

# London Stroke Nurse Competency Workbook

*The London Stroke Nurse Competency Workbook has brought together the shared **expertise** and **experience** of stroke nurses from across the capital to produce a best practice reference document. The workbook provides hospitals with an **effective tool** for training nurses to a highly **consistent** and **competent** level.*

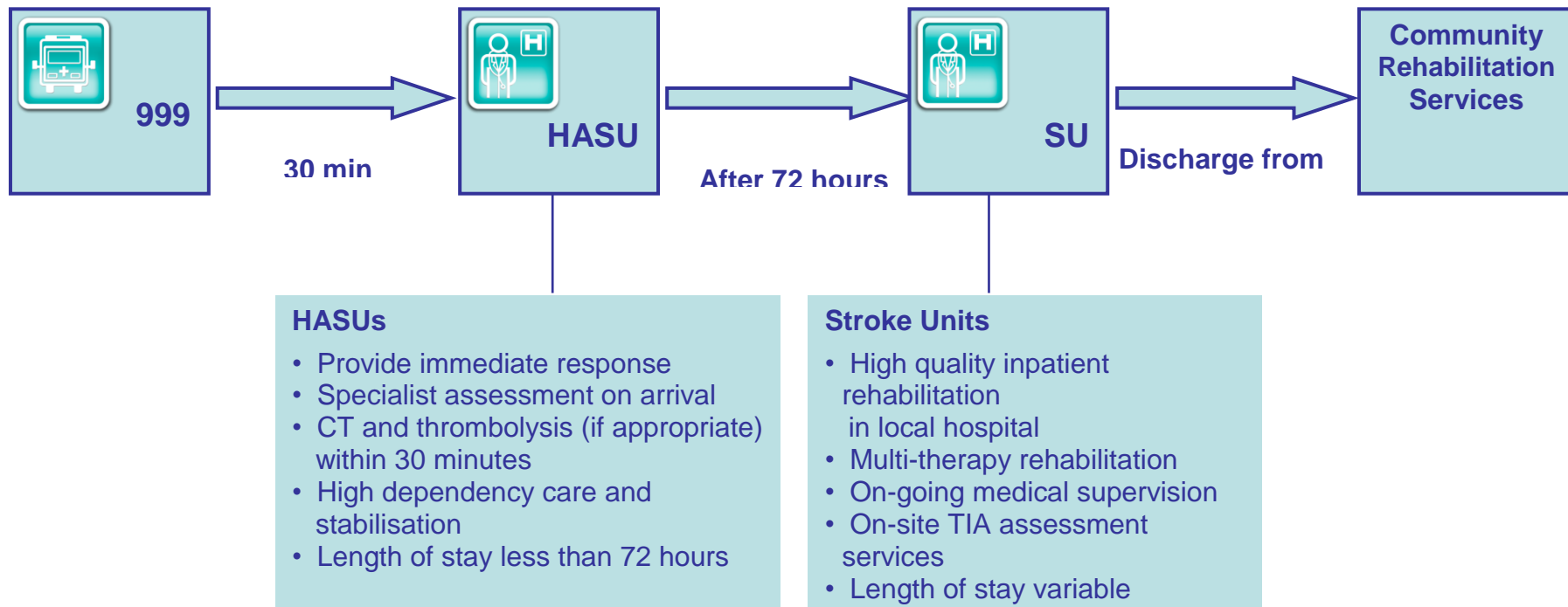
*Creating committed and competent stroke nurses across London*

## **Contents**

An introduction to the London Stroke Model	4		
Introduction to the workbook	5		
Assessment process	6		
Benner Assessment Criteria	7		
<b>Competency 1:</b> acute neurological care	8	<b>Competency 11:</b> positioning and pressure area care	24
<b>Competency 2:</b> thrombolysis and thrombectomy care	10	<b>Competency 12:</b> pain control	26
<b>Competency 3:</b> respiratory care	12	<b>Competency 13:</b> vision and perception	27
<b>Competency 4:</b> cardiovascular care	13	<b>Competency 14:</b> communication	28
<b>Competency 5:</b> management of sepsis and infection control	15	<b>Competency 15:</b> psychological care	29
<b>Competency 6:</b> diabetes care	16	<b>Competency 16:</b> sex after stroke	31
<b>Competency 7:</b> nutrition and hydration	17	<b>Competency 17:</b> self administration of medicine	32
<b>Competency 8:</b> bladder and bowel continence	20	<b>Competency 18:</b> transfer of care	33
<b>Competency 9:</b> rehabilitation after stroke	22	<b>Competency 19:</b> long term care	34
<b>Competency 10:</b> fatigue	23	<b>Competency 20:</b> end of life care	35
Glossary	36		
Acknowledgements	43		
References	45		
Guidance Documents	45		
Online resources	45		
Recommended reading	46		

## An introduction to the London Stroke Model

It is important to understand the stroke pathway that operates in London as patients can be admitted to both a Hyper Acute Stroke Unit (HASU) and as Stroke Unit (SU) whilst in the acute phase of care. The London Stroke Model became fully operational in July 2010 and has since transformed the way stroke care is delivered in the capital. The London Stroke Strategy ensures all suspected stroke patients in Greater London are admitted to a HASU in the capital where they receive 24/7 access to specialised stroke staff, availability of immediate CT scanning and emergency treatment. Once established at the HASU (up to 72 hours) patients are transferred to one of the 24 SUs where they receive longer term care and rehabilitation.



For more information on the London Stroke Model, please visit [www.londonhp.nhs.uk](http://www.londonhp.nhs.uk)

## **Introduction to the Workbook**

The 'London Stroke Nurse Competency Workbook' was developed as a result of the 'London Hyper Acute Stroke Unit (HASU) Workbook' which was created in 2011 by HASU nursing leads from across the capital. After realising the success of the HASU workbook, Stroke Unit (SU) nursing leads were inspired to compile competencies relevant to nurses working on their own units.

A development group was created in late 2011 to produce the acute rehabilitation competencies that are included within this workbook. The group reviewed each section individually, sourcing competencies from original documentation and creating new competencies in areas that had not been covered (all material taken from existing stroke literature has been referenced within this workbook). The competencies received input from highly qualified and experienced nurse specialists as well as consultation from physiotherapists, speech and language therapists, occupational therapists, dieticians and psychologists from a variety of hospitals and inpatient settings.

During the development phase, it was felt necessary to amalgamate the HASU and SU competencies into one single workbook so that it can be used to train nurses to a highly consistent level, ensuring patients would experience quality care in whatever acute London setting they are admitted. It is at the discretion of the assessor and trust to identify which competencies they feel would be beneficial and appropriate for their nurses to be trained in. The workbook can also be used to train and assess nurses who rotate between SUs and HASUs and give a comprehensive list of the skill set they require.

The competencies were updated in 2016 with input from nursing staff across London from both HASUs and SUs to incorporate changes in practice.

## Assessment process

Nurses will be supported by an assessor (typically a Band 6 nurse) to work through the competency document and achieve a minimum standard of 'Competent' for each section (as per Benner Assessment Criteria listed on the next page). Assessors may wish to encourage individuals to achieve 'Proficient' or 'Expert' level in certain competencies where appropriate. It is recommended that nurses complete the competencies within a 12 month time frame however it is recognised that some individuals may take longer to complete them. Appropriate training according to local policy should be completed prior to staff using medical devices.

