healthwatch

Designing stroke services for the future

How Healthwatch can help people understand and inform reconfiguration of stroke care

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Healthwatch is here to help make health and social care better. We listen to what people want from services and share their views with those in charge, to help inform change.

Reconfiguration happens when services need to be redesigned to meet the needs of a growing and changing population. Healthwatch help make sure that people's voices are at the heart of decisions about what future care will look like.

The reconfiguration of stroke services offers Healthwatch an opportunity to make a big impact on their communities. Several areas of England have already adopted new approaches to dealing with strokes – most notably London and Manchester – and such changes are being considered in other places too. The idea of services changing, moving locations, and potentially reducing in number is likely to be of great interest to people, so Healthwatch can play a crucial role in helping their communities understand what is happening, and make their voices heard.

The broader geographical areas covered by Sustainability and Transformation Plans (STPs) means that there are opportunities to review services across a wide area, affecting many communities. Among recent developments, Norfolk and Waveney STP re-established its Stroke Network following a review of its stroke pathways and NHS England has told Coastal West Sussex Clinical Commissioning Group that it needs to revisit creating a hyper-acute stroke unit in the area.

Stroke and the NHS Long Term Plan

The NHS wants to significantly improve stroke care across the country. It's included in the NHS Long Term Plan as one of the major health conditions for which local services need to provide better care.

To do this, it plans to develop Integrated Stroke Delivery Networks (ISDN). ISDNs will bring all relevant services – from ambulance to discharge teams - together to make sure all stroke units will, over the next five years, meet the NHS seven-day standards for stroke care and the National Clinical Guidelines for Stroke. Additional milestones for the improvement of stroke care are listed below.

Milestones for stroke care
• In 2019 we will, working with the Royal Colleges, pilot a new credentialing programme for hospital consultants to be trained to offer mechanical thrombectomy.
• By 2020 we will begin improved post-hospital stroke rehabilitation models, with full roll-out over the period of this Long Term Plan.
• By 2022 we will deliver a ten-fold increase in the proportion of patients who receive a thrombectomy after a stroke so that each year 1,600 more people will be independent after their stroke.
• By 2025 we will have amongst the best performance in Europe for delivering thrombolysis to all patients who could benefit.

The impact of stroke in the UK

Stroke is the fourth biggest killer in the UK[1], behind dementia, heart disease and cancer. This remains true, despite the mortality rate for stroke having fallen from 71.2 (1990) to 38.22 (2010) - a drop of 46%.

There are more than 100,000 strokes in the UK every year), with 1,200,000 stroke survivors. In 2016, it is estimated that approximately 57,000 people experienced a stroke for the first time.

Stroke death rates in the UK fell by almost half between 1990 and 2010, but there are still major concerns, such as people having strokes earlier in their lives.

Although often associated with older people, 3% of the total estimated stroke incidence occurred in people under 40, 38% in people aged 40 to 69 and 59% in people aged over 70[2]. People are generally having strokes earlier in their lives, with the age at onset having fallen from 70.5 to 68.2 years in men and 74.5 to 73.0 years in women between 2007 and 2016.

Stroke does not affect all parts of the community equally. Black people are almost twice as likely to have a stroke as white people, and they're more likely to have a stroke earlier in their life. People living in more deprived communities have an increased risk of stroke and, in general, will have a more severe stroke. Research shows that, on average, they will experience a stroke five years earlier than those in the least deprived areas.

There are over 100,000 strokes in the UK every year[3]. 85% of people who have a stroke survive beyond 30 days and there are now approximately 1.2 million stroke survivors in the UK. 90% of stroke survivors return to live at home within six months of their stroke, with 25% of stroke survivors living alone. Almost two thirds of stroke survivors leave hospital with some form of disability.

What causes a stroke?

Stroke is affected by several risk factors; some of these are modifiable and some are not. A modifiable factor is something that people can change themselves, including lifestyle factors such as alcohol consumption, smoking and being overweight. The non-modifiable factors include age, gender and pre-existing conditions such as atrial fibrillation, type 1 diabetes and a hole in the heart.

Care and treatment

There are two main types of stroke. Ischaemic strokes are caused by blockages which cut off the blood supply to parts of the brain. Haemorrhagic strokes are caused when a blood vessel bursts within or on the surface of the brain. 85% of stokes are ischaemic and 15% haemorrhagic. Haemorrhagic strokes are generally more severe and have a higher risk of death.

