

## Standard Five: Stroke

---

### Aim

---

To reduce the incidence of stroke in the population and ensure that those who have had a stroke have prompt access to integrated stroke care services.

### Standard

---

**The NHS will take action to prevent strokes, working in partnership with other agencies where appropriate.**

**People who are thought to have had a stroke have access to diagnostic services, are treated appropriately by a specialist stroke service, and subsequently, with their carers, participate in a multidisciplinary programme of secondary prevention and rehabilitation.**

### Rationale

---

- 5.1 Stroke has a major impact on people's lives. It starts as an acute medical emergency, presents complex care needs, may result in long-term disability and can lead to admission to long-term care. Each year 110,000 people in England and Wales have their first stroke, and 30,000 people go on to have further strokes. It is the single biggest cause of severe disability and the third most common cause of death in the UK and other developed countries<sup>187</sup> (A1). A substantial proportion of health and social care resources are devoted to the immediate and continuing care of people who have had a stroke. At any one time there are 25-35 patients with stroke as their primary diagnosis in the average general hospital<sup>188</sup> (B3).
- 5.2 Stroke is caused by a disturbance of blood supply to the brain. There are two main types of stroke:
- *ischaemic stroke*: when a clot either narrows or blocks a blood vessel so that blood cannot reach the brain. This reduced blood flow causes brain cells in the area to die from lack of oxygen. This is the most common form of stroke.
  - *haemorrhagic stroke*: when a blood vessel bursts, and blood leaks into the brain causing damage.
- 5.3 Transient ischaemic attacks (or TIAs) are often described as 'mini strokes'. The term TIA is used where the symptoms and signs resolve within 24 hours. A TIA increases the subsequent chance of a stroke.

- 5.4 Around 30% of patients die in the first month after a stroke, most in the first ten days. Although after a year, 65% of surviving stroke patients can live independently, 35% are significantly disabled and many need considerable help with daily tasks or visits from a district nurse. Around 5% are admitted to long-term residential care <sup>189</sup> (D).
- 5.5 The effects of a stroke depend on the part of the brain that has been damaged, how widespread the damage is and the patient's general health at the time. Effects can include difficulties in movement, balance, walking, swallowing, speaking, writing, understanding the spoken or written word, activities of daily living including dressing, maintenance of personal hygiene, feeding, controlling bladder or bowel movements, vision and mood. These conditions are treatable through careful and co-ordinated intervention. Recovery can continue for several years after a stroke.
- 5.6 Some population groups are at higher risk of stroke than others. The risk increases with age, although stroke can affect younger people too. Each year 10,000 people under 55 years and 1,000 people under 30 years have a stroke <sup>190</sup> (C1). Data from the Health Survey for England show that amongst African-Caribbean and South Asian men the prevalence of stroke was between about 40% and 70% higher than that of the general population after adjusting for age. People in socio-economic group V (unskilled manual workers) have a 60% higher chance of having a stroke than those in socio-economic group I (professionals), and the mortality rates from stroke are 50% higher in socio-economic group V than in socio-economic group I. <sup>191</sup> (C1) <sup>192</sup> (B3).
- 5.7 A number of conditions predispose to stroke - most importantly a previous stroke, a TIA, high blood pressure, atrial fibrillation (a form of irregular heart beat) or carotid stenosis (a narrowing of the carotid artery). There is good evidence that effective and systematic programmes of prevention can identify those at risk and reduce the future incidence of stroke. It is also important to modify lifestyles - especially to stop smoking, reduce alcohol consumption, improve diet and increase physical activity <sup>193</sup> (B3) <sup>194</sup> (B3).
- 5.8 There is strong evidence that people who have a stroke are more likely both to survive and to recover more function if admitted promptly to a hospital based stroke unit <sup>195</sup> (A1) with treatment and care provided by a specialist co-ordinated stroke team within an integrated stroke service <sup>196</sup> (B1) <sup>197</sup> (A1) <sup>198</sup> (A1) <sup>199</sup> (A1) <sup>200</sup> (A1). These benefits can be achieved at no overall additional cost to health and social care. Although the evidence is less clear, stroke units may also reduce the number of inpatient days spent in hospital.
- 5.9 Some NHS organisations have developed their services in line with this evidence, but in 1999 only 18 % <sup>201</sup> (C1) <sup>202</sup> (B3) of patients were being treated on a specialist stroke unit <sup>203</sup> (P) <sup>204</sup> (C1) <sup>205</sup> (B3). The latest stroke audit to be published shortly, will show that this has now increased to 26% of patients.