The assessment process provides the opportunity for the 2 'Formative Assessments' before a final 'Summative Assessment' is signed off. Summative doesn't require 2 formative assessments i.e. candidates must do at least one formative assessment but two if needed. 'PR' is an abbreviation of personal rating (i.e. the individual taking the competencies) and AR= assessors rating.

Name	Stroke Unit	Start Date
Assessor's name and designation	Notes	Signature and date

## Benner Assessment Criteria

Standard	Criteria
<b>Expert (E)</b>	Experts are able to focus on a relevant part of a situation without conscious consideration. They will use their intuition based on vast experience to follow a course of action which they 'know' is appropriate. An expert practitioner develops a feel for situations and vision of possibilities. Not all members of the multi-professional teams are capable of reaching this level- it could be assisted by techniques such as critical incident analysis.
<b>Proficient (P)</b>	Proficient practitioners use their expertise to critically analyze and evaluate situations as a whole. They are able to identify the more important elements of a situation and make decisions based on a broad perspective.
<b>Competent (C)</b>	Competent practitioners are consciously aware of long-term effect of their actions. They are able to plan the most satisfactory outcome of a situation and take the appropriate action to achieve the planned aims. This requires conscious, abstract, analytical contemplation of the situation.
<b>Advanced Beginner (AB)</b>	Advanced beginners demonstrate a degree of flexibility in their performance and interpret the rules to meet the needs of the situation, maintaining throughout the safety of the patient, colleagues, others and self. They are able to relate to the current situation, based on prior learning.
<b>Novice (N)</b>	Novices have no experience of the situation they find themselves in and they operate by closely following rules laid down by others. They perform a series of tasks without understanding, or referring to, the context within which they are operating.

Benner P (1984) "From Novice to Expert" Menlo-Park: Addison Wesley Publishing Company

## Competency 1: Acute neurological care

Competency	KSF	FORMATIVE ASSESSMENTS			SUMMATIVE ASSESSMENT		
		PR	AR	Sign & date	PR	AR	Sign & date
<b>1.1 Stroke Knowledge</b>							
1.1.1 Describe the gross anatomy of the brain	C2, C5, HWB4						
1.1.2 Describe the blood supply of the brain	C2, C5, HWB4						
1.1.3 Describe the vascular territories and symptoms that may occur if blood supply is altered	C2, C5, HWB4						
1.1.4 Can differentiate the different types of stroke, the pathophysiology of these and the relevant risk factors	C2, C5, HWB4						
<b>1.2 Neurological care</b>							
1.2.1 Demonstrates a full set of neurological observations appropriate to stroke patients	HWB6						
1.2.2 Demonstrates knowledge and understanding of correct limb power grading e.g. MRC grading according, to local policy	HWB6						
1.2.3 Can list signs, symptoms and physiological changes of neurological deterioration and increase frequency of neurological observations accordingly	HWB6						
1.2.4 Can describe causes of neurological deterioration	HWB6						
1.2.5 Can list and describe common stroke mimics	HWB2						
1.2.6 Demonstrates knowledge of ABCDE systemic assessment of the acutely ill patient	C3, HWB2						



## Competency 1: Acute neurological care

Competency	KSF	FORMATIVE ASSESSMENTS			SUMMATIVE ASSESSMENT		
		PR	AR	Sign & date	PR	AR	Sign & date
<b>1.2.7</b> Can describe the association between stroke and venous thrombo-embolism and can demonstrate knowledge of prevention and management of thrombo-embolic events according to local policy	HWB6, HWB7						
<b>1.2.8</b> Demonstrates knowledge and use of the local early warning score system and can describe escalation of patient deterioration according to local policy	C3, HWB6						
<b>1.2.9</b> Can explain all stroke impairments including hemisensory loss and neglect and manage appropriately	HWB2						
<b>1.2.10</b> Can identify confused patients and initial management according to local policy	HWB2						
<b>1.2.11</b> Can explain treatment and management of both haemorrhagic and ischaemic strokes	HWB7						
<b>1.2.12</b> Can correctly prepare a patient for neurosurgery as per local policy	HWB5						
<b>1.2.13</b> Can list common post-stroke investigations and describe their indications	HWB8						
<b>1.2.14</b> Is able to devise appropriate nursing care and management of a patient with a hemicraniectomy according to local policy	HWB2						

## Competency 2: Thrombolysis and thrombectomy care

Competency	KSF	FORMATIVE ASSESSMENTS			SUMMATIVE ASSESSMENT				
		PR	AR	Sign & date	PR	AR	Sign & date		
<b>2.1 Thrombolysis</b>									
2.1.1 Can list stroke thrombolysis inclusion and exclusion criteria	C2								
2.1.2 Can describe stroke assessment tools such as NIHSS and undertake training according to local policy	HWB2, C2								
2.1.3 Can describe the action of thrombolysis and the policies and protocols for its safe administration	HWB6, HWB7								
2.1.4 Can describe current thrombolysis research and ongoing trials	HWB1								
2.1.5 Can show that they know who to inform about a thrombolysis call and be able to liaise with all appropriate staff, e.g. radiographer, A&E and ward regarding bed availability	C1, C3								
2.1.6 Can describe patient consent and the Mental Capacity Act	C1, HWB3								
2.1.7 Can show good communication skills with knowledge and understanding of how to communicate with an aphasic patient	HWB1								
2.1.8 Can describe thrombolysis related complications and the emergency management of these	HWB1, HWB7								
2.1.9 Can state local and national guidelines for the monitoring of thrombolysed patients	HWB1, HWB2								
2.1.10 Can describe the importance of administering thrombolysis as quickly as possible following the onset of stroke symptoms	HWB7								
2.1.11 Can calculate the thrombolysis dosage and how to administer the bolus and infusion	HWB7								
2.1.12 Can demonstrate the preparation of a patient for thrombolysis e.g. appropriate IV access	HWB7								
2.1.13 Can show evidence of attendance of immediate life support training	HWB7								

## Competency 2: Thrombolysis and thrombectomy care

Competency	KSF	FORMATIVE ASSESSMENTS			SUMMATIVE ASSESSMENT			
		PR	AR	Sign & date	PR	AR	Sign & date	
<b>2.1.14</b> Can state and initiate appropriate anti-hypertensive agents post-thrombolysis, as per local policy	HWB7							
<b>2.1.15</b> Can show how to evaluate the effectiveness of thrombolysis therapy	HWB7							
<b>2.1.16</b> Can show rationale for avoidance of invasive procedures 24 hours following thrombolysis	HWB7							
<b>2.1.17</b> Can state when to commence anti-platelet therapy	HWB7							
<b>2.2 Thrombectomy</b>								
<b>2.2.1</b> Describe the evidence for thrombectomy in stroke including the importance of rapid treatment	C2							
<b>2.2.2</b> List inclusion and exclusion criteria for thrombectomy procedures	C2							
<b>2.2.3</b> Describe and manage post-thrombectomy complications	HWB7							
<b>2.2.4</b> Devise appropriate nursing care of a patient following a thrombectomy	HWB7							
<b>2.2.5</b> Discuss when anti-platelet therapy should commence after thrombectomy	HWB7							