One of the most important factors in dealing with stroke is early identification and treatment. Thrombolysis uses drugs to break down and disperse the clot in an ischaemic stroke. It can be

[1] Information taken from State of the Nation Stroke Statistics: (Stroke Association) February 2018 https://www.stroke.org.uk/system/files/sotn_2018.pdf
[2] Briefing document: First incidence of stroke Estimates for England 2007 to 2016 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/678444/Stroke_incidence_briefing_document_2018.pdf
[3] Information taken from State of the Nation Stroke Statistics: (Stroke Association) February 2018 https://www.stroke.org.uk/system/files/sotn_2018.pdf

used up to four and a half hours after the stroke and increases the chance of a good outcome by 30%[4]. Evidence suggests that earlier treatment will have better outcomes[5].

There has been an increase in the number of patients receiving thrombolysis within the four-and-a-half-hour window, with more now receiving this treatment within an hour of arrival at the hospital. Despite this, many patients still miss out on the treatment. Between March 2016 and April 2017, 60% of patients either arrived after the four-hour limit[6] or were unable to say when their stroke had started – for example, because the stroke happened when they were asleep – and so could not be treated in this way. Almost 11,000 people in England, Wales and Northern Ireland are eligible for this form of treatment, and in 2016 85% of those eligible received it.

It is estimated that a patient receiving thrombolysis saves the NHS £4,100 over five years because of the better health-related outcomes[7]. In addition, Early Supported Discharge schemes are estimated to save £1,600 over five years[8].

As well as immediate treatment, there have been improvements in aftercare. Nine out of 10 patients received a joint health and social care plan on discharge in 2016/17, compared with only seven out of 10 in 2013/14[9].

There have been major reconfigurations of services in some areas of the country and these have led to an increase in lives saved and a decrease in the amount of time people spent in hospital.

What changes will reconfiguration bring?

Stroke patients who are cared for on stroke units are more likely to be alive and living independently one year after having a stroke than those cared for on other wards because they will be treated by specialist teams.

For this reason, many stroke services around the country are being redesigned to include Hyper Acute Stroke Units (HASUs). HASUs bring experts and specialist equipment for the emergency treatment of stroke under one roof to provide treatment 24 hours a day, seven days a week.

HASUs are designed so that they treat a larger number of patients per year than a local stroke unit. Fewer units are therefore needed to serve a particular geographical area, meaning that some people are then further away from care, should they need it, than they were before reconfiguration happened.

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[4] A good outcome is defined as "no significant disability at 3 – 6 months" in Effect of treatment delay, age, and stroke severity on the effects of intravenous thrombolysis with alteplase for acute ischaemic stroke: a meta-analysis of individual patient data from randomised trial at https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(14)60584-5/abstract

[5] Rajiv Advani, Halvor Naess and Martin W. Kurz The golden hour of acute ischemic stroke at https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5440901/

[6] The four-hour limit is to ensure that patients receive the treatment within the four-and-a-half-hour window.

[7] Current, future and avoidable costs of stroke in the UK https://www.stroke.org.uk/sites/default/files/costs_of_stroke_in_the_uk_summary_report_0.pdf

[8] From National Institute for Health and Care Excellence (2012). Alteplase for treating acute ischaemic stroke. Available: http://www.nice.org.uk/guidance/ta264/chapter/4- consideration-of-the-evidence. Last accessed 09 January 2015. Accessed through State of the Nation Stroke Statistics at https://www.stroke.org.uk/system/files/sotn_2018.pdf

[9] The Fourth SSNAP Annual Report https://www.strokeaudit.org/Annual-Report/2017/Home.aspx

These HASUs aim to help people get the critical early treatment they need after having a stroke. In many cases, going to an HASU will be more beneficial to the patient than taking them to their nearest hospital, because they offer:

- Appropriate specialist staff including nurses and physicians available 24/7 with other staff, such as therapists, available seven days a week.
- A greater range of specialists available than at a local level meaning that patients get timely access to scans and assessments, ensuring they receive the right care at the right time.
- A large enough number of patients to maintain staff skill levels, estimated at 600 to 2,000 per year.

