapy post discharge is one of the professions highlighted as being a key part of the multidisciplinary team within NICE guidance. Physiotherapy post discharge is often necessary to help individuals optimise their quality of life and independence.	The Sentinel Stroke National Audit Programme (SSNAP) found that 11% of people are discharged from hospital to a care home after a stroke every year. However, three out of five care homes are not able to access specialist services, leaving potentially 11% of patients who have had a stroke not having adequate follow up on discharge.	Please see the attached Care Home Survey Please see the Royal College of Physicians (RCP) Sentinel Stroke National Audit Programme which audits stroke services against evidence based standards, and national and local benchmarks: https://www.rcplondon.ac.uk/projects/ssnap-clinical-audit Please see the Chartered Society of Physiotherapy briefing on the impact of physiotherapy post stroke: http://www.csp.org.uk/professional-union/practice/evidence-

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					base/physiotherapy-works/physiotherapy-works-stroke
061	The Chartered Society of Physiotherapy	Access to physiotherapy services in inpatient setting, seven days a week	Patients should receive the same level of care, regardless of what day of the week it is.	The SSNAP report states that the average number of minutes of physiotherapy patients received was 33 minutes rather than the aim of 45 minutes. This coupled with patients only receiving physiotherapy on 68.5% of their inpatient days indicates a lack of access to physiotherapy.	Please see the RCP Sentinel Stroke National Audit Programme which audits stroke services against evidence based standards, and national and local benchmarks: https://www.rcplondon.ac.uk/projects/ssnap-clinical-audit
062	Thomas Pocklington Trust	Key area for quality improvement 1: detection and treatment of vision problems for people who have experienced a stroke	Research shows clear unmet need for vision care among stroke survivor. The research highlights the need for: increased integration of orthoptists within core stroke teams; early vision assessment and post-discharge support for stroke survivors; improved awareness about visual problems after stroke among the public and healthcare professionals. It is estimated that around 60% of stroke survivors experience some form of vision problem such as	· A number of surveys report clear unmet need for visual impairment post-stroke. For example, the Stroke Association's 2010 needs survey of stroke survivors found that 48% had experienced a visual problem, and of these 26% had unmet needs. A survey relating to post-stroke vision services conducted by Dr Fiona Rowe, University of Liverpool, received 548 responses from professionals, with roughly equal numbers from stroke (e.g. stroke physicians, neurologists, occupational therapists) and eye professions (e.g. ophthalmologists, orthoptists, eye clinic liaison officers).	Thomas Pocklington Trust and the Stroke Association co-funded Dr Fiona Rowe of the University of Liverpool to research care provision and unmet need for post stroke visual impairment. The following Research Findings publication summarises Dr Rowe's findings: http://www.pocklington-trust.org.uk/Resources/Thomas%20Pocklington/Documents/PDF/Research%20Publications/rf-40-stroke-

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			impaired central or peripheral vision or eye movement abnormalities immediately after their stroke. This reduces to about 20% by three months post-stroke. The impact of sight loss on stroke survivors is wide-ranging and can include: - Loss of confidence - Discomfort, pain, anxiety, depression - Difficulty with reading and hobbies - Inability to judge distances, increased bumps and collisions, fear of falling - Inability to participate fully in rehabilitation, delayed return to work and independent living, loss of driving licence Dependent on the type of visual impairment, between 17% and 71% of people fully recover, with recovery rates being highest for central vision defects. Vision screening and assessment were less accurate when undertaken by staff who did not have formal eye care training. Stroke survivors need early vision assessment so that this	One fifth (20%) of health professionals working with stroke patients reported their knowledge of visual problems as fairly poor or very poor; Fewer than a quarter (22%) of health professionals working with stroke patients use vision screening tools to assess stroke patients; Fewer than half (46%) reported using a vision care pathway for stroke survivors; 41% of respondents said they saw most stroke patients for vision assessment within one week of stroke onset and 57% saw patients on the stroke unit; Typical length of follow-up for visual problems was reported as less than three months; One third responded that they did not provide vision information leaflets to patients or carers; Up to 40% said that the existing evidence base either did not, or slightly, informed their assessment and management of vision problems. Interviews with professionals in combined stroke/vision units also identified a number of perceived threats and weaknesses in current post-stroke vision services. These included:	final.pdf Statistics presented in this response to NICE have been taken from this publication. The full report is available by contacting research@pocklington-trust.org.uk.

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			information is available to the stroke team to influence their treatment choices	A lack of funding for good post-stroke vision services; Where there was an insufficient number of orthoptist sessions, there was a risk of assessments not being made quickly enough or missed altogether; A lack of orthoptic cover was particularly problematic during holiday periods and staff rotation meant that there was a need for frequent stroke staff retraining by orthoptists; Where there was a lack of 'buy in' and support for post-stroke vision services from stroke physicians, this meant that these services were more likely to fail; Occasional misinformation about visual conditions from stroke teams sometimes confused stroke survivors.	
063	Torbay and Southern Devon Health and Care NHS Trust	Key area for quality improvement 2 Access to services for those resident in residential and nursing homes	A number of stroke survivors move to care homes, there is evidence that many health services (such as physiotherapy) do not provide a service to people who do not live in their own homes	People in care homes should have a right to expect the same access to services as people resident in their own homes. Access to services should be based on need not place of residence.	SSNAP current post acute audit
064	Torbay and Southern Devon Health and Care NHS Trust	Key area for quality improvement 3 Access to services for those with complex disabilities such as	A number of stroke survivors will develop spasticity post stroke (up to one third)- a for estimates of 4-7% of survivors this spasticity will be problematic and require	People with severe spasticity are at risk of pressure sores, and difficulty maintaining hygiene. These can create problems with quality of life and also increase costs of health and social care services	RCP Guidelines re spasticity management with botulinum toxin Scientific literature regarding incidence of