### Competency 3: Respiratory care

Competency	KSF	FORMATIVE ASSESSMENTS			SUMMATIVE ASSESSMENT			
		PR	AR	Sign & date	PR	AR	Sign & date	
<b>3.1</b> Describe the anatomy and physiology of the respiratory systems including airway patency, ventilation and gas exchange	HWB6F, HWB7F							
<b>3.2</b> Demonstrate the ability to assess airway patency and is able to identify and manage partial and complete airway obstruction	C2, HWB6F, HWB6, HWB7							
<b>3.3</b> Demonstrates knowledge of the local/Trust policy regarding the administration of oxygen	HWB6F							
<b>3.4</b> Can list the signs and symptoms of hypoxia and respiratory distress and understand the difference between type 1 and type 2 respiratory failure and their management	HWB6F, HWB7, HWB6							
<b>3.5</b> Can describe common causes of respiratory deterioration in acute stroke	HWB7F							
<b>3.6</b> Can describe the indications for using nebuliser therapy; discussing whether nebulisers are given with oxygen, air or both	HWB6, HWB7F							

## Competency 4: Cardiovascular care

Competency	KSF	FORMATIVE ASSESSMENTS			SUMMATIVE ASSESSMENT		
		PR	AR	Sign & date	PR	AR	Sign & date
4.1 Explain the anatomy and physiology of the heart including the electrical activity and the circulatory pathways within and from the heart	HWB2						
4.2 Explain the signs and symptoms of cardiovascular impairments e.g. palpitations, peripheral oedema, tachycardia, shortness of breath, chest pain	HWB2						
4.3 Provide the rationale for continuous cardiac monitoring and correctly set up bedside monitoring including alarm settings and target ranges	HWB6						
4.4 Demonstrate the ability to distinguish normal from abnormal ECG trace and respond appropriately, particularly to atrial flutter or fibrillation	HWB6						
4.5 Discuss life threatening cardiac arrhythmias (asystole, ventricular tachycardia, ventricular fibrillation, pulseless electrical activity)	HWB6						
4.6 Describe atrial fibrillation and the relationship to stroke	HWB1						
4.7 Explain the nursing management of a patient with atrial fibrillation	HWB6						
4.8 Discuss the normal pulse range and rhythms	HWB1						
4.9 Identify the normal blood pressure range for adults and in acute stroke patients based on available clinical guidelines	HWB2						
4.10 Explain the rationale for frequent blood pressure recordings in acute stroke	HWB2						
4.11 Describe cerebral perfusion in acute stroke	HWB1						

## Competency 4: Cardiovascular care

Competency	KSF	FORMATIVE ASSESSMENTS			SUMMATIVE ASSESSMENT			
		PR	AR	Sign & date	PR	AR	Sign & date	
<b>4.12</b> Discuss the indications and contraindications of the following cardiac drugs: - Glycerol Trinitrate                      - Warfarin and new oral anticoagulants - Labetalol    - Digoxin - Low molecular weight heparin	HWB1							
<b>4.13</b> Can list and explain the symptoms of the following cardiac related conditions and be able to take emergency action when these conditions arise: - Reduce cardiac output                      - postural hypotension - hypotension    - syncopal event	HWB2							
<b>4.14</b> Demonstrates knowledge of the immediate actions which should be taken in cardiovascular deterioration and explain the nurses' management role	HWB6, HWB7							
<b>4.15</b> Can discuss and demonstrate appropriate actions during cardiac arrest	HWB6							
<b>4.16</b> Can explain the rationale for active blood pressure lowering in haemorrhagic stroke	HWB2							

## Competency 5: Management of sepsis and infection control

Competency	KSF	FORMATIVE ASSESSMENTS						SUMMATIVE ASSESSMENT		
		PR	AR	Sign & date	PR	AR	Sign & date	PR	AR	Sign & date
5.1 Describe the management of pyrexia according to local policy for stroke patients	C2, C3, C5, HWB4, HWB5									
5.2 Explain why pyrexia is detrimental in acute stroke	C2									
5.3 Explain the signs of sepsis according to local policy	C1, C2, C5, HWB5, HWB6									
5.4 Explain the signs of systemic inflammatory response syndrome and its importance in relation to sepsis	C2, HWB6									
5.5 Describe the common causes of sepsis in acute stroke patients	C2, C3, C5, HWB6									
5.6 Describe the initial management of sepsis	C2, C5, HWB6, HWB7									
5.7 Explain repatriation protocols with regards to infection control	C2, C3, C5, HWB6									
5.8 Explain local policy/protocols regarding infection control	C2, C3, C5, HWB6									

## Competency 6: Diabetes care

Competency	KSF	FORMATIVE ASSESSMENTS			SUMMATIVE ASSESSMENT			
		PR	AR	Sign & date	PR	AR	Sign & date	
6.1 Describe how the body utilises glucose	C2, HWB6							
6.2 Describe the difference between Type 1 and Type 2 diabetes	C2, C5, HWB2							
6.3 Explain the normal range of blood glucose	C2, C5, HWB2, HWB7							
6.4 Describe the effects of hyperglycaemia on the acute stroke patient	C2, C5, HWB2, HWB6							
6.5 Describe how to manage hyperglycaemia or hypoglycaemia according to local protocol	C2, C3, C5, HWB2, HWB5, HWB7							
6.6 Provide diabetes medication including insulin at prescribed times (ensure that this is appropriate to the start & finish times of enteral nutrition)								
6.7 Describe the stress response in relation to glucose levels	C2, C5, HWB6, HWB7							



## Competency 7: Nutrition and hydration

Competency	KSF	FORMATIVE ASSESSMENTS			SUMMATIVE ASSESSMENT				
		PR	AR	Sign & date	PR	AR	Sign & date		
<b>7.1 Swallowing</b>									
7.1.1 Describe the normal swallow including oral, pharyngeal and oesophageal stages	C2, HWB4								
7.1.2 Demonstrate knowledge of the underlying conditions which may result in abnormal swallowing	C2, C3, HWB2								
7.1.3 Describe signs of abnormal swallowing	C2, C3, HWB2								
7.1.4 Demonstrates ability to follow and complete the local swallow screen effectively and accurately document the outcome and action plan	C2, C3, C5, HWB5, HWB6, HWB7								
7.1.5 Demonstrates knowledge of when to terminate a swallow screen	HWB3, HWB6, HWB7								
7.1.6 Demonstrates when swallow rescreen may be indicated	C3, HWB2, HWB5								
7.1.7 Can describe risks associated with swallowing difficulties	C3, HWB2, HWB3								
7.1.8 demonstrate awareness of alternative routes and methods of administering medicines	C4, HWB2, HWB5								
7.1.9 Demonstrate the ability to use facilitative techniques to optimise patient's independence	HWB5, HWB7, C5, C1								
7.1.10 Briefly explain the psychological, social and emotional impact of swallowing problems	C1, C6, HWB2, HWB6								
7.1.11 Describe the importance of providing ongoing education to the person and family regarding swallowing and nutrition needs and interventions	C4, C5, HWB1, HWB4, HWB6								

