Somerset Acute Hospital-based Stroke Services Reconfiguration: Pre-consultation Business Case

Including the management of hyperacute and acute strokes, transient ischaemic attacks and stroke mimics.

Somerset Fit For my Future Health and Care Strategy

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www.fitformyfuture.org.uk

Document version control

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V0.20	Evidence summary for shortlist; implementation plan for options	08/08/22	S. Wickins
V0.21	Shortlisted stroke options pros and cons; update pathways; modelling / GIS updates	22/08/22	S. Wickins
V0.22	Modelling updates; workforce narrative; separation of appendices; ranking and evidence of shortlist; exec summary;	30/08/22	S. Wickins
V0.23	Updates following ICB Exec meeting; updates to the clinical model, digital opportunities, workforce, legal advice, Green Plan, comms and engagement outputs, mimics, CQC, finance summary	05/09/22	S. Wickins
V0.24	Edits to Exec Summary, Intro, Models of Care	08/09/22	M. Heard S. Wickins
V1.0	Final editorial changes ahead of first draft submission to Clinical Senate	08/08/22	S. Wickins

V1.1	Include feedback from Bevan Brittan Solicitors; Demographics;	13/09/22	S. Wickins
V1.2	Additions: Safeguarding statement; carbon calculations; thrombectomy; Edits: Comms and Engagement; updated 2021 census information; finance statement; feedback from Exec Committee re. choice; preferred option development; Glossary; SSNAP data;	20/09/22	S. Wickins
V1.3	Amendments following Clinical Senate Desktop review; Capital costs; rehabilitation; placeholders updated; preferred options; change document title	26/09/22	S. Wickins
V1.4	Staff travel; equipment costs; local People Plan;	03/10/22	S. Wickins
V1.5	Reposition health inequalities; refine staffing; inclusion of SRU in Option D; updates to glossary and abbreviations; Advanced care planning; Patient choice Option C&D; Clarification of bed numbers for options C&D; Finance Option C&D; risks for options; restructure of sections;	10/10/22	S. Wickins
V1.6	Financial flow update;	17/10/22	S. Wickins
V1.7	Clarification of options numbering; update to consultation; Workforce finance Option A, C, D; Travel time clarification; Workforce risks and mitigations	19/10/22	S. Wickins
V1.8	Updated finance modelling; revisions to structure and content following feedback from Bevan Brittan, NHSE South West Clinical Network and NHSE; Addition of summary evidence of 5 key tests; Additional equalities and inclusion content; Link to letters of support; Placeholders for additional SWASFT content	31/10/22	S. Wickins
V1.9	Update workforce information	07/11/22	S. Wickins
V1.10	Amendments to glossary; additional references included; updated SSNAP content; Finance updates; stakeholder engagement in TIA options	14/11/22	S. Wickins
V1.11	Updates to 5 key tests evidence; editorial review for consistency of language, e.g., Stakeholder Reference Group; inclusion of HEAT; update to risk table option A; Option C ASU Specification for YDH; revised current staffing numbers taken from SFT/YDH draft Merger document; updated SSNAP tables	21/11/22	S. Wickins
V1.12	Updated financial narrative; update Exec Summary and introduction to reflect changes; reference for BNSSG DMBC is no longer working; Update on HOSCs; Editorial updates and final formatting changes	28/11/22	S. Wickins
V1.13	TIA clarification; removal of SRU content; clarification in finance section, inclusion of summary table	29/11/22	S. Wickins
V2.0	Submission to NHSE Stage 2 Assurance	29/11/22	S. Wickins
V2.1	Additional information regarding consultation; content added regarding psychology provision; adjustments to timeline; update next steps	03/01/23	S. Wickins
V3.0	Submission for ICB Board	05/01/12	S. Wickins
V4.0	Final version	30/01/23	S. Wickins

Contents

1. Executive summary

Introduction

Stroke is both a sudden and devastating life event, with 100,000 new strokes a year and over a million people living with the consequences of stroke[1]. It is the single largest cause of complex disability.

It therefore has a significant impact on health and social care, unpaid carers and lost productivity.

The good news is that the number of deaths from stroke is going down.

This is due to improved prevention and people are seeking help and getting treated more quickly. This rapid access to treatment means that more people are surviving stroke, with better outcomes, than ever before.

There are three different types of strokes:

1 **Ischaemic stroke** is caused by a blockage cutting off the blood supply to the brain. This type of stroke is treated with:
   a. thrombolysis - clot-busting medication, and/or
   b. thrombectomy - mechanical clot removal

1 **Haemorrhagic stroke** is caused by bleeding in or around the brain. This accounts for around 15% of all strokes[2].