## Key interventions

---

- 5.10 This standard sets out four main components for the development of integrated stroke services:
- prevention
  - immediate care
  - early and continuing rehabilitation
  - long-term support.
- 5.11 Given the higher prevalence of stroke in some minority ethnic communities, integrated stroke services and stroke prevention advice should take into account the need for interpreting or advocacy support, especially for those patients and carers for whom English is not their first language.

### Prevention

- 5.12 The prevention of stroke depends on reducing risk factors across the whole population as well as in those at relatively greater risk of stroke.

#### *Population approaches to preventing stroke*

- 5.13 Actions to reduce the risk factors for stroke in the population are addressed in Standard 8. They build on *Our Healthier Nation*, the National Service Framework for Coronary Heart Disease and the NHS Cancer Plan, together with the themes drawn together in the NHS Plan. At population level, the interventions to prevent stroke are broadly the same as those for coronary heart disease - increasing levels of physical activity, encouraging healthy eating (particularly reducing salt intake and increasing fruit and vegetable consumption), and supporting smoking cessation<sup>206</sup> (B3)<sup>207</sup> (B3) as well as identifying and managing high blood pressure.

#### *Preventing strokes in individuals at greater risk*

- 5.14 The main risk factors for stroke are:

##### *Cardiovascular disease*<sup>208</sup> (A2)

- previous stroke or TIA
- hypertension (high blood pressure)<sup>209</sup> (B3)
- atrial fibrillation (a form of irregular heart beat)<sup>210</sup> (B1)
- other cardiovascular disease such as coronary heart disease and peripheral vascular disease

- carotid stenosis (a narrowing of the carotid artery)

*Metabolic*

- diabetes
- hyperlipidaemia (high cholesterol level)
- obesity

*Lifestyle*

- alcohol misuse
- poor diet
- low level of physical activity
- smoking.

- 5.15 It is estimated that in the UK more than half of the 10 million people aged over 65 are hypertensive. Risk of stroke for people with hypertension can be reduced by 37% through appropriate treatment. Having atrial fibrillation increases the risk of having a stroke by 3 – 7 times. Of people who have a stroke, 13% are in atrial fibrillation.
- 5.16 In the younger population, there are additional risk factors for stroke which can be significant. These include sickle cell disease, congenital heart disease, abnormalities of blood clotting and arterio-venous malformations of the brain.
- 5.17 Individuals at particular risk of stroke should be identified and offered advice and support to make lifestyle changes. GP Practices should build on registers being developed for the prevention of coronary heart disease as described in the Coronary Heart Disease National Service Framework (Standards 3 and 4) and put in place models of care so that a systematic approach is used for:
- identifying those at high risk of stroke
  - identifying and recording modifiable risk factors of people at high risk of stroke
  - providing and documenting the delivery of appropriate advice, support and treatment

- offering a regular review to those at risk of stroke

- 5.18 Advice on constructing and populating stroke registers will follow with the Information Strategy for Older People to be published shortly (Chapter 5).
- 5.19 The risk factors for each patient who is at risk of a stroke or who is recovering from a stroke should be identified, and advice, support and treatment provided as appropriate. Both primary and secondary prevention measures should be in line with clinical guidelines <sup>211</sup> (A1) <sup>212</sup> (A1). Risk modification should include:

<i>Previous stroke</i>	In most cases, for stroke patients with hypertension <sup>213</sup> (D) <sup>214</sup> (A1) or atrial fibrillation, <sup>215</sup> (B1) <sup>216</sup> (B1) the interventions are the same as for those who have not had a stroke.
<i>TIA</i>	Urgent referral of patients with suspected TIA to a rapid response neurovascular clinic, managed by a clinician with expertise in stroke for investigation and treatment
<i>Carotid stenosis</i>	Referral for carotid endarterectomy (to restore normal blood flow) in patients with 70 – 99% carotid stenosis (narrowing of the carotid artery).
<i>Atrial Fibrillation</i>	Treatment with warfarin, or where warfarin is inappropriate, aspirin or other anti-platelet agent <sup>217</sup> (B1). Prescribing such drugs may not be appropriate where a patient won't benefit, but reasons for not prescribing should be clearly documented.
<i>Hypertension</i>	Anti-hypertensive drug treatment <sup>218</sup> (A1) to maintain blood pressure below 140/85. <sup>219</sup> (A1) <sup>220</sup> (P) <sup>221</sup> (P).