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		spasticity	specialist intervention. Current access to specialist services is patchy		spasticity
Section 4.6: Long-term health and social support					
065	British Association of Stroke Physicians	Additional developmental areas of emergent practice: Six month review	The current NICE guidance recommends six-month review.	This recommendation was based on Delphi consensus rather than empirical evidence and there is no clarity on the methodology of reviews.	
066	College of Occupational Therapists	Key area for quality improvement 1 Advice and assessment to return to driving	Driving plays a pivotal part in independence for many, allowing access to the community, appointments, leisure and social opportunities.	Formal assessment and recommendation regarding returning to driving differs widely between services, with some areas having specialist driving assessment centres, some services conducting standardised assessments, such as Rookwood Driving assessment and others referring patients back to the GP for advice. Stroke specialists have good knowledge and understanding of factors that may impact on driving, such as inattention, visual disturbance, cognitive deficits. The more subtle presentations of these deficits can be challenging to identify without specific assessment	Akinwuntan AE, Devos H, Feys H, Verheyden G, Baten G, Kiekens C, De Weerdt W (2007) Confirmation of the accuracy of a short battery to predict fitness-to-drive of stroke survivors without severe deficits. Journal of Rehabilitation Medicine, 39(9): 698-702. Unsworth CA, Pallant JF, Russell K, Odell M, Coulson M (2011) Interrater reliability of the Road Law and Road Craft Test as part of the OT-DORA Battery for off-road driver assessment. British Journal of Occupational Therapy,

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					74(8): 394-8. Kua I, Korner-Bitensky N, Desrosiers J, Man-Son-Hing M, Marshall S (2007) Older driver retraining: a systematic review of evidence of effectiveness. Journal of Safety Research, 38(1): 81-90. Marshall SC, Molnar FM, Man-Son-Hing M, Blair R, Brosseau L, Finestone HM, Lamothe C, Korner-Bitensky N (2007) Predictors of driving ability following stroke: a systematic review. Topics in Stroke Rehabilitation, 14: 98-114. Julia Asimakopulos, Zachary Boychuck, Diana Sondergaard, Valérie Poulin, Ingrid Ménard, Nicol Korner-Bitensky (2012) Assessing executive function in relation to fitness to drive: a review of tools and their

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					ability to predict safe driving. Australian Occupational Therapy Journal, 59(6): 402-27. DOI:10.1111/j.1440-1630.2011.00963.x
067	London Strategic Clinical Network	Six month reviews	Fourth edition of the National Clinical Guidelines for stroke (2012) and NICE guidelines recommend a review of health and social care needs of people with stroke six months after onset.	Currently there is not a strong evidence base regarding the benefits of stroke reviews. However, anecdotal evidence from areas where reviews are being delivered suggests that benefits might include: Reduced GP appointments Avoidance of hospital admission Identification of secondary prevention needs Potential to improve access to voluntary sector support services (by highlighting areas where voluntary services can meet needs) Increased understanding about stroke and/or TIA, improved ability to cope and self-manage, increased independence SSNAP indicates that 19.2% of applicable patients receive a six month review.	Stroke Rehabilitation Guide: Supporting London Stroke Commissioners to Commission Quality Services in 2010/11 https://www.strokeaudit.org/results/national
068	London Strategic Clinical Network	Additional developmental areas of emergent practice: Access to appropriately resourced seven day rehabilitation services	Stroke rehabilitation is an essential part of the management and treatment of stroke survivors1. There is evidence to demonstrate that providing more therapy, particularly within the first six months after stroke, results in	There is currently limited empirical evidence. Benefits of the seven day per week therapy model may include: greater improvements in patients' functional abilities reduction in hospital length of stay	1. NHS Improvement (2011). Mind the Gap: Ways to Enhance Therapy Provision in Stroke Rehabilitation. 2. Kwakkel G, Van PR, Wagenaar RC, Dauphinee

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			greater functional improvements for patients post-stroke2. Providing therapy across seven days, as opposed to five days, may result in faster improvements in patients' functional outcome as well as ensuring that patients move swiftly through the stroke pathway, from acute hospital care and into the community.	reduced backlog of work on a Monday resulting in less staff stress reduced time from admission to initial therapy assessment, resulting in the earlier provision of therapy more opportunities to deliver a greater proportion of therapy There is a large amount of variation in the delivery of weekend therapy services in stroke units and community services. Therefore, there is a need to ensure that the delivery of weekend therapy for stroke patients is fair and equitable so that all patients benefit from the input that therapy can provide across all stages of the stroke pathway.	SW, Richards C, Ashburn A, Miller K, Lincoln N, Partridge C, Wellwood I, Langhorne P (2004). Effects of augmented exercise therapy time after stroke: a meta-analysis. Stroke 35 (11): 2529–36.
069	NHS England	% of patients discharged who receive a 6 month post stroke assessment	6 month review is viewed as important by patients and their carers and was part of the 2007 Stroke strategy.	Patients often continue to improve for many months after a stroke but can also develop complications and new problems can arise in the months after discharge. Secondary prevention through lifestyle change and pharmacological treatment even if optimised at discharge is often either discontinued by 6 months or requires adaptation. Therefore a formal review at 6 months provides the opportunity for these issues to be addressed. Currently only 19% of stroke discharges are recorded on SSNAP as having a six month review so there is a huge opportunity for improvement. Lack of	Recommended in Stroke Strategy 2007 and a key indicator for stroke recorded in SSNAP