The HASU approach relies on the right staff being available to care for patients. In Kent and Medway staff shortages meant that the service couldn't run effectively and it was estimated that there were only one third of the number of stroke specialists required to deliver best practice[10]. In 2016, across the UK, 40% of hospitals reported that there was at least one unfilled stroke consultant post[11].

HASUs in London and Greater Manchester

Two examples are often mentioned regarding this issue: London and Greater Manchester. London went for full implementation of HASUs from the beginning, whereas Greater Manchester took a more limited approach in the early stages[12].

London reconfigured its services in 2010 and went from 30 hospitals providing acute stroke care to eight HASUs providing care on a 24/7 basis. 24 stroke units provided rehabilitation (with eight of these attached to the HASUs). A major factor in deciding the location of the HASUs was need, including ensuring that no Londoner was more than 30 minutes away by ambulance.

In Greater Manchester there were three HASUs but only one was provided on a 24/7 basis, with the other two open 07:00 – 19:00, Monday to Friday. Whereas in London all patients were eligible for HASU treatment, in Greater Manchester only those within the four-hour window were eligible, with the remainder being routed to local stroke units.

In London, the reconfiguration is estimated to have saved 96 additional lives per year[13]. In Greater Manchester, where initial implementation in 2010 was only partial, the reduction in deaths was similar to the national average but smaller than London. However, there was also a reduction of two days in the average time spent in hospital. It was estimated that if Greater Manchester centralised services so that all patients were eligible to be treated in an HASU, an additional 50 lives per year could be saved.

In Greater Manchester, patients who were treated in a HASU were just as likely to get evidence-based care as patients treated in London, but significantly less likely if they were treated in a local unit. However, as only 39% of Manchester patients were treated in a HASU, overall results

[10] https://kentandmedway.nhs.uk/wp-content/uploads/2018/02/KMStrokeConsultationSummary_final_02022018.pdf

[11] Sentinel Stroke National Audit Programme (SSNAP) Acute organisational audit report November 2016 https://www.strokeaudit.org/Documents/National/AcuteOrg/2016/2016-AOANationalReport.aspx

[12] Effects of Centralizing Acute Stroke Services on Stroke Care Provision in Two Large Metropolitan Areas in England https://www.ahajournals.org/doi/pdf/10.1161/STROKEAHA.115.009723

[13] Impact of centralising acute stroke services in English metropolitan areas on mortality and length of hospital stay: difference-in-differences analysis at https://doi.org/10.1136/bmj.g4757

were poorer. Greater Manchester moved to full implementation of the HASU model in 2015. National audit data suggest strongly that following the 2015 centralisation Manchester performance has improved greatly.

Research into the feasibility of a HASU model being adopted across the country concluded that 75 – 85 HASUs could achieve 80 - 85% people attending an appropriate acute unit within 30 minutes (with 95% and 98% being within 45 and 60 minutes travel respectively). The research also recognised that 2 - 4% of the population would be adversely affected by this approach and their needs would have to be considered in the planning.

Points for Healthwatch to consider when discussing HASUs

Distance

As the two most often cited examples are London and Greater Manchester, people may assume that HASUs will only work in large metropolitan areas. One of the major factors in deciding the locations of HASUs is the time it will take an ambulance to get there, rather than the distance it will have to cover.

Where services are reconfigured into HASUs, some patients will have longer journeys to the stroke unit. For example, it has been estimated[14] that 2% of patients who are currently within 30 minutes of a stroke unit would have their journey time extended to more than 45 minutes. Under these arrangements, approximately 1.5% of the population would be more than an hour away from a stroke unit compared with an estimated 0.3% now.

The longer distance will not only affect patients themselves but also their families and others who may wish to visit them. This may be partly offset by a reduction in the time spent in hospital but it may still be a significant concern. A reduction in the length of hospital stays is supported by Early Supported Discharge (known as ESD) where a stroke survivor's rehabilitation care is coordinated by a team of therapists, nurses and a doctor at home rather than in hospital.

Access to care

Thrombectomy is mechanical clot removal which can take place within six hours after a stroke and increases the chance of a good outcome by over 50%. Currently, almost a third of hospitals have no access to thrombectomy either on site or by referring to another hospital. For some patients, the best option may be what is known as 'drip and ship'. In these cases, the patient has thrombolysis at a nearby location followed by immediate transfer to a more specialised thrombectomy centre. This may have an impact on the distance that patients and their families need to travel. HASUs are designed to offer everything a stroke patient could need, removing the need for people to be transferred to other places.