## Competency 7: Nutrition and hydration

Competency	KSF	FORMATIVE ASSESSMENTS			SUMMATIVE ASSESSMENT				
		PR	AR	Sign & date	PR	AR	Sign & date		
<b>7.2 Feeding and nutrition</b>									
7.2.1 Demonstrates ability to prepare food and liquids to all stages of thickening or modified consistencies according to SLT advice	C1, C3, HWB2, HWB4, HWB7								
7.2.2 Demonstrates ability to monitor a patients' nutritional intake, perform a nutritional risk assessment and initiate appropriate action	C3, HWB6								
7.2.3 Explain the nutritional needs of the stroke patient and understands why these may be affected following a stroke	C2, C5, HWB2, HWB4, HWB6								
7.2.4 Demonstrate effective oral assessment and oral care and describe planning oral care	C2, C5, HWB1, HWB5								
7.2.5 Demonstrate an understanding of the ethical considerations of nutrition and hydration	C1, C2, C3, C5, HWB6								
7.2.6 Can list feeding aids and adaptations	C5, HWB6								
<b>7.3 Naso-gastric (NG) tube insertion and nutrition</b>									
7.3.1 Demonstrates an awareness of the implications of refeeding syndrome	C2, C3, C5, HWB4, HWB5, HWB7								
7.3.2 Demonstrates the ability to insert a NG tube, confirm placement and troubleshoot problems according to local guidelines	C2, C3, C5, HWB5, HWB6								
7.3.3 Explain the local policy with regards to positioning, management and long term & short term care of NG tube/PEG/RIG	C2, C3, C5, HWB5, HWB7								
7.3.4 Explain the legal and ethical issues with regards to NG feeding including nasal bridles and use of hand restraints	C2, C3, C5, HWB5, HWB6,								
7.3.5 Explain legal and ethical issues regarding long term tube feeding for patients and their families	C1, C3, C5, HWB5, HWB6,								

## Competency 7: Nutrition and hydration

Competency	KSF	FORMATIVE ASSESSMENTS			SUMMATIVE ASSESSMENT				
		PR	AR	Sign & date	PR	AR	Sign & date		
<b>7.4 Hydration and fluid balance</b>									
7.4.1 Demonstrate an ability to assess patients' hydration status	C2, C5, HWB6								
7.4.2 Demonstrate how to complete a fluid balance chart accurately	C2, C5, HWB6								
7.4.3 Demonstrate strategies which ensures patients' optimal fluid intake	C2, C5, HWB6								
7.4.4 Describe the different intravenous fluids that are used	C2, C5, HWB6								
7.4.5 Describe the risk of glucose hydration to patients who have had a stroke	C2, C5, HWB6								
7.4.6 Describe the acceptable hourly urine output for an individual	C2, C5, HWB6								
7.4.7 Describe the physiological risks associated with low urine output	C2, C5, HWB6								
7.4.8 Describe the signs of dehydration	C2, C5, HWB6								
7.4.9 Describe the signs and symptoms of fluid overload	C2, C5, HWB6								

## Competency 8: Bladder and bowel continence

Competency	KSF	FORMATIVE ASSESSMENTS			SUMMATIVE ASSESSMENT				
		PR	AR	Sign & date	PR	AR	Sign & date		
<b>8.1 Continence</b>									
8.1.1 Describe the basic anatomy and physiology of the elimination systems	C2, C5, HWB6								
8.1.2 Explain how stroke can affect continence	C2								
8.1.3 Describe other factors that may contribute to difficulties with continence	C2								
8.1.4 Explain the importance of maintaining privacy and dignity in relation to continence	C2, C5, C6								
8.1.5 Can demonstrate a knowledge of medications that might improve management of bladder and bowel function	C2, C5, HWB5, HWB6, HWB7								
8.1.6 Explain the effect of incontinence on moving and handling, pressure care, positioning, skin integrity and ADL	C2, HWB5								
8.1.7 Explain the cultural, psychological, social and emotional impact of incontinence	C2, C6, HWB6								
8.1.8 Describe the reasons that referrals would be made to other services and the referral process	C2, C6, CHW4, HWB5								
<b>8.2 Bowel management</b>									
8.2.1 Describe and demonstrate bowel assessment	C2, C5, HWB6								
8.2.2 Describe and demonstrate the use of the Bristol Stool Chart and per Trust policies	C2, C5, HWB6								
8.2.3 Demonstrates the ability to implement a care plan based on finding from assessment to prevent constipation and promote faecal continence in collaboration with the MDT	C2, HWB2, HWB5, HWB6, HWB7								
8.2.4 Can describe the use of laxatives in bowel management	C2, C5, HWB5,								

## Competency : Bladder and bowel continence

Competency	KSF	FORMATIVE ASSESSMENTS			SUMMATIVE ASSESSMENT				
		PR	AR	Sign & date	PR	AR	Sign & date		
<b>8.3 Bladder management</b>									
<b>8.3.1</b> Describe the different types of urinary incontinence/ urinary retention and appropriate treatments for each type	C2, C6, HWB7								
<b>8.3.2</b> Can identify products and devices in the management of urinary incontinence	C2, HWB7								
<b>8.3.3</b> Demonstrates how to carry out a bladder assessment identifying impairments and disabilities	C2, C5, HWB6								
<b>8.3.4</b> Demonstrates the ability to write/implement a care/treatment plan based on findings from assessment to manage and promote urinary continence	C2, HWB2, HWB5, HWB6, HWB7								
<b>8.3.5</b> Demonstrate the ability to perform bladder scan and document and interpret the results accurately	C2, C5, HWB6								
<b>8.2.6</b> Demonstrate catheter insertion using aseptic technique and complete documentation as per local protocol	C2, C5, HWB6, HWB7								
<b>8.2.7</b> Demonstrate catheter care as per RCN guidance (2012) and local Trust policy	C2, C5, HWB5, HWB6								
<b>8.2.8</b> describe the signs and symptoms of urinary tract infection	C2, C5, HWB6								
<b>8.2.9</b> Can explain to patients how and why their stroke has affected their continence so that they can make an informed choice regarding treatment and management	C2, C6, HWB1, HWB4								

## Competency 9: Rehabilitation after stroke

Competency	KSF	FORMATIVE ASSESSMENTS			SUMMATIVE ASSESSMENT			
		PR	AR	Sign & date	PR	AR	Sign & date	
9.1 Describe and implement the local rehabilitation care pathway	C4, C5							
9.2 Explain the roles of the members of the MDT	C1, C5							
9.3 Is able to describe and discuss the pathway options available to the person and carer so they are able to make informed decisions about their rehabilitation journey	C1M HWB2							
9.4 Demonstrate understanding of the contribution of the nurse in formal goal setting within the MDT	HWB2, HWB7							
9.5 Demonstrate the understanding of keyworking and how to act in the role when necessary	C1, C3, C5							
9.6 Demonstrate the ability to enable patients to identify their own goals and to negotiate, the SMART steps that will enable their achievement	C1, HWB4							
9.7 Discuss how to enable the person to evaluate their goals and recognise small improvements and progress	C1, HWB4							
9.8 To explain the factors that can limit engagement and participation in rehabilitation	HWB2, C3							
9.19 Explain the principles of risk assessment in rehabilitation and implement local policies where required	HWB2, C1, C1, C6							
9.10 Provide evidence need, seek advice and refer individuals for further specialist assessment	C1, HWB2							
9.11 Explain how to incorporate rehabilitation goals into daily activities to help promote recovery and independence	C2							