[1] Patel A, Berdunov V, Quayyum Z, King D, Knapp M, Wittenberg R. Estimated societal costs of stroke in the UK based on a discrete event simulation. Age Ageing. 2020 Feb 27;49(2):270-276. doi: 10.1093/ageing/afz162. PMID: 31846500; PMCID: PMC7047817.

[2] Haemorrhagic stroke | Brain Haemorrhage | Stroke Association

2 **Transient ischaemic attack** or TIA (also known as a mini stroke). It is the same as an ischaemic stroke, except that the symptoms only last for a short amount of time.

3 **Stroke mimics** are not actually a stroke but are caused by other conditions that "mimic" a stroke. The initial emergency medical care is like stroke until a diagnosis is confirmed.

Rapid Access to stroke care should be provided in a stroke unit, or more specifically a Hyper-acute Stroke Unit (HASU) which typically covers the first 72 hours after admission.

Every patient with an acute stroke should gain rapid access to a stroke unit within 4 hours and receive an early multidisciplinary assessment to ensure that they get the most appropriate treatment.

Purpose of this document

The purpose of this Pre-Consultation Business Case (PCBC) is to present and summarise the work undertaken in Somerset to review adult hospital-based stroke care with the aim of achieving this vision.

It is written with the following purposes in mind:

- To outline why we need to change stroke services in Somerset
- To describe the potential options for service improvement and reconfiguration which will enable us to deliver our vision
- Enable decision makers to decide whether formal public consultation is required and how we would go about seeking the views of the public

Vision

Our vision for adult stroke care is that

> **"Stroke patients in Somerset will receive timely acute interventions and receive access to world-class services, regardless of where they live."**

We want people to have a quicker diagnosis and access to faster treatment, with stroke experts available 24 hours a day, 7 days a week, 365 days a year, in line with national guidance.

We want people who have had a stroke or TIA to experience joined up services that will support them and their families throughout the whole stroke pathway.

We want to provide stroke care that is:

- Equitable
- High quality
- Efficient

- Well led
- Sustainable
- Attractive
- Innovative

We will work collaboratively with people who have experienced stroke, their families and carers and members of the stroke teams to ensure that peoples preferences are clear and understood[3] [4].

Involving patients and their families in making decisions about the treatments they receive after a severe stroke can help them achieve outcomes that are most acceptable to them.

Akila Visvanathan, Centre for Clinical Brain Sciences, University of Edinburgh

National context

Rates of death following stroke have reduced by half over the past 20 years[5], but the number of people having a stroke continues to rise[6].

The National Stroke Programme[7] aims to deliver better prevention, treatment, and care for people in England who have a stroke each year.

However, the lack of stroke specialist staff nationally is impacting care for many people who have had a stroke.[8]

In the 2021 SSNAP audit[9] of the stroke workforce in England, several areas of concern were identified:

- Over half the stroke units have a consultant vacancy
- Less than half of stroke units meet the minimum recommended staffing levels for senior nurses
- There are not enough people trained to undertake thrombectomy procedures
- Only 6% of hospitals have access to the right number of clinical psychologists

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[3] Recommendations | Supporting adult carers | Guidance | NICE

[4] Overview | Supporting adult carers | Quality standards | NICE

[5] NHS Digital (2018). Mortality from stroke. Available at https://digital.nhs.uk/data-and-information/publications/clinical-indicators/compendium-of-population-health-indicators/compendium-mortality/current/mortality-from-stroke

[6] Patel, A., Berdunov, V., King, D., Quayyum, Z., Wittenberg, R. & Knapp, M. (2017) Current, future and avoidable costs of stroke in the UK. Available from: https://www.stroke.org.uk/sites/default/files/costs_of_stroke_in_the_uk_report_-executive_summary_part_2.pdf

[7] NHS England » NHS England's work on stroke

[8] psp_stroke_workforce.pdf

[9] Sentinel Stroke National Audit Programme results Jan-March 2022 https://www.strokeaudit.org/results/Clinical-audit/National-Results.aspx

- Less than 10% of medical students were considering a career in stroke medicine[10].

Addressing the workforce challenges is essential if improvements in stroke care and outcomes are to be achieved.

Many areas of the country are undertaking similar reconfigurations to our own which provides us with an opportunity to learn from their experiences and apply best practice approaches.