### Immediate care

- 5.20 All patients who may have had a stroke will usually require urgent hospital admission. They should be treated by specialist stroke teams within designated stroke units. Better outcomes for patients with suspected stroke will depend on:
- making a diagnosis, including a brain scan to ensure patients have the best possible chance of recovery and to minimise disabilities later
  - giving care and treatment to patients during the acute phase in line with the National Clinical Guidelines on Stroke <sup>222</sup> (A1) <sup>223</sup> (P).
  - carrying out a wider assessment of other health, social and environmental factors under the single assessment process in order to begin to plan for discharge.

5.21 Immediate management to improve chances of survival and minimise the risk of complications should include:

- a brain scan <sup>224</sup> (A1) within 48 hours
- giving aspirin <sup>225</sup> (B1) <sup>226</sup> (B1) if a diagnosis of haemorrhage is unlikely
- appropriate control of blood pressure without jeopardising cerebral blood flow
- maintenance of hydration
- management of hyperglycaemia
- management of fever
- maintenance of oxygen level/saturation
- treatment of co-existing medical conditions.

5.22 Treatment and care should also include:

- vigilant observation for and early management of possible complications including: chest infection, deep vein thrombosis, incontinence, swallowing disorder <sup>227</sup> (B2), pressure ulcers, <sup>228</sup> (P) malnutrition <sup>229</sup> (A1)
- giving advice to patients and their carers <sup>230</sup> (U/C) to help manage the effects of the stroke on their lives and providing information and explanations about the treatment and care needed
- carrying out a multi-disciplinary assessment and starting rehabilitation early (within 24 hours). This process should include a formal swallowing assessment and a plan for safe hydration, feeding and medication. Early interventions are also required in the following areas: balance, mobility, pain, communication, cognition, mood and activities of daily living
- co-ordination of care by a member of the stroke team including:
  - clearly documenting plans for treatment and care
  - ensuring identified needs for treatment, care and early rehabilitation are met
  - ensuring all professionals involved share a common understanding of the goals agreed for each patient.

5.23 Where recovery is not possible, this should be recognised by staff. The care of the patient should be discussed with them as far as possible, and with their carers as appropriate. The principles of palliative care should inform the care plan, with priority being given to supporting the patient to die with dignity, without unnecessary suffering, and in the place of their choice wherever possible.

### **Early and continuing rehabilitation**

5.24 The evidence indicates that early, expert and intensive rehabilitation in a hospital stroke unit improves the long-term outcome for patients <sup>231</sup> (B1). Rehabilitation will vary according to needs but might include:

- speech and language therapy for patients with communication or swallowing difficulties
- nutritional advice if texture modification or other nutritional support is required
- physiotherapy to improve mobility and independence at home
- occupational therapy to help adjustment back to the workplace
- occupational therapy to assess and manage problems with activities of daily living
- clinical psychology for patients with problems affecting intellectual function or mood
- specialist treatment for patients with bladder or bowel problems
- equipment to support independent living.

5.25 Patients and their carers should be involved in planning their care and safe discharge from hospital <sup>232</sup> (B1). This should identify an initial overview of needs likely on discharge, and pursue a fuller assessment of the issues that will impact on the patient's independence. The assessment will result in a statement of need and an individual care plan which identifies proposed services, the responsibilities of various professionals for providing those services and the aims and potential outcomes of rehabilitation (Standard 2) <sup>233</sup> (P). The stroke care co-ordinator will be responsible for:

- co-ordinating assessment and individual care plans and ensuring arrangements for support and secondary prevention measures are in place prior to discharge

- ensuring an efficient flow of relevant information to community-based professionals
- ensuring a smooth transfer between care settings
- ensuring that the need for home adaptations, repairs and improvements are identified, and work completed pre-discharge.

5.26 Secondary prevention measures are a key part of the individual care plan. Treatment should be initiated in hospital, with arrangements made with the primary care team for it to be continued after discharge. Patients and their families should be provided with information, advice and support to prevent further strokes, and GPs notified of the risk factors and steps that have been, or will be taken, to reduce risk.