ID	Stakeholder	Suggested key area for quality improvement	Why is this important?	Why is this a key area for quality improvement?	Supporting information
				ongoing support is also often cited in patient surveys as being a major concerrn	
070	Royal College of Physicians	% of patients discharged who receive a 6 month post stroke assessment	6 month review is viewed as important by patients and their carers and was part of the 2007 Stroke strategy.	Patients often continue to improve for many months after a stroke but can also develop complications and new problems can arise in the months after discharge. Secondary prevention through lifestyle change and pharmacological treatment even if optimised at discharge is often either discontinued by 6 months or requires adaptation. Therefore a formal review at 6 months provides the opportunity for these issues to be addressed. Currently only 19% of stroke discharges are recorded on SSNAP as having a six month review so there is a huge opportunity for improvement. Lack of ongoing support is also often cited in patient surveys as being a major concern	Recommended in Stroke Strategy 2007 and a key indicator for stroke recorded in SSNAP
071	SCM 2	Key area for quality improvement 3 MDT Goal Planning	Goal planning is associated with better rehab outcomes.	Goal planning demonstrates that the MDT can work together, and provides an important means of communicating progress with patients and carers. Goal orientated approaches to rehabilitation are associated with better outcome.	Key process indicator for stroke routinely measured in SSNAP.
072	SCM 2	Key area for quality improvement 5 % of patients discharged who receive a 6 month post stroke assessment	6 month review is viewed as important by patients and their carers and was part of the 2007 Stroke strategy.	Routine provision of 6 month post stroke services demonstrates that community services are organised and can provide an assessment.	Recommended in Stroke Strategy 2007 and a key indicator for stroke recorded in SSNAP

ID	Stakeholder	Suggested key area for quality improvement	Why is this important?	Why is this a key area for quality improvement?	Supporting information
073	Stroke Association	Longer term review / follow up 6 month review	According to best practice stroke survivors should be offered a review of their health social care and secondary prevention needs within six weeks of leaving hospital, six months on and then annually. This is because people's condition and support needs can change, and early diagnosis of change is important to ensuring they receive the appropriate support. Longer term review can also help to reinforce secondary prevention through ensuring compliance with treatments and reinforcing support around lifestyle change. Patients and carers often describe the experience of being discharged into the community as like "falling off a cliff edge". A process of longer term review can help facilitate a pathway back to further specialist review, advice, support and rehabilitation where	Longer term review is recommended in the National Stroke Strategy (six weeks, six months, annually) and in the NICE Stroke Rehabilitation Guidelines (6 months and annually). The CCG Outcomes Indicator Set also includes a measure based on people who have had a stroke receiving a follow up assessment within 4-8 months after initial admission suggesting this is a key area for quality improvement. Recent SSNAP data found that whilst the vast majority of patients after stroke at the time of audit were applicable to receive a 6 month review, this is currently happening in only 17.8% of cases. We would hope that the development of a Quality Statement around this area would lead to a major improvement in the number of people receiving longer term reviews to assess their needs.	SSNAP collect this data. Recommended as a key Quality Marker in the National Stroke Strategy. CCG Outcomes Indicator Measure on follow up assessment within 4-8 months.

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			required.		
Section 4.7: Additional areas					
074	Boehringer Ingelheim	Treatment of patients with ischaemic stroke in Atrial fibrillation (AF)	AF is the most common type of irregular heartbeat that affects up to 800,000 people (NHS Choices). If you have AF, you are 5 times more likely to have a stroke or thromboembolism (blood clot) than those without AF (National Clinical guideline Centre).	Approximately 12,500 strokes are directly attributable to AF each year (NHS Improvement). 92% of all AF strokes are ischaemic. Ischaemic stroke is the most serious and devastating consequence of AF (Andersen KK, et al).	Please see the Royal College of Physicians' National Sentinel Stroke Audit which states as the first recommendation for change that "All patients with ischaemic stroke in AF should be considered for anticoagulation and a clear reason documented where a decision is made not to treat" (p11). P42 of the report states that "It is disappointing that still so few patients with AF and stroke are prescribed warfarin or have a plan to start warfarin by discharge. This has increased between 2008 and 2010 from 24% to 28% for those on warfarin at discharge and from 9% to 11% for those with a plan to start warfarin at a future point. Given the strength of evidence in

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					favour of warfarin as the secondary prevention treatment of choice for patients in AF after ischaemic stroke there seems to be still an inexplicable reluctance to follow this guidance. The total of 39% of patients in AF on warfarin after stroke in the 2010 audit is some way short of the 60% set by the Department of Health in England as part of the Accelerated Stroke Improvement metrics to be achieved by April 2011." https://www.rcplondon.ac.uk/sites/default/files/national-sentinel-stroke-audit-2010-public-report-and-appendices_0.pdf
075	Boehringer Ingelheim	Prevention of ischaemic stroke in patients with AF in primary care	AF-related stroke is preventable but needs effective anticoagulation management. But, new anticoagulants approved by NICE and the SMC that can help achieve this are not routinely	7,100 AF-related strokes can be prevented annually if everyone with AF is appropriately managed with anticoagulants (Department of Health).	Please see the Department of Health's Cardiovascular Disease Outcomes Strategy which states that 2,100 lives could be saved per year