## Competency 10: Fatigue after stroke

Competency	KSF	FORMATIVE ASSESSMENTS						SUMMATIVE ASSESSMENT		
		PR	AR	Sign & date	PR	AR	Sign & date	PR	AR	Sign & date
<b>10.1</b> Explain fatigue after stroke and its impact and prevalence	C2, HWB2									
<b>10.2</b> Describe the physiological and psychological changes that are associated with fatigue after stroke	C2									
<b>10.3</b> Demonstrate knowledge of the management of fatigue	C2, HWB5									
<b>10.4</b> Discuss the relationship between fatigue and depression	C2, HWB1									
<b>10.5</b> Discuss the impact of fatigue on quality of life and work	C2, C6									
<b>10.6</b> Demonstrate understanding of the patient, family and carers' perspective of fatigue after stroke	C2, C6, HWB4									
<b>10.7</b> Signpost patients and carers to resources on post-stroke fatigue	HWB4									

## Competency 11: Positioning and pressure care

Competency	KSF	FORMATIVE ASSESSMENTS			SUMMATIVE ASSESSMENT				
		PR	AR	Sign & date	PR	AR	Sign & date		
<b>11.1 Positioning</b>									
11.1.1 Demonstrates knowledge and skills of the use of aids and equipment relevant to positioning, moving and handling	C3								
11.1.2 Demonstrates ability to assess and re-assess, plan, document and evaluate the positioning, moving and handling of stroke patients	HWB5								
11.1.3 Can demonstrate the ability to position patients in bed or sitting in chair and describe how this might affect the patient	HWB6, C3, C5								
11.1.4 Demonstrates the ability to communicate with members of the MDT about positioning, moving and handling	C1, C3, HWB1								
11.1.5 Can explain the implication of immobility and the importance of maintaining mobility to the patient and their relatives	C1, HWB4								
11.1.6 Can incorporate therapy recommendations into ADL's	C1, HWB1, HWB4								
11.1.7 Can recognise and explain causes of spasticity in stroke	C2								
11.1.8 Can describe the causes of shoulder pain in stroke patients	C2								
11.1.9 Can demonstrate the ability to plan care to prevent and manage shoulder pain	HWB2, HWB4								
11.1.10 Can demonstrate the ability to correctly apply a hand and foot splint	HWB7								
11.1.11 Can describe the importance of good hand hygiene in stroke	HWB3								
11.1.12 Can identify the reasons and the referral process to chiropody/podiatry service	C2								



## Competency 11: Positioning and pressure care

Competency	KSF	FORMATIVE ASSESSMENTS			SUMMATIVE ASSESSMENT					
		PR	AR	Sign & date	PR	AR	Sign & date	PR	AR	Sign & date
<b>11.2 Pressure area care</b>										
<b>11.2.1</b> Able to carry out continuous risk assessment (e.g. Waterlow) and describe the factors that contribute to pressure ulcers and preventative measures	C2, C5, HWB6									
<b>11.2.2</b> Describe the grading, stages of healing and treatment of pressure ulcers including accurate documentation and referral to tissue viability team as appropriate	C2, C5, HWB6, HWB5, HWB7									

## Competency 12: Pain control

Competency	KSF	FORMATIVE ASSESSMENTS			SUMMATIVE ASSESSMENT			
		PR	AR	Sign & date	PR	AR	Sign & date	
<b>12.1</b> Can describe pathophysiology of pain in relation to stroke	HWB6							
<b>12.2</b> Can demonstrate the ability to perform and document accurate pain assessment using validated pain assessment scales according to local policy	HWB6, HWB5							
<b>12.3</b> Can explain pharmacological and non-pharmacological interventions for managing pain and monitoring their effectiveness	HWB1							
<b>12.4</b> Can explain adverse effects of unrelieved pain	HWB5							
<b>12.5</b> Can discuss the impact of factors such as physical, psychological, social and cultural belief on the individuals experience of pain	HWB1, HW6							
<b>12.6</b> Demonstrates the ability to education the patient and family/carer on management strategies	C1							
<b>12.7</b> Demonstrates an understanding of how/when to refer the patient for additional support	C1, G1							
<b>12.8</b> Can identify post-stroke neuropathic pain and spasticity and treatment options available	HW6, HWB1							

## Competency 13: Vision and perception

Competency	KSF	FORMATIVE ASSESSMENTS			SUMMATIVE ASSESSMENT			
		PR	AR	Sign & date	PR	AR	Sign & date	
<b>13.1</b> Describe the basic anatomy of the visual system and the way in which visual information is processed	C1, C2, C5							
<b>13.2</b> List the ways in which a stroke may affect an individual's vision and understand the impact these may have on their function	HWB5, HWB7							
<b>13.3</b> Demonstrate an understanding of the differences between visual inattention and hemianopia	C1, C5							
<b>13.4</b> Describe common strategies used with each type of visual impairment and demonstrate their use in clinical practice	C1, HWB4, HWB5, HWB7							
<b>13.5</b> Describe what is meant by the term perception and provide examples of how a patient with perceptual impairments might present	C1, HWB4, HWB5, HWB7							

## Competency 14: Communication

Competency	KSF	FORMATIVE ASSESSMENTS			SUMMATIVE ASSESSMENT			
		PR	AR	Sign & date	PR	AR	Sign & date	
<b>14.1</b> Can label the anatomy of the mouth and describe the role of the larynx, pharynx and vocal cords in speech	C2							
<b>14.2</b> Can explain where the speech centres are located in the brain, their functions and impact of stroke on these areas	2							
<b>14.3</b> Describe the following speech and language terms: - Receptive aphasia                      - Dysarthria - Expressive aphasia                      - dyspraxia	2, 5							
<b>14.4</b> Is able to take a history and assess pre-morbid communication	1, HWB2, C6							
<b>14.5</b> List the resources that can be used to support someone with communication difficulties	C1, HWB2							
<b>14.6</b> Identify barriers to communication in communicating with people with aphasia	C1							
<b>14.7</b> Demonstrate awareness of own communication style and attitudes towards stroke related communication disability	C1, C6							
<b>14.8</b> Describe common cognitive deficits and discuss the impact on the level of communication achievable	C2, C5							
<b>14.9</b> Explain the strategies that can be used to support someone with limited comprehension/understanding	C1, HWB2, HWB4							
<b>14.10</b> List and provide information in suitable format for patients and their carers	C1, C3, C6							
<b>14.11</b> Can discuss ethical issues involved in consent including the Mental Capacity Act and Deprivation of Liberty Safeguards	C1							
<b>14.12</b> Discuss the role of the voluntary sector in helping people with aphasia and demonstrate evidence of patient referral to this service	HWB1							

## Competency 15: Psychological care

Competency	KSF	FORMATIVE ASSESSMENTS			SUMMATIVE ASSESSMENT				
		PR	AR	Sign & date	PR	AR	Sign & date		
<b>15.1 Mood management</b>									
15.1.1 Describe the psychological and emotional problems that can follow a stroke	C2, HWB1								
15.1.2 Demonstrate knowledge and understanding of the emotional impact of the stroke on the patient, family, friends and carers	C2, HWB1								
15.1.3 Demonstrate knowledge and understanding of tools used to screen for mood problems in stroke patients	C2, C5, HWB2, HWB6								
15.1.4 Describe the pathway for psychological interventions after stroke	C1, HWB2, HWB4								
15.1.5 Demonstrate knowledge and give examples of psychological and pharmacological interventions for stroke patients mood	C1, HWB7								
15.1.6 Describe local pathways and identify the triggers for referral to clinical psychology/psychiatric liaison for further support or intervention	C1, HWB2, HWB4								
<b>15.2 Managing cognitive difficulties</b>									
15.2.1 Demonstrate the ability to recognise signs and symptoms of cognitive problems after stroke	C1, C2, HWB2								
15.2.2 Demonstrate knowledge and understanding of the use of cognitive screening tools	C1, C2, HWB6								
15.2.3 Describe common compensatory strategies to help patients and families to cope and manage cognitive problems after stroke	C1, C2, HWB4								
15.2.4 Show an understanding of the effects of cognitive impairment and mood on capacity and the ability to make decisions	C2, HWB3								