Existing services

Discussions about reconfiguration often centre around the proposed closure of existing services. Any debate about the services an area needs must be informed by a clear understanding of the quality of care provided and the difference it makes to patients. Local Healthwatch will need to represent the views and the interests of local people – including those from rural and built-up areas – and highlight any communities with specific needs or concerns.

[14] Allen M, Pearn K, Villeneuve E, et al. Feasibility of a hyper-acute stroke unit model of care across England: a modelling analysis. https://bmjopen.bmj.com/content/bmjopen/7/12/e018143.full.pdf

Case study: West Yorkshire and Harrogate STP - Healthwatch work together to engage people with changes to stroke care

Stroke is a priority for the West Yorkshire and Harrogate STP, which has implications for all Healthwatch in the area: Bradford and District, Calderdale, Kirklees, Leeds, North Yorkshire and Wakefield. When Healthwatch in this region encounter an issue that affects multiple Healthwatch organisations in the area, one of them takes the lead. When stroke service reconfiguration was included in the STP, they agreed that Healthwatch Bradford and District would be the engagement lead.

In 2015 stroke services in Airedale, Wharfedale and Craven CCG and Bradford CCG areas, had been reconfigured to create a single HASU at Bradford Royal Infirmary. These CCGs are covered by Healthwatch Bradford and District and Healthwatch North Yorkshire.

Healthwatch Bradford and District ran some engagement activity in the local area, to help people understand what was happening. The engagement process was extensive, so it wasn't feasible to have clinicians available for every meeting and visit. Therefore, Healthwatch Bradford asked the CCGs to provide a video explaining the issues in an accessible way. The film featured the lead consultant explaining the case in an open and transparent manner, which people appreciated. In addition, other staff – such as specialist nurses – attended the meetings.

Healthwatch made sure staff were well-informed and could respond to questions and concerns. They were not representing the CCGs but were able to give informed responses.

When reconfiguration of stroke services commenced across the whole region, Healthwatch worked together to run engagement activity from all areas of the community. They developed a survey, promoted on social media. More than 98,000 people saw the advert for it, and 1,628 clicked to find out more.

The consultation ran for six weeks in February and March 2017 and during that time Healthwatch received 940 completed surveys: 830 from face-to-face events and 110 through social media. Alongside this there were 54 outreach sessions, five sessions with voluntary and community sector organisations, and 15 semi-structured interviews with patients and carers identified with stroke rehabilitation wards at local hospitals, led by Healthwatch Bradford and District.

Midway through the consultation Healthwatch worked out which groups were underrepresented. This led to a special focus on men, people under 65 and people from black and minority ethnic communities. These groups were targeted through social media and outreach sessions, leading to a slight increase in responses.

Healthwatch produced a report, presenting people's views. Some people said they felt they stayed in hospital too long, others felt pressured to leave, whilst others said they found it difficult to access rehabilitation services. This was important feedback because the STP focus seemed to be on the HASU itself, and less on what happened to patients when they left.

Local Healthwatch were asked by the STP to be involved in a further round of engagement with stroke survivors early in 2018. The short timescale meant it would be difficult to engage properly, so Healthwatch was unable to agree to the use of its brand for this outreach.

Lessons from West Yorkshire and Harrogate STP's work:

- **Understanding local concerns** – the STP was focused on HASUs but residents had significant concerns about rehabilitation. The STP did not really respond, which had a negative impact on the public's engagement with the issue.

- **Feedback to local people** - there were long gaps between different stages of the process, including consultation. People were not kept informed and did not know when to expect an update. This can undermine confidence in the process as whole.
- **Engage with people where they are** – local Healthwatch engaged a lot of people by working in a variety of settings, including children's centres, stroke groups, community centres, libraries and hospitals. The STP arranged a meeting that relied on people being able to travel, in some case significant distances. This limited how many people could take an active part in the process.

Case study: Gathering views from across a big geographical area about stroke service reconfiguration

Healthwatch Kent's role

Healthwatch Kent faced several challenges dealing with the proposed reconfiguration of stroke services for Kent and Medway. Kent is a large county and no single proposal was likely to satisfy all areas, and it was Healthwatch's job to engage with them all. In addition, the reconfiguration covers Kent and Medway, but people close to the border, in areas such as Bexley and East Sussex, would use the service too.