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			being prescribed to patients.		with improved management of AF (p65). https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/214895/9387-2900853-CVD-Outcomes_web1.pdf Please see the Royal College of Physicians' National Clinical Guideline for Stroke which recommends that patients should be monitored for atrial fibrillation in pre-hospital care (p39). https://www.rcplondon.ac.uk/sites/default/files/national-clinical-guidelines-for-stroke-fourth-edition.pdf
076	British Association of Stroke Physicians	Anticoagulation for patients with atrial fibrillation	Atrial fibrillation increases the risk of ischaemic stroke by 4 times with a stroke rate in the highest risk individuals of 18% per year. Anticoagulation with warfarin or newer oral anticoagulants reduces this risk by around 60%.	In SSNAP 41% of patients admitted to hospital with stroke and a prior diagnosis of AF were receiving anticoagulation. That means 9000 patients a year being admitted with stroke and untreated AF.	https://www.strokeaudit.org/results/national
077	British	Endovascular treatments	Evidence is now overwhelming	The BASP survey published in 2013	Furlan, Anthony J.

ID	Stakeholder	Suggested key area for quality improvement	Why is this important?	Why is this a key area for quality improvement?	Supporting information
	Association of Stroke Physicians	for acute ischaemic stroke	that thrombectomy works in selected patients with proximal middle cerebral artery occlusion with significant improvements in disability outcomes.	indicated that only a small number of acute hospitals were offering interventional treatments and almost half of those not offering treatments had no processes in place for referral to other providers.	"Endovascular Therapy for Stroke—It's about Time." New England Journal of Medicine (2015). Sanyal, R. et al. (2013) The 2010 British Association of Stroke Physicians Survey of interventional treatments for stroke in the United Kingdom. International Journal of Stroke, 8, pp. 62-68.
078	British Society of Neuroradiologists (BSNR) / The Royal College of Radiologists (RCR)	Introduction of an evidence based intra-arterial thrombectomy service	Stroke is the largest cause of adult disability with enormous health and social care costs - predominantly driven by long term disability associated costs. Large Artery Occlusive stroke (present in up to 50% of all acute strokes) has a poor outcome even with IV thrombolysis and a dismal prognosis without it - alive and independent rates only 20-40%. Alive and independent rate can be greatly increased by addition of thrombectomy - to 55%+.	Recent multiple (7) Randomised Controlled Trials (RCTs) published/presented since Dec 2014 demonstrate that, in patients with confirmed large artery occlusive stroke, modern intra-arterial thrombectomy performed by neurointerventional experts significantly improves survivor independent rate with, overall, a trend to minor mortality reduction. The number needed to treat (NNT) to prevent one disabled survivor ranges from 4-8.	New England Journal of Medicine (NEJM) refs Saver JL et al. NEJM April 17th 2015 – 25% absolute benefit (alive & independent 90/7) Goyal M et al NEJM 11TH Feb 2015 – 24% absolute benefit (alive & independent) Campbell BCV et al NEJM 11th Feb 2015 – 31% absolute benefit (alive & independent)

ID	Stakeholder	Suggested key area for quality improvement	Why is this important?	Why is this a key area for quality improvement?	Supporting information
					Jovin TG et al NEJM 17th April – 16% AB when IVT fails to work or is contraindicated Berkhemer OA et al. NEJM 17th Dec 2014 – 14% absolute benefit (alive & independent) But ~400/500 patients IVT had failed or CAI+ European Stroke Organisation presentation of THRACE trial Glasgow April 2015 – 12% benefit
079	British Society of Neuroradiologists (BSNR) / The Royal College of Radiologists (RCR)	Improving imaging in acute stroke – so that vascular occlusion and salvageable brain tissue can be identified	Without widespread use of vascular imaging it would be inappropriate and wasteful to implement any intra-arterial services	Due to novel therapeutic options and RCT evidence, plain CT head can no longer be regarded as adequate imaging in patients presenting with clinical diagnosis of an acute disabling stroke. Vascular imaging and some form of brain tissue viability assessment is required. CT Angiography (CTA) can be delivered technically readily at time of CT brain imaging. However, investment is required for training/education to support rapid reporting of stroke CTA studies.	See above references