## Competency 15: Psychological care

Competency	KSF	FORMATIVE ASSESSMENTS						SUMMATIVE ASSESSMENT		
		PR	AR	Sign & date	PR	AR	Sign & date	PR	AR	Sign & date
<b>15.3 Behaviour management</b>										
15.3.1 Demonstrate knowledge and understanding of the causes of challenging and altered behaviour	C1, C2, HWB1									
15.3.2 State the effects that changes in behaviour following stroke may have on people involved with the individual	C1, C2, C5, HWB1									
15.3.3 Demonstrate knowledge and understanding of how you would implement strategies to support the individual, their family and carers and all involved those with the person	C1, C2, HWB5									

## Competency 16: Sex after stroke

Competency	KSF	FORMATIVE ASSESSMENTS			SUMMATIVE ASSESSMENT			
		PR	AR	Sign & date	PR	AR	Sign & date	
<b>16.1</b> Able to describe how one’s own attitude towards sex may impact the discussion	C1, C6							
<b>16.2</b> Describe how stroke can effect libido and sexual activity	C2, C6							
<b>16.3</b> Can list medications and disease processes which could affect libido and sexual activity	C2, C6							
<b>16.4</b> Describe how stroke can cause inappropriate sexual behaviour and appropriate management strategies utilised by the MDT	C2, C6, HWB2							
<b>16.5</b> Discuss the role and availability of support networks for patients and their partners	HWB4, C6							
<b>16.6</b> Can locate and utilise local and national information and resources available related to sex after stroke	HWB2							

## Competency 17: Self administration of medicine

Competency	KSF	FORMATIVE ASSESSMENTS			SUMMATIVE ASSESSMENT			
		PR	AR	Sign & date	PR	AR	Sign & date	
<b>17.1</b> Demonstrate knowledge and understanding of local guidelines for self administration of medicine	C3							
<b>17.2</b> Demonstrates the knowledge and understanding of prescribed medicines in use and be able to identify side effects and evidence of overdoes	C3, HWB1							
<b>17.3</b> Demonstrates the knowledge, understanding and observing of the patient's attitudes and behaviour that may result in non-concordance with a prescribed medication regime	C1, HWB1							
<b>17.4</b> Demonstrates skills of being able to discuss and negotiate with the patient, aiming for continued partnership in the programme	C1, HWB1							
<b>17.5</b> Demonstrates accurate record keeping of all aspects of self administration	C3							
<b>17.6</b> Demonstrates an understanding of the implications and actions required when errors in administration have occurred	C3							
<b>17.7</b> Demonstrate knowledge of equipment that are available to facilitate self administration of medicine e.g. easy open bottles, dossett boxes	C3, HWB2							



## Competency 18: Transfer of care

Competency	KSF	FORMATIVE ASSESSMENTS			SUMMATIVE ASSESSMENT		
		PR	AR	Sign & date	PR	AR	Sign & date
<b>18.1</b> Demonstrate knowledge of the different stroke pathways and describe transfer of care	HWB4, HWB3						
<b>18.2</b> Describe the importance of patients and carers involvement in transfer of care from the earliest opportunity	HWB4						
<b>18.3</b> Demonstrate the ability to advocate for the patient and/or their carer ensuring that the discharge destination is appropriate to the patient's needs	HWB2, C1						
<b>18.4</b> Demonstrates an understanding of the types of information that need to be shared with others (patients, relatives, health and social care professionals, voluntary agencies) as patient's progress through the care pathway	HWB6, C1						
<b>18.5</b> Demonstrate and understand the importance of early assessment and the ability to make referrals to appropriate care agencies for transfer of care	HWB6, C1						
<b>18.6</b> Demonstrate knowledge of the different MDT members and their role in transfer of care	HWB6, C1						
<b>18.7</b> Demonstrate the types of information to be included in transfer letters and verbal handovers	HWB6						
<b>18.9</b> Can provide information accurately to patients and relatives regarding their medication, aids and equipment on transfer of care	HWB6						
<b>18.10</b> Demonstrate the ability to co-ordinate transfer of care in collaboration with the MDT and external agencies	HWB6, C3						
<b>18.11</b> Demonstrate knowledge of the local/national protocols relating to transfer of care	HWB6, HWB1, HWB2, C1, C6						

## Competency 19: Long term care

Competency	KSF	FORMATIVE ASSESSMENTS			SUMMATIVE ASSESSMENT			
		PR	AR	Sign & date	PR	AR	Sign & date	
<b>19.1</b> Can list the modifiable and non-modifiable risk factors of stroke/TIA	HWB1							
<b>19.2</b> Demonstrate how to take a nursing history during assessment	HWB1							
<b>19.3</b> Describe and demonstrate the use of health promotion and behaviour change principles	HWB1							
<b>19.4</b> Describe secondary prevention methods e.g. medication management and lifestyle changes which may reduce the risk of further strokes/TIA)	HWB1, HWB2, C2, HWB7							
<b>19.5</b> Locate and utilise relevant information leaflets/resources and demonstrate an awareness of a need to give relevant information at an appropriate time in an appropriate format	HWB1							
<b>19.6</b> Promote patient ownership of their health and self care and support them to take appropriate action (see DH self care guidelines)	HWB1							
<b>19.7</b> Describe medical and surgical interventions which may reduce the risks of further stroke (e.g carotid endarterectomy)	C2, HWB7							
<b>19.8</b> Describe the role of available voluntary organisations	C1, C6							
<b>19.9</b> Discuss the laws regarding driving restrictions after stroke	HWB1							
<b>19.10</b> Demonstrate knowledge of local support groups available to patients and how they might be helpful for a stroke survivor and their families	C1, C4, C6							
<b>19.11</b> Discuss the long term impact a stroke may have on a patient and their families	HWB1, HWB2							
<b>19.12</b> Describe the role and referral process for an independent advocate	C1, HWB1							
<b>19.13</b> Discuss the importance of long term MDT follow up and support for stroke patients	C4, C5, HWB4							