Healthwatch Kent scrutinised the whole process, and involved different members of its staff and board at different stages, to ensure it remained and was seen to be independent.

The consultation for Kent and Medway included five options for the locations of the three proposed HASUs. Although the whole of the area would be covered, different options meant that some places would be further away from one of the facilities. Healthwatch Kent did not comment on the individual proposals, but focused on ensuring that the consultation was robust and gave a voice to all communities.

Healthwatch Kent identified that special attention was needed for the Thanet area. This area has high levels of deprivation and none of the options included the local hospital. Additional events were arranged for Thanet to ensure local people could respond to the proposals.

Healthwatch Medway's role

Healthwatch Medway covers only a small part of the area included in the Kent and Medway stroke care review. Although Healthwatch Kent led a lot of work around engagement, it was still important for Healthwatch Medway to be an active partner in local engagement. As part of the Steering Group, Healthwatch Medway focused on making sure people's voices were at the heart of plans. Focus groups were well-attended in the area, and when local people said that more engagement was needed, another session was arranged.

The Medway area is densely populated and has high levels of deprivation, so has correspondingly high-risk factors for stroke. The local hospital – Medway Maritime – dealt with the largest number of stroke patients in the region.

There was strong local support for the Medway hospital being included in the final proposal (it was included in three of the five options presented) and Healthwatch Medway could support this view as it needed to represent the local area rather than the footprint of the overall review.

As a small area, Healthwatch Medway was dealing with both a local authority and CCG that were coterminous. This provided a simpler landscape than the Kent area, which included seven CCGs and 12 district councils.

When the plans for the reconfigured service were announced in September 2018, three HASUs were proposed in Ashford, Dartford and Maidstone. The proposals were controversial in some areas, including Medway and Thanet. People were concerned that areas of deprivation appeared to be less well-served than other areas, despite having the largest populations. They also thought the predicted transport times were unrealistic. Both local authorities and community groups said that they would work to get the decision reversed during the next stage when more detailed plans were being developed.

The final proposal was for three HASUs at William Harvey Hospital, Darent Valley Hospital and Maidstone Hospital, meaning that there was not a HASU located in the Thanet area. This proposal was approved by the joint committee of the CCGs in February 2019, although Medway Council has said that it will apply for a judicial review.

Healthwatch Thurrock's role

The initial proposal for Mid and South Essex did not include any facility either in or close to Thurrock. Thurrock has an independent stroke survivors group which had strong views about the proposals, particularly about the travelling distance. Healthwatch Thurrock facilitated the opportunity for a stroke survivor group to speak at a CCG Board meeting. This resulted in a decision to locate one of the HASUs at Basildon alongside the cardiothoracic centre.

In supporting stroke survivors to express their views, Healthwatch Thurrock tackled several challenges. Many stroke survivors develop aphasia (difficulty with language, affecting the production or comprehension of speech and the ability to read or write) making it difficult for them to communicate, but it was important that their voices were heard. They helped this happen by letting other stroke survivors speak on their behalf, where appropriate. Where there were concerns about community services after discharge, Healthwatch Thurrock supported a project which commissioned an arts group to make a short film which told the story from stroke survivors' perspective. This was developed with members of the stroke survivors' group.

In November 2018, Southend Council referred the proposal for Mid and South Essex to the Secretary of State through the Independent Reconfiguration Panel. It mentioned that the existing arrangements for reconfiguration of stroke services – at the local Southend hospital – had not been adequately considered or consulted on.