ID	Stakeholder	Suggested key area for quality improvement	Why is this important?	Why is this a key area for quality improvement?	Supporting information
				Optimal method of assessing brain tissue viability remains a research question and should be the subject of randomised trials.	
080	Intercollegiate Stroke Working Party	Additional developmental areas of emergent practice	There is a lot of interest in thrombectomy and this may come up; it will require a major (separate) review I think including neuroradiology, vascular neurosurgery and intensive care. This will be an area of importance in the future. The evidence form trials thus far would suggest that it is a treatment that is significantly beneficial for a small proportion of the patient population		
081	Medtronic	Key area for quality improvement 1 Patients with stroke of unknown cause (cryptogenic stroke) should have access to extended ecg monitoring with Insertable Cardiac Monitors if AF is still undiagnosed following current Standard of Care for extended cardiac monitoring.	Undiagnosed AF is responsible for a number of cryptogenic strokes* and may not be detected by conventional monitoring techniques such as in hospital cardiac monitoring or ambulatory monitoring (Holter monitors). In the Crystal AF Study** the detection of AF with Insertable Cardiac Monitors (ICM) was superior to conventional monitoring methods (30% detection rate with the ICM and 3% with standard monitoring at 3 years. P value =<0.0001) that are	Detecting AF in patients with cryptogenic stroke enables physicians to change their medical therapy by initiating Oral Anticoagulation Therapy and reduce their risk of having a second stroke ****Commissioners should commission acute hospital services to “identify and initiate treatment for all treatable risk factors as soon as possible” 4	*National Clinical Guidelines for Stroke Fourth Edition. Chapter 5, Secondary Prevention, 5.8 Treatment of unusual causes of stroke. https://www.rcplondon.ac.uk/sites/default/files/national-clinical-guidelines-for-stroke-fourth-edition.pdf **Cryptogenic Stroke and Underlying Atrial Fibrillation (Crystal AF) http://www.nejm.org/doi/ful

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			the current standard of care over a 3 year follow up. Shorter term monitoring is not sufficient, as the median time to AF detection over 12 months of follow-up was 84 days. Additionally a new analysis*** based on the Crystal AF data demonstrated the use of ICM is cost effective in detecting AF in cryptogenic stroke patients. The ICER with the Reveal XT ICM in the study compared with the present standard of care was well within the range that NICE considers acceptable based on an established cost effectiveness ratio recently set by NICE to be £20,000 per Quality Adjusted Life Year (QALY)		l/10.1056/NEJMoa1313600 *** Crystal AF Cost Effectiveness Model http://newsroom.medtronic.com/phoenix.zhtml?c=251324&p=irol-newsArticle&ID=2015707 **** National Clinical Guidelines for Stroke Fourth Edition. Chapter 2.3.1 Commissioning Secondary Prevention Services. https://www.rcplondon.ac.uk/sites/default/files/national-clinical-guidelines-for-stroke-fourth-edition.pdf
082	Medtronic	Key area for quality improvement 2 Patients with acute ischemic stroke and confirmed large-vessel occlusion, contraindicated for thrombolysis or where	**Among Patients with acute ischemic stroke due to occlusions in the proximal anterior intracranial circulation, less than 40% regain functional independence when treated with	Improved functional 90 day outcomes have been proven in recent studies in patients with acute ischemic stroke with confirmed large vessel occlusion treated with mechanical clot retrieval as an adjunct therapy to thrombolysis or as a standalone	**Stent-Retriever Thrombectomy after Intravenous t-PA vs. t-PA Alone in Stroke Jeffrey L. Saver, Mayank Goyal et al (April 2015)

ID	Stakeholder	Suggested key area for quality improvement	Why is this important?	Why is this a key area for quality improvement?	Supporting information
		the clinician believes the patient will receive a better clinical outcome should be treated with Mechanical Clot Retrieval within 4-6 hours of onset of symptoms.	intravenous tissue plasminogen activator (t-PA) alone. Thrombectomy with the use of a stent retriever, in addition to intravenous t-PA, increases reperfusion rates and may improve long-term functional outcome. In the SWIFT PRIME study (stopped early due to efficacy) at 39 centres, 196 patients underwent randomization (98 patients in each group). In the intervention group, the median time from qualifying imaging to groin puncture was 57 minutes, and the rate of substantial reperfusion at the end of the procedure was 88%. Thrombectomy with the stent retriever plus intravenous t-PA reduced disability at 90 days over the entire range of scores on the modified Rankin scale (P<0.001). The rate of functional independence (modified Rankin scale score, 0 to 2) was higher in the intervention group than in the control group (60% vs. 35%, P<0.001). There were no	treatment where thrombolysis is contraindicated or has been unsuccessful. ****Commissioners should commission acute hospital services to include treatment of acute ischemic stroke with mechanical clot retrieval for all stroke patients with large vessel occlusions and or the clinician believes would have better clinical outcomes, as soon as possible.	Swift_Prime_Mechanical_Thrombectomy_vs_IV t-pa_2015 http://www.nejm.org/doi/full/10.1056/NEJMoa1411587

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			significant between-group differences in 90-day mortality (9% vs. 12%, P = 0.50) or symptomatic intracranial haemorrhage (0% vs. 3%, P = 0.12).		
083	Medtronic	Key area for quality improvement 3 Patients with acute ischemic stroke and confirmed large-vessel occlusion proving unresponsive to thrombolysis within 4 hours should be treated with Mechanical Clot Retrieval.	Thrombectomy reduces the severity of disability over the range of the modified Rankin scale (adjusted odds ratio for improvement of 1 point, 1.7; 95% confidence interval [CI], 1.05 to 2.8) and led to higher rates of functional independence (a score of 0 to 2) at 90 days (43.7% vs. 28.2%; adjusted odds ratio, 2.1; 95% CI, 1.1 to 4.0). At 90 days, the rates of symptomatic intracranial haemorrhage were 1.9% in both the thrombectomy group and the control group (P = 1.00), and rates of death were 18.4% and 15.5%, respectively (P = 0.60).	Early identification of a patient who is unresponsive to conventional thrombolysis treatment (e.g. alteplase) enables physicians to change from medical therapy to Mechanical Clot Retrieval which removes the clot and has proven improved patient outcomes and a potential reduction in patient MRS (Modified Rankin Score) leading to reduced long term complications post stroke disability. ***Commissioners should commission acute hospital services to include treatment of acute ischemic stroke with mechanical clot retrieval for all stroke patients with large vessel occlusions and or the clinician believes would have better clinical outcomes, as soon as possible.	*Randomized Trial of Revascularization with Solitaire FR Device versus Best Medical Therapy in the Treatment of Acute Stroke Due to Anterior Circulation Large Vessel Occlusion Presenting within Eight Hours of Symptom Onset (REVASCAT) Drs. Jovin and Davalos et al (April 2015) REVASCAT_thrombectomy_trial http://www.nejm.org/doi/full/10.1056/NEJMoa1411587
084	Medtronic	Key area for quality			