## Competency 20: End of life care

Competency	KSF	FORMATIVE ASSESSMENTS			SUMMATIVE ASSESSMENT		
		PR	AR	Sign & date	PR	AR	Sign & date
<b>20.1</b> Demonstrate an ability to devise, implement and evaluate a plan for improved end-of-life care in collaboration with the MDT	HWB7, HWB5						
<b>20.2</b> Uses appropriate documentation to assess and treat symptoms (e.g. pain, dyspnoea, constipation, anxiety, fatigue, nausea/vomiting and altered cognition) experienced by patients at the end of life	HWB7, HWB5						
<b>20.3</b> Demonstrates the ability to support the patient and family with grief loss, and bereavement at the end of life whilst accessing appropriate resources e.g. palliative care team	HWB7						
<b>20.4</b> Assess, monitor and manage patients physical, psychological, social and spiritual needs to improve quality at the end of life in conjunction with the MDT	HWB7, HWB5						
<b>20.5</b> Discuss legal and ethical principles in the analysis of complex issues in end-of-life care e.g. feeding, recognising the influence of personal values, professional codes, and patient preferences/views and wishes	HWB7, HWB5						
<b>20.6</b> Recognise and reflect on one's own attitudes, feelings, values and expectations about death and the individual, cultural and spiritual diversity existing in these beliefs and customs	HWB7, HWB5						
<b>20.7</b> Demonstrates the understanding of the decisions to withhold or withdraw treatment in collaboration with the MDT, the patient and their family	HWB7, HWB5						

## Glossary

### A

#### **Agnosia**

The inability to recognise an object by touch alone with both hands

#### **Agraphia**

Difficulty writing or drawing

#### **Alexia**

Difficulty reading

#### **Aneurysm**

A balloon-like bulge in the wall of an artery which may burst and cause a haemorrhage (bleeding)

#### **Angiography**

An x-ray or ultrasound examination of the arteries

#### **Angioma**

An abnormal collection of blood vessels that can be a cause of a haemorrhage in the brain

#### **Angioplasty**

A technique whereby the doctor inserts a catheter into the narrowed portion of the artery and stretches the artery by inflating a little balloon on the end of the catheter

#### **Anticoagulant**

A drug that is used to 'thin' the blood and thus reduce the risk of clots forming within circulation. The most commonly used is warfarin; another is heparin

#### **Anticonvulsants**

Drugs given to prevent seizures

#### **Antihypertensives**

Blood pressure lowering (usually referring to medicines)

#### **Antiplatelet therapy**

Drugs used to stop the platelets in the blood sticking to one another and forming clots. Clopidogrel and aspirin are the most widely used. Others include dipyridamole )

#### **Aphasia**

Inability to use language, It can either be a problem understanding language (receptive) or speaking it (expressive). People are often affected by both types

#### **Apraxia**

The inability to do complex tasks when requested and there is no paralysis of the muscles

**Arrhythmia**

Abnormal heart beat rhythm

**Ataxia**

Loss of the control of muscle function, leading to a staggering walk and difficulty performing delicate tasks with the hands

**Atheroma**

The fatty deposits that build up inside an artery and eventually leave to is becoming blocked

**Atherosclerosis**

Hardening of the arteries due to a build up of cholesterol and other fatty material in the walls of the arteries

**Atrial fibrillation**

Heart condition in which the upper left side of the heart beats out of rhythm with the other three chambers. It increases the risk of a blood clot forming inside the heart, which can break off, travel to the brain and cause a TIA or stroke

**B****Barthel index**

One of the most widely used measures of activities of daily living

**Brainstem**

The part of the brain linking the two halves of the brain to the spinal cord. It contains some vital nerve cells to do with breathing, the heart, the eyes and many other important functions

**Bruit**

The noise that can be heard when listening over a narrowed artery

**C****Cardio-embolic stroke**

Stroke due to a clot that formed in the heart and travelled to the brain

**Carotid artery**

There are two carotid arteries on each side of the neck which carry blood from the heart to the head, notably the face and front of the brain. Disease of a carotid artery is a common cause of stroke

**Carotid endarterectomy**

The operation that is performed to clear the inside of the carotid artery of atheroma

**Cerebellum**

The part of the brain that controls fine (delicate) movement

**Cerebrum**

The largest parts of the brain, made up of the left and right hemispheres (sides)

**Computed Tomography (CT) scan**

The x-ray technique most commonly used to examine the brain

**Contractures**

Where a joint becomes fixed in one position by muscles that have become stiff from not being moved

**CVA (Cerebro-Vascular Accident)**

The term that is widely used but is not a good one: many strokes do not affect the cerebrum and none of them is an accident. Stroke is a better term

**D****Dysarthria**

Speech disorder in which the pronunciation is unclear although the meaning of what is said is normal

**Dysgraphia**

Difficulty in writing

**Dyslexia**

Difficulty reading

**Dysphagia**

Difficulty swallowing

**Dysphonia**

Difficulty in voice production, either speaking loud (or soft) enough, due to a disorder within the muscles in the throat, mouth or tongue

**Dyspraxia**

Difficulty doing complex tasks

**E****Echocardiogram**

An ultrasound examination of the heart

**Electrocardiogram (ECG)**

The test that records the electrical activity of the heart

**Embolism**

When a piece of solid material, usually a blood clot, travels to elsewhere in the body and blocks an artery, causing damage to the organ/s involved

**Endarterectomy**

Surgical options to remove obstructions (usually fatty tissue or blood clot) from inside an artery

**F****Field of vision**

The area that you can see without moving your eyes (or your head)

**G****Gait**

The characteristics of walking

**Goal setting**

The process whereby the professionals and the patient decide on the main objectives for rehabilitation

**H****Haematoma**

A blood clot that has formed outside a blood vessel (artery or vein)

**Haemorrhage**

The escape of blood from a ruptured blood vessel, externally or internally

**Haemorrhagic infarct**

An area of dead brain that has had bleeding in it

**Hemianopia**

Loss of one-half of the normal visual field

**Hemicraniectomy**

The procedure in which a certain part of all of the brain is removed as a preliminary step before the brain is operated upon

**Hemiparesis**

Weakness of one-half of the body

**Hemiplegia**

Complete paralysis of half of the body

**Heparin**

An anticoagulant given to prevent blood clots from forming

**Hemisensory**

The loss of sensation on one side of the body

**Hydrocephalus**

Raise pressure within the skull due to an abnormal build-up of the fluid that surrounds the brain. It can occur after a brain haemorrhage

**Hypercholesterolaemia**

A high level of cholesterol in the blood

**Hyperglycaemia**

Condition relating to an abnormally high content of glucose in the blood

**Hyperlipidaemia**

A high level of fats in the blood

**Hypertension**

Abnormally high blood pressure

**Hypoglycaemia**

Condition relating to an abnormally low content of glucose in the blood

**Hypoxia**

Inadequate oxygen in the body tissues

**I****Impairment**

Loss of function (e.g. weakness, loss of sensation, loss of speech)

**Incontinence**

Loss of control of passing urine or faeces

**Infarction**

An area of cell death (e.g. part of the brain) as a result of being deprived of its blood supply

**Intracerebral haemorrhage**

A haemorrhage inside the brain

**Ischaemia**

**Cells that have an inadequate blood supply (see also transient ischaemic attack)**

**L****Lacunar infarct**

A small stroke less than one centimetre in diameter

**Lumbar puncture**

A procedure whereby some of the spinal fluid is removed by the insertion of a needle into the spine

**M****Magnetic resonance angiography (MRA)**

Using a large powerful magnet, rather than x-rays to create pictures of the blood vessels (arteries and veins)

**Magnetic resonance imaging (MRI)**

A type of scan that, instead of x-rays, uses a large, powerful magnet to create an image (picture) of part of the body