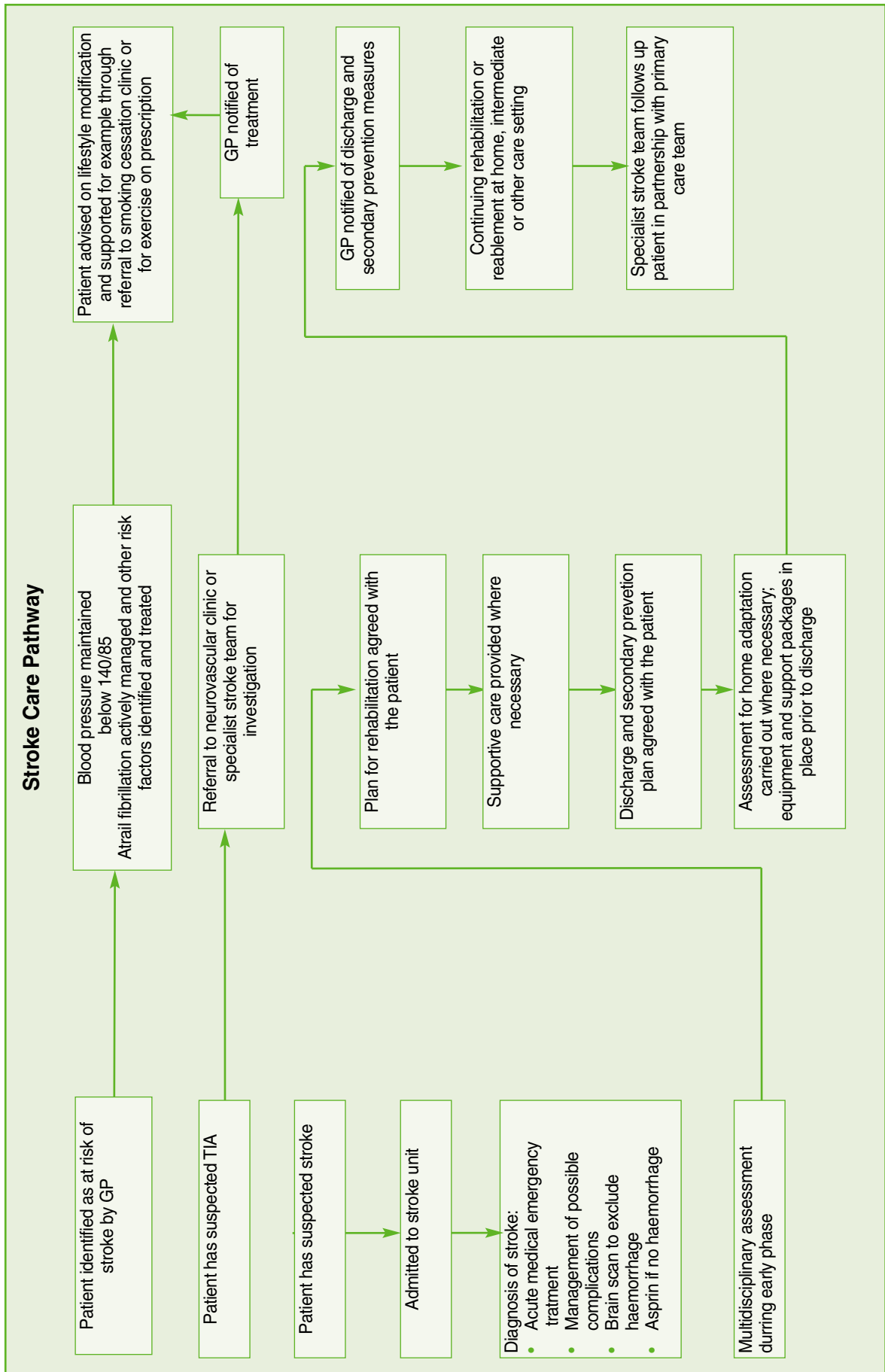
### **Long-term support**

5.27 Recovery from stroke can continue over a long time, and rehabilitation should continue until it is clear that maximum recovery has been achieved. Some patients will need ongoing support, possibly for many years. These people and their carers should have access to a stroke care co-ordinator who can provide advice, arrange reassessment when needs or circumstances change, co-ordinate long-term support or arrange for specialist care. Following a stroke, any patient reporting a significant disability at six months should be re-assessed and offered further targeted rehabilitation if this can help them to recover further function <sup>234</sup> (B1).

5.28 Long-term support should be within the care management arrangements described in Standard 2 and include:

- providing patients and carers with the name of a stroke care co-ordinator they can contact for advice or to discuss changing needs or to facilitate access to rehabilitation services as appropriate
- making sure stroke patients are followed up to ensure expert team care, including medical care to prevent further strokes
- hospital outreach teams delivering care in people's own homes
- regular reviews of medication and nutritional well-being
- providing patients with advice, treatment and support to reduce risk of further stroke
- providing social and emotional support to minimise the loss of independence following the stroke, and help manage the consequences of stroke <sup>235</sup> (U/C)
- ensuring that accommodation after discharge - whether ordinary housing,

sheltered accommodation or a care home - is suitable to meet individual needs and that adaptations and community equipment services are provided where appropriate.