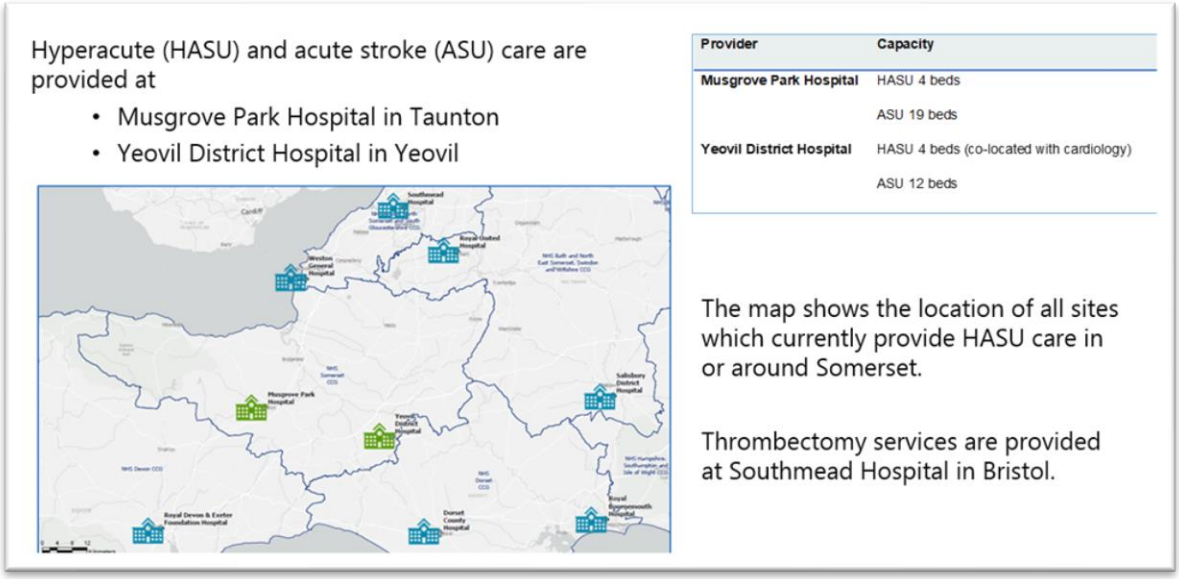
There's now a very strong evidence base from a range of reconfigurations that consistently shows that patients are prepared to travel further to receive specialist treatment in emergencies, including thrombectomy, and it mirrors what already happens in heart attack and trauma.

Professor Martin James, Consultant Stroke Physician Royal Devon and Exeter Hospital and Honorary Clinical Professor University of Exeter

Somerset context

The ageing population and rurality of Somerset are two of the biggest challenges that we face as a system.

The current prevalence of stroke in Somerset is higher than the national average at 2.38%, compared to an England-wide prevalence rate of 1.8%. This equates to around 1600 people per year. There are currently 13,991 stroke survivors registered with a Somerset GP.



[10] British Association of Stroke Physicians. (2018). Improving the Student and Stroke Trainee Experience at all levels: The Future of Stroke Training. Available at: https://basp.ac.uk/wp-content/uploads/2018/04/BASP-Trainees-Improving-the-Student-and-Stroke-Trainee-Experience-1.1.pdf

Most people with a suspected stroke are admitted via a 999 call to either Musgrove Park Hospital in Taunton or Yeovil District Hospital, in Yeovil. Journey times are a challenge due to the rurality of the county.

A small number of people “walk-in” to the Emergency Department and some are admitted from the wards if they have a suspected stroke whilst they are an inpatient. Around 250 people a year are taken by ambulance to hospitals outside of Somerset for their suspected stroke. If people need a thrombectomy, they are taken by ambulance to Southmead in Bristol.

Every year, around 250 people in Somerset experience a transient ischaemic attack (TIA). A TIA is often called a warning stroke and having rapid assessment and investigation helps to reduce risk of having a stroke by 80%.

Communications and engagement

Our approach to communication and engagement is built upon our 10 principles for working with people and communities, these are:

1. Put the voices of people and communities at the centre
2. Understand our community’s needs, experiences, and aspirations
3. Involve people from the start
4. Make changes to reduce inequalities and remove barriers
5. Build relationships with underrepresented groups
6. Work with Healthwatch and the voluntary sector
7. Work in partnership with people and communities
8. Help to empower communities
9. Provide clear and accessible public information
10. Learn from what works

Priority groups for us to engage with include:

- People with lived experience of a stroke/TIA - both survivors and carers
- Charity, community, and voluntary sector organisations, including the Stroke Association
- Those identified as being at higher risk of stroke
- NHS and social care staff working in stroke/TIA services
- Somerset and Dorset Health Overview and Scrutiny Committees (HOSC)

Case for change

Workforce sustainability

This is a burning platform, with significant risks caused by ongoing challenges with recruitment and retention of specialist staff.