**Middle cerebral artery**

The artery that most frequently becomes blocked, to cause a stroke

**N****New Oral AntiCoagulants (NOACs)**

An anticoagulant given to prevent blood clots from forming

**Neglect**

Ignoring or not being aware of being touched on one side, of not seeing things to one side. An extreme example is not even being aware that your arm or leg belongs to you

**Nystagmus**

Involuntary jerking of the eyes. It occurs in disorders of the part of the brain responsible for eye movements



## O

### **Oedema**

Swelling due to excessive accumulation of fluid in the body tissues

## P

### **Patent foramen ovale**

A hole in the heart that allows blood clots to get from the veins into the arteries

### **Perception**

Awareness and understanding of one's environment (e.g. awareness of touch, sights, sounds)

### **Percutaneous endoscopic gastrostomy (PEG)**

Insertion of a tube through the wall of the abdomen into the stomach for the purposes of feeding. It is done with a gastroscope, which is a fibre-optic instrument used to examine the inside of the stomach

### **Platelets**

Small blood cells that stick together to form a clot

### **Positron emission tomography (PET)**

A new scanning technique that uses radioactive isotopes to show how well cells are functioning

## R

### **Radiologically inserted gastrostomy (RIG)**

Insertion of a tube through the all of the abdomen into the stomach using x-ray guidance for the purposes of feeding

### **Risk factors**

The possible underlying causes (for stroke) such as smoking, high blood pressure, ethnic group, family history of stroke

## S

### **Sepsis**

Bacterial infection to the body tissues of the blood

### **Spasticity**

The stiffness that develops in the muscles after a stroke or other type of damage to the brain or spinal cord

### **Stenosis**

A narrowing

### **Subarachnoid haemorrhage**

Bleeding between the brain and one of the covering membranes, often due to a leaking aneurysm

**T****Thalamus (thalamic)**

A part of the brain where the nerves carrying information about sensation from the body join with other nerves

**Thrombolysis**

The use of drugs to break up a blood clot

**Thrombosis**

The formation of a blood clot

**Tissue plasminogen activator (TPa)**

The drug most commonly used for thrombolysis

**Transient Ischaemic attack (TIA)**

A stroke-like event that fully recovers within 24 hours of the start of symptoms

**V****Ventricular Septal Defect (VSD)**

A hole in the muscle wall that separates the two chambers (ventricles) of the heart

**Vertebral arteries**

The two arteries that travel up the back of the neck to the brain which, with the two carotid arteries, supply all the blood to the brain

**W****Warfarin**

The most frequently used oral anticoagulant (for thinning the blood and preventing clots forming inside the circulation)

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## **Guidance Documents**

Department of Health National Stroke Strategy (December 2007) – [www.dh.gov.uk](http://www.dh.gov.uk)

Department of health, Stroke-Specific Education Framework (April 2009) – [www.dh.gov.uk](http://www.dh.gov.uk)

NHS Improvement, Psychological care after stroke: improving stroke services for people with cognitive and mood disorders (2011)-  
[www.improvement.nhs.uk](http://www.improvement.nhs.uk)

NICE, Acutely Ill Patients in Hospital, Recognition of and Response to Acute Illness in Adults in Hospital (2007) - [www.nice.org.uk](http://www.nice.org.uk)

NICE Clinical Guidelines for Stroke (July 2008) – [www.nice.org.uk](http://www.nice.org.uk)

Royal College of Physicians National Clinical Guidelines for Stroke (July 2012) –[www.rcn.org.uk](http://www.rcn.org.uk)

## **Online resources**

Connect- the communication disability network – [www.ukconnect.org](http://www.ukconnect.org)

Different Stroke – [www.differentstrokes.co.uk](http://www.differentstrokes.co.uk)

London Health Programmes- [www.londonhp.nhs.uk](http://www.londonhp.nhs.uk)

London Stroke Directory – [www.strokedirectory.org.uk](http://www.strokedirectory.org.uk)

Speakability – [www.speakability.org.uk](http://www.speakability.org.uk)

STARS Stroke Training and Awareness Resources – [www.strokecompetencies.org](http://www.strokecompetencies.org)

The Stroke Association – [www.stroke.org.uk](http://www.stroke.org.uk)

Survive Sepsis – [www.survivesepsis.org](http://www.survivesepsis.org)

World Health Organisation – [www.who.int](http://www.who.int)

## **Recommended Reading**

### **Aphasia in acute stroke and relation to outcome**

A. Hellblom, A. C. Laska, V. Murray, M. Von Arbin, T. Kaha  
Journal of International Medicine vol. 249 issue 5 pp.413-422

### **The Brain: An introduction to Functional Neuroanatomy**

Charles Watson, Matthew Kirkcaldie, George Paxions

### **Clinical Neuroanatomy and Neuroscience**

Fitzgerald, M.J.T, Gruener, G. Mtui, E (2007). 5<sup>th</sup> edition. China. Elsevier Saunders

### **The Clinical Practice of Neurological and Neurosurgical Nursing**

Hickey, J (2009), 6<sup>th</sup> edition. Philadelphia, J.B Lippincott

### **The Diving-Bell and the Butterfly**

Jean-Dominique Bauby (2008). Harper-Perennial, London

### **End of life issues in acute stroke care: a qualitative study of the experiences and preferences of patients and families**

Shiela Payne, Amanda Jones, Christopher Burton, Julia Addington-Hall  
Palliat Med vol. 24 no. 2 pp. 146-153 March 2010

### **Exploring the brain**

Bear M F, Connors B W, Paradesio M, A (2007). 3<sup>rd</sup> edition. USA. Lippincott, Williams and Wilkins

### **Fatigue after Stroke: The Patient's Perspective**

Barbour VL; Mead GE (2010) Stroke Research and Treatment, 2042-0056

### **Functional outcome in post stroke patients with or without fatigue**

Park JY, Chun MH, Kang SH, Lee JA, Kim BR, Shin MJ (2009)

### **The Ischemic Penumbra**

Heiss, WD. Graf, R. Curr Opin Neurology. 1994, 7:11-9

### **The Man who Mistook his Wife for a Hat**

Oliver Sacks (1985). Summit Books, New York

### **Mapping the ischaemic penumbra with PET: a new approach**

Brain, Editorial. 2001, 124:2-4

### **Nervous System: Crash Course**

Briar, Lassersn, Gabriel, Sharrack (2004). 2<sup>nd</sup> edition. Mosby. Spain

### **Neurological Examination Made Easy**

Fuller, G (1999), 2<sup>nd</sup> edition. London: Churchill Livingstone

### **Neurology and Neurosurgery Illustrated**

Lindsay, K W. Bone I (2004) (4<sup>th</sup> Edition), London, Churchill Livingstone

### **Neuroscience at a Glance**

Barker, R A., Basari, S. & Neal J (2008), 3<sup>rd</sup> edition. London. Blackwell Scientific

### **Neuroscience Nursing: Evidence-based practice**

Woodward, S and Mestecky AM (2011). Chichester Wiley-Blackwell

**Palliative care in stroke: a critical review of the literature**

T. Stevens, SA Payne, C Burton, J Addington-Hall, A Jones. Palliative Med vol. 21 no 4 pp.323-331

**Secondary prevention of stroke**

Birns, J and Fitzpatrick, M  
British Journal of Neuroscience Nursing vol 1 No 1 April 2005

**UK Resuscitation Council Advanced Life Support Manual, 6th edition**

Required Cardiac Rhythms (2011)