## Service Models

---

5.29 An integrated stroke service will involve:

- stroke prevention for those at risk of a first or further stroke
- specialist stroke services providing acute care and rehabilitation
- long-term support for stroke patients and their carers.

5.30 Preventing stroke will involve:

- health promotion initiatives designed to reduce the risk factors for stroke in the general population (Standard 8)
- the development of systems systematically to identify and treat those at risk of a first or repeat stroke.

5.31 Managing stroke patients in hospital will mean establishing specialist stroke teams led by a clinician with expertise in stroke. Stroke teams should include:

- physician specialising in stroke medicine (normally a geriatrician, neurologist or consultant in stroke or disability medicine, or a named consultant with expertise in stroke) who should supervise care
- clinical specialist nurse with expertise in stroke
- speech and language therapist, physiotherapist, and occupational therapist
- dietitian
- clinical psychologist
- pharmacist
- social worker/family support
- trained bi- or multi-lingual co-worker to reflect language needs of local populations
- stroke care co-ordinator (this may be a specific post or a role that any team member could undertake)
- ready access to additional services.

- 5.32 Stroke teams will be involved in all aspects of stroke services and should contribute to the development of strategies to prevent strokes. Good working relationships and protocols with other hospital specialists and with primary and community based professionals, including housing will be needed to ensure effective and integrated stroke services and sharing the care of those recovering from stroke.
- 5.33 Stroke teams should meet at least weekly to discuss individual patients' progress and work to ensure there is a consistent approach to providing patient care, treatment and rehabilitation. They should make links to voluntary organisations and support groups such as the Stroke Association, Different Strokes or Speakability who will be able to complement the work of the service. Some older people from minority ethnic communities may be more comfortable being supported by their own community organisations. These organisations may require training and support on stroke care issues.
- 5.34 Prior to discharge, the needs of patients and their carers for care and support at home should be identified. Stroke teams will need to work with other professionals to ensure that these needs are met and support packages are in place before patients return home. This includes ensuring patients are advised about how they can reduce their risk of a further stroke and making whatever arrangements are required to provide long-term support.
- 5.35 Providing integrated stroke services will require staff to be trained and competent in caring for stroke patients and providing access to expert advice as necessary. Specialist stroke services should provide advice to and train other professionals and service providers in all aspects of stroke care consistent with the responsibilities of the individual members. Training should include:
- causes and effects of stroke
  - acute care
  - swallowing and nutritional needs
  - oral health
  - avoiding complications
  - medication and other treatment
  - physical rehabilitation
  - overcoming communication problems

- patients' and carers' needs for information
- personal care needs
- social and employment needs
- emotional needs
- secondary prevention measures.

5.36 Staff should also understand the need for multidisciplinary working and the roles of other professionals within the team. Staff should also understand the role of the independent and voluntary sector and the help they can provide so that they can fully inform stroke patients and their carers about the support that is available.

## Actions

---

### **Every health system should, in partnership with other agencies where appropriate:**

- review current arrangements, in primary care and elsewhere to identify those at greatest risk of stroke, and to intervene actively to reduce these risks; and agree local priorities to improve the rates of identification and effective intervention in stroke
- review current arrangements, in primary care and elsewhere, for TIA and to agree and implement a local protocol for the rapid referral of patients with TIA who may be at risk of stroke
- review current hospital services for stroke using the clinical audit methodology developed by the Royal College of Physicians<sup>236</sup> (B3)
- on the basis of this, agree local priorities for action required to establish an integrated stroke service, which is regularly audited with a continuing cycle of improvement.

## Milestones

---

April 2002	Every general hospital which cares for people with stroke will have plans to introduce a specialised stroke service as described in the stroke service model from 2004.
April 2003	Every hospital which cares for older people with stroke will have established clinical audit systems to ensure delivery of the Royal College of Physicians clinical guidelines for stroke care.
April 2004	PCG/Ts will have ensured that: <ul style="list-style-type: none"><li>• every general practice, using protocols agreed with local specialist services, can identify and treat patients identified as being at risk of a stroke because of high blood pressure, atrial fibrillation or other risk factors</li><li>• every general practice is using a protocol agreed with local specialist services for the rapid referral and management of those with transient ischaemic attack (TIA)</li></ul>

- every general practice can identify people who have had a stroke and are treating them according to protocols agreed with local specialist services
- every general practice has established clinical audit systems for stroke.

100% of all general hospitals which care for people with stroke to have a specialised stroke service as described in the stroke service model.