Key points for Healthwatch to note when working on reconfiguration

- **Community engagement and consultation is key:** the STP will ultimately be responsible for the consultation, and Healthwatch may lead it or support it depending on local circumstances. In some areas, typically smaller ones where there is a more obvious consensus, local Healthwatch may be able to press for a particular solution to be taken up. However, in reconfiguration areas with a larger footprint the focus may need to be on making sure that all areas get a chance to be heard rather than promoting a preferred option.
- **Communication is crucial:** to any change programme and Healthwatch has an important role to play. Although they can support communication and engagement – the STP and its constituent organisations need to take responsibility. This includes communication with the area in general as well as those more directly concerned; for example, in one area a stroke patient reported not knowing what would happen to their care after a proposed reconfiguration.
- **Remain independent:** Healthwatch needs to be independent throughout any reconfiguration process. Where it takes on a role on behalf of the STP there may be a risk that it will be seen as being 'part of the system' or complicit. Healthwatch should demonstrate that it is representing all views expressed about the issue, both in favour and against.
- **Be politically aware:** Reconfiguration is often controversial and Healthwatch will need to be aware of the political aspects without becoming embroiled in them. In some areas campaigns have developed around closure of facilities or possible privatisation. Healthwatch will need to base any response on the available facts rather than interpretations of them. Healthwatch may need to ask about the evidence used to support decision-making; for example:
    - How recent is it? (Has anything significant changed since that time?)
    - How robust is it? (What is the source? Is it comprehensive?)
    - Is it relevant? (For example, information from other areas may or may not be appropriate.)
    - Are there any other possible interpretations of the information? (Are the conclusions or recommendations consistent with the evidence?)
- **Be mindful of other issues:** Reconfiguration may highlight in need of attention regarding stroke, such as prevention and rehabilitation. For example, there may be concerns about reductions in public health budgets and their consequent ability to tackle some of the related lifestyle issues. There is a risk that a high-profile reconfiguration programme may take the focus away from other significant issues.
- **Highlight inequalities:** Several local Healthwatch have expressed concern about consistency across geographical areas. For example, people attending a HASU may go home to areas with different standards of service for rehabilitation and local Healthwatch felt it was important to ensure that people had access to a similar level of support. Service reconfiguration will have different impacts on local areas or communities. Healthwatch will need to ensure that equalities implications are given proper consideration. This may need to include factors such as geographical isolation, deprivation and diversity, and take account of the whole area as well as more locally.
- Keep people informed: Healthwatch has a role to play in informing people about the success of the implementation of the chosen reconfiguration proposal, not just from the data perspective, but the patient perspective. Monitoring and evaluation will take place at a system-wide level but this may not fully reflect the situation at a local level. Healthwatch may be able to work with Health Overview and Scrutiny to co-ordinate activity around these issues. The size of STP areas means that there are joint health

scrutiny arrangements bringing together councillors from several authorities. This can provide a challenge for Healthwatch as, depending on boundaries, they may need to engage with more than one joint health scrutiny committee and / or coordinate with other Healthwatch in the same area.

- **Explore the impact on people:** Local Healthwatch may want to consider broader issues as measures of success, focusing on the impact on people. For example, as well as the data about treatment times and survival rates, they may be interested in how quickly people were able to return to work and the impact on their family as carers.

Useful resources

Learning from Stroke: Achieving successful system change - Lessons from stroke reconfiguration in London and Greater Manchester (UCL) May 2018 - this includes links to research and forthcoming events and opportunity to sign up for webinars.

http://www.learningfromstroke.com/

Briefing document: First incidence of stroke: Estimates for England 2007 to 2016 (Public Health England) February 2018

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/678444/Stroke_incidence_briefing_document_2018.pdf

State of the Nation Stroke Statistics: (Stroke Association) February 2018

https://www.stroke.org.uk/system/files/sotn_2018.pdf

McKevitt C, Ramsay AIG, Perry C, et al. Patient, carer and public involvement in major system change in acute stroke services: The construction of value.

https://doi.org/10.1111/hex.12668

An accessible version is available at:

http://www.learningfromstroke.com/uploads/8/7/0/9/87097844/mckevitt_et_al_2018_-_at_a_glance_final.pdf

Rising to the Challenge: the Fourth SSNAP Annual Report (Sentinel Stroke National Audit Programme) November 2017

https://www.strokeaudit.org/Documents/AnnualReport/2016-17-SSNAP-Annual-Report.aspx

What we think about: Reorganising acute stroke services (Stroke Association) 2016

https://www.stroke.org.uk/sites/default/files/jn_2640e_-psp_reorganising_acutestrokeservices.pdf

Reconfiguring stroke care (The King's Fund)

https://www.kingsfund.org.uk/publications/reconfiguration-clinical-services/stroke

The reconfiguration of clinical services: What is the evidence? (The Kings Fund) November 2014

https://www.kingsfund.org.uk/publications/reconfiguration-clinical-services

Progress in improving stroke care (National Audit Office) February 2010

https://www.nao.org.uk/wp-content/uploads/2010/02/0910291.pdf

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