ID	Stakeholder	Suggested key area for quality improvement	Why is this important?	Why is this a key area for quality improvement?	Supporting information
		improvement 4 Immobile stroke patients should routinely be treated with Intermittent Pneumatic Compression (IPC) for the prevention VTE prophylaxis as standard of care.	Asymptomatic DVT frequently progresses to symptomatic DVT and it is well documented that "Only 25% of patients with DVTs display clinical signs" (O'Meara et al.) Studies have also shown that asymptomatic DVT is strongly associated with the development of symptomatic VTE with Stroke patients being a particularly high risk patient population who frequently develop DVTs and the whole reason for prophylaxis is to ensure that this does not happen because of the associated pain and suffering caused to patients with often debilitating or terminal consequences.	Preventing a DVT in patients with stroke reduces the risk of a patient having long term complications and post stroke disability. ***Commissioners should commission acute hospital services to "identify and initiate treatment for all treatable risk factors as soon as possible"	European Stroke Organisation clinical guideline for Ischemic Stroke/Ischemic Transient Attack (defined according to the criteria of the European Federation of Neurological Societies (EFNS) ..\EFNS_guideline_2011_Ischaemic_stroke_and_transient_ischaemic_attack.pdf ANTITHROMBOTIC THERAPY AND PREVENTION OF THROMBOSIS, 9TH ED: ACCP GUIDELINES ..\ACCP_guidelines_stroke_2012.pdf Alexander Cohen et al, Venous Thromboembolism (VTE) in Europe , 2007 Thrombo Haemost

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					,98:756-764 O'Meara, P.M., et al. Prophylaxis for Venous Thromboembolism: A Review; ORTHOPEDICS. 1990; 13:173-178. 'Effectiveness of intermittent pneumatic compression in reduction of risk of deep vein thrombosis in patients who have had a stroke' Prof M.Dennis et al http://www.nhsiq.nhs.uk/media/2447648/clots3_lancet_2013.pdf The Sentinel Stroke National Audit Programme (SSNAP) SSNAP-2014 Audit Report.pdf
085	NHS England	Key Area for Improvement 6	Recognition of, and communicating about, probable imminent death in people with devastatingly severe strokes, and the required appropriate care of the dying person and those close	In the group of people with devastating stoke likely to die within days to weeks, good quality care of the dying person, including support for those important to them, is crucial. The understandable focus on maximising chances of recovery and	Stroke is the 4th largest cause of death in the UK. About 17% of people who have a stroke die within one month.

ID	Stakeholder	Suggested key area for quality improvement	Why is this important?	Why is this a key area for quality improvement?	Supporting information
			to them.	rehabilitation can mean that, even where these hopes are futile, attention is not paid to recognising and communicating the likelihood of imminent death, and good end of life care. Although a QS already exists for end of life care, I believe the very specific nature of people dying very soon from acute devastating strokes makes it suitable as a specific area for quality improvement. Here the situation is almost akin to sudden death, though the high level of uncertainty about potential for recovery particularly during the first days following acute stroke makes this a unique situation, compared to people dying from cancer and many other long term conditions where there is likely to be time to plan and prepare for the end stage.	
086	NHS England	Key Area for improvement 7	Palliative care for people with severe life-limiting stroke to address physical and psychological symptoms.	There is a high prevalence of palliative care needs amongst patients with acute stroke. In a prospective study of almost 200 patients admitted with acute stroke in England, about half had symptom-related problems (e.g. pain) or psychological distress (e.g. anxiety). About a quarter had anxieties about death and dying, 2/3 had concerns about disability and dependency and over 50% were worried about the impact on family members.	Burton C et al (2010). The palliative care needs of acute stroke patients: a prospective study of hospital admissions. Age and Ageing 39: 554-59. doi: 10.1093/ageing/afq077 Stevens et al (2007). Palliative care in stroke: a critical review of the literature. Palliat