- There are not enough specialist stroke staff to deliver 24/7 consultant cover
- There are not enough specialist nursing staff or therapists to meet the national standards for stroke care
- The current Stroke Consultant at Yeovil is due to retire and recruitment for the post has not been successful

Clinical outcomes

We are failing to meet several national performance targets in relation to hyperacute and acute care which have a negative impact on clinical outcomes, including:

- Being quickly seen by a consultant stroke specialist
- Getting a timely brain scan
- Timely access to treatment, including thrombolysis and thrombectomy
- Getting timely TIA assessment and management
- Getting a multidisciplinary team assessment, including swallow screening
- Spending most of the time following a stroke on a stroke ward

Inequalities

There is currently variation and inequitable provision of acute stroke care across the county, especially over weekends and out of hours.

Financial sustainability

There is currently a poor correlation between the money spent on stroke and the outcomes achieved. There is opportunity to reduce the long-term care costs associated with stroke by improving the outcomes in the hyperacute phase.

Developing the models of care in Somerset

As stroke care has developed and become increasingly complex over the years, not all hospitals can be equipped with specialist staff and equipment to provide the best evidence-based care 24 hours a day, 7 days a week.[11]

[11] King's College London, Stroke pathway – Evidence Base Commissioning, An Evidence Review (2020), p.45

Centralisation of HASUs has been associated with the following improvements in clinical outcomes and benefits for patients and their families[12] [13]:

- Reduced time from admission to thrombolysis
- Improved time from admission to brain imaging for thrombolysed patients
- Reduced total length of inpatient stay[14] [15]
- Reduced mortality

Whilst there are concerns regarding longer ambulance journey times because of centralisation, especially in rural areas, these have been shown to be offset by the improved speed of thrombolysis delivery[16] [17]

> **Stroke services need to focus on maximising the likelihood that the local population can receive the best stroke care at the right time, even if it may slightly disadvantage a very small number of people. Not reconfiguring acute stroke services because of this would potentially disadvantage all their residents, by preventing access to best quality stroke care.**
>
> Stroke Association, Transforming and reorganising acute stroke services 2022[18]

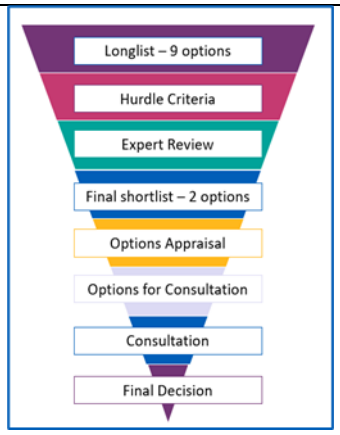
Developing the options

The options described within this document have been developed with substantial engagement from local clinicians and staff, people with lived experience, community and voluntary sector partners and colleagues from our neighbouring health systems.

[12] psp_-_reorganising_acute_stroke_services_0.pdf
[13] The impact of acute stroke service centralisation: a time series evaluation - PMC (nih.gov)
[14] Impact of centralising acute stroke services in English metropolitan areas on mortality and length of hospital stay: difference-in-differences analysis | The BMJ
[15] Effects of centralizing acute stroke services | Neurology
[16] The impact of acute stroke service centralisation: a time series evaluation - PMC (nih.gov)
[17] psp_-_reorganising_acute_stroke_services_0.pdf
[18] psp_-_reorganising_acute_stroke_services_0.pdf

The process and outcomes are detailed below:

<table>
<tr><th>Stroke process and shortlist</th><th>TIA process and shortlist</th></tr>
<tr>
<td>


<table>
<tr><th>Option A
Previously Option 1</th><th>Option B
Previously Option 2</th><th>Option C
Previously Option 5b</th><th>Option D
Previously Option 6B</th></tr>
<tr><td>Do Nothing
No change to current model</td><td>Do Minimum
As for option A, but with shared medical workforce</td><td>1 HASU
Single HASU at Musgrove Park Hospital in Taunton.
No HASU in Yeovil.
ASU at Taunton and Yeovil.</td><td>1 HASU and ASU
Single HASU and ASU at Musgrove Park Hospital in Taunton.
No HASU or ASU at Yeovil</td></tr>
<tr><td>Not taking forward to consultation
Failure to meet the >600 admissions per year criteria.
Failure to improve access to time critical interventions.
Failure to meet the equitable access to 