ID	Stakeholder	Suggested key area for quality improvement	Why is this important?	Why is this a key area for quality improvement?	Supporting information
					Med 21: 323-331.
087	NHS England	Additional developmental areas of emergent practice	There is a lot of interest in thrombectomy and this may come up; it will require a major (separate) review I think including neuroradiology, vascular neurosurgery and intensive care. This will be an area of importance in the future. The evidence form trials thuus far would suggest that it is a treatment that is significantly beneficial for a small proportion of the patient population		
088	Primary Care Neurology Society	Key area for quality improvement 4	Incontinence issues	Assessment and services need to be easily accessible. Need for intra-professional training	
089	Primary Care Neurology Society	Key area for quality improvement 3	Outcome measures	Better, reliable and sensitive measuring tools are needed. Rankin does not give a clear picture in the case of improvement and Bartel is limited to some of the physical aspects only	
090	Primary Care Neurology Society	Additional developmental areas of emergent practice		There is a lack of clear guidance on potential outcomes and on the need to target the limited resources appropriately	
091	Royal College of Physicians	Additional developmental areas of emergent practice	There is a likely to be great interest in thrombectomy which will require a major (separate) review including neuroradiology,		

ID	Stakeholder	Suggested key area for quality improvement	Why is this important?	Why is this a key area for quality improvement?	Supporting information
			vascular neurosurgery and intensive care. This will be an area of importance in the future. The evidence form trials thus far would suggest that it is a treatment that is significantly beneficial for a small proportion of the patient population		
092	SCM 1	Additional developmental areas of emergent practice Mobile stroke units	Time is brain and the earlier TPA can be administered the more likely the pt is to recover.	Mobile strokes have been trailed and successfully implement in other countries namely Germany. This has created system where a paramedic/physician/radiologist response in an adapted ambulance with a CT scanner are dispatched to support traditional ambulance crews on scene with suspected stroke pts. The mobile stroke team are able to confirm diagnosis of stroke and scan to rule out haemorrhage and begin TPA treatment at scene. This has been developed further in removing the physician and radiologist and having an ambulance clinician/radiographer response supported via telemedicine by physicians.	http://www.thelancet.com/journals/laneur/article/PIIS1474-4422(12)70057-1/abstract
093	SCM 2	Additional developmental areas of emergent practice	There is a lot of interest in thrombectomy and this may come up; it will require a major (separate) review I think including neuroradiology, vascular neurosurgery and intensive care. This will be an area of importance		

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			in the future.		
094	SCM 4	Evidence base for rehabilitation therapies provided to stroke survivors	Very little good quality evidence exists to support the evidence base for most therapies in stroke rehabilitation. Most rely on philosophies developed by individuals based around treatments for other conditions e.g. cerebral palsy	Therapies need to move into the realm of evidence-based treatments to reconcile the resources that they consume by non-evidenced treatments and the outcomes produced.	An evidence-based postgraduate training package for therapists was introduced into physiotherapy in the Netherlands, funded by the state health service in the last decade and provides a useful model for the UK: KNGF Clinical Practice Guidelines for physical therapy in patients with stroke. Dutch Journal of Physcial Therapy 2004:114(5)
095	SCM 4	A framework for robust outcome measurement for stroke rehabilitation	Stroke is a multi-faceted condition which affects many areas of human functioning. These areas need to be appreciated in collecting data from stroke rehabilitation services to appreciate the scope of impact of rehabilitation	At present the Rankin scale is used to rate outcomes from stroke services. This was made up for an article published in the Scottish Medical Journal in 1957. This is entirely inappropriate as an outcome measure in today's NHS, especially as for outcomes it is usually dichotomised resulting in an even greater loss of information	A wide variety of outcome measures can be deployed in rehabilitation based on a needs-based framework of an ICF framework to capture the full extent of the impact of stroke on the individual: World Health Organisation (2001). International Classification of Functioning, Disability and Health. Geneva, WHO.

ID	Stakeholder	Suggested key area for quality improvement	Why is this important?	Why is this a key area for quality improvement?	Supporting information
096	SCM 4	Additional evidence sources for consideration	It needs to be recognised that stroke rehabilitation has more in common with rehabilitation in general than it does with stroke medicine in particular and important information can be gained by examining studies which report mixed populations of patients with a common impairment rather than focusing on papers that recruited solely stroke survivors.		
097	Stroke Association	Additional developmental areas of emergent practice: Thrombectomy – Mechanical Clot Retrieval for acute ischaemic stroke	Data from a number of trials have been published over the last 3 months showing the benefit for mechanical clot retrieval (Thrombectomy) in subgroups of ischaemic stroke patients. These findings reveal thrombectomy is another important intervention in addition to thrombolysis for increasing patient outcomes following stroke, and making a potentially significant impact on the quality of life for stroke survivors. This intervention is being widely hailed internationally and presents an opportunity for us to radically	A British Association of Stroke Physicians survey published in 2013 indicated that only a small number of acute hospitals were offering interventional treatments and almost half of those not offering treatments had no processes in place for referral to other providers. We have recently requested that NICE review and update of the Technology Appraisal related to mechanical clot retrieval for acute ischaemic stroke (TA IPG458) as a matter of urgency in light of recent developments in research. We are pleased that NICE's Interventional Procedures Advisory Committee are now looking into this issue with a view to potentially updating guidance in this area.	PISTE trial http://www.gla.ac.uk/researchinstitutes/neuroscencepsychology/research/csbi/piste/ Sanyal, R. et al. (2013) The 2010 British Association of Stroke Physicians Survey of interventional treatments for stroke in the United Kingdom. International Journal of Stroke, 8, pp. 62-68.

ID	Stakeholder	Suggested key area for quality improvement	Why is this important?	Why is this a key area for quality improvement?	Supporting information
			transform stroke care in the UK.		
098	The Chartered Society of Physiotherapy	Additional developmental areas of emergent practice	Contractures affect a large proportion of people post stroke and for a significant number this is problematic, affecting activities of daily living.	Currently, access to specialist services such as for contracture management is variable.	Please see the College of Occupational Therapists and Association of Chartered Physiotherapists in Neurology Splinting for the prevention and correction of contractures in adults with neurological dysfunction: http://www.acpin.net/Splinting_Guidelines/Splinting_Guidelines.pdf
099	Torbay and Southern Devon Health and Care NHS Trust	Key area for quality improvement 1 Use of anticoagulants in people with AF in primary care	A number of people who sustain a stroke have already been identified as having atrial fibrillation in primary care but are not anticoagulated- better management would reduce the incidence of stroke	All efforts should be made to prevent stroke	SSNAP audit results for current practice
100	UK Neurointerventional Group- Royal College of Radiologists	Introduction of an evidence based intra-arterial thrombectomy service	Stroke is the largest cause of adult disability with enormous health & social care costs- predominantly driven by long term disability associated costs. Large Artery Occlusive stroke (present in up to 50% of all acute strokes) has a poor outcome even	Recently multiple (7) RCTs published/presented since Dec 2014 have conclusively demonstrated that, in patients with confirmed large artery occlusive stroke, modern intra-arterial thrombectomy performed by neurointerventional experts significantly improves patient outcomes – including survivor independent rate with, overall, a trend to minor mortality reduction	NEJM refs: Saver JL et al. NEJM April 17th 2015 – 25% absolute benefit (alive & independent 90/7) Goyal M et al NEJM 11TH Feb 2015 – 24% absolute

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			with IV thrombolysis & a dismal prognosis without it- alive & independent rates range from 20-39%. Alive & independent rate can be greatly increased by addition of thrombectomy - to 55%+.	and no increase in adverse events. There is a shift across the whole range of clinical outcomes to less disability /dependency when IA Thrombectomy is performed The NNT to prevent one disabled survivor ranges from 4-7. Blinded data from the ongoing UK Thrombectomy trial (PISTE) indicate that UK procedural timelines & procedural safety are equivalent to these published trials	benefit (alive & independent) Campbell BCV et al NEJM 11th Feb 2015 – 31% absolute benefit (alive & independent) Jovin TG et al NEJM 17th April – 16% AB when IVT fails to work or is contraindicated Berkhemer OA et al. NEJM 17th Dec 2014 – 14% absolute benefit (alive & independent) But ~400/500 patients IVT had failed or CAI+ European Stroke Organisation presentation of THRACE trial Glasgow April 2015 – >12% benefit
General					
101	Intercollegiate Stroke Working Party	Additional evidence sources for consideration	It is vital that whatever standards are set that they can measured using the SSNAP dataset. Further requirements for data collections would be unacceptable		

ID	Stakeholder	Suggested key area for quality improvement	Why is this important?	Why is this a key area for quality improvement?	Supporting information
102	NHS England	Additional evidence sources for consideration	It is vital that whatever standards are set that they can measured using the SSNAP dataset. Further requirements for data collections would be unacceptable		
103	Primary Care Neurology Society	Key area for quality improvement 1	Overall comment	Generally the stroke strategy has improved services as more time is now spent with patient's goals	
104	Royal College of Nursing	This is to inform you that the Royal College of Nursing have no comments to submit to inform on the topic engagement			
105	Royal College of Physicians	The RCP is grateful for the opportunity to respond to this NICE engagement exercise. In doing so, we wish to endorse the response submitted by the British Association of Stroke Physicians (BASP) and draw NICE's attention to the response of the Stroke Association. In addition to the key areas below we would like to highlight that quality standards are usually			

ID	Stakeholder	Suggested key area for quality improvement	Why is this important?	Why is this a key area for quality improvement?	Supporting information
		accompanied by guidance to Commissioners, which is an important opportunity to provide a focus for them. The RCP also wishes to confirm support for the QS in driving effective and safe commissioning. As such, we would be pleased to consider formally supporting the final QS at a later stage.			
106	Royal College of Physicians	Additional evidence sources for consideration	It is vital that whatever standards are set that they can measured using the SSNAP dataset. Further requirements for data collections would be unacceptable		
107	SCM 2	Additional evidence sources for consideration	2012 ICSWP Guideline probably more help than the NICE rehab guideline which has been viewed with some concern by some members of the stroke community. Important to have indicators measured in SSNAP which is routinely collected; we do not need the burden of more data collection!		

ID	Stakeholder	Suggested key area for quality improvement	Why is this important?	Why is this a key area for quality improvement?	Supporting information
108	Stroke Association	General Comment	Stroke is a complex condition and the current Quality Standard is ambitious in its aim to cover the whole stroke pathway, from diagnosis and initial management, acute care, rehabilitation and long-term management. For a condition that has such a complex and multidimensional pathway it is difficult to focus on just 5 suggested areas of quality improvement. We would argue that all of the current Quality Statements are yet to be fully achieved and say that in an ideal world they would remain alongside possible suggestions for new statements until they can be met as completely as possible. If the current Standard was to be slimmed down then we would have some concerns that commissioners may not consider fully coordinating services across all relevant agencies accompanying the whole stroke care pathway as was initially intended. For these reasons we would say that it is appropriate for any updated Quality Standard to		

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			strive to include statements covering as much of the stroke pathway as possible. In our response we have attempted to prioritise some areas but would appreciate our response being considered in the light of this more general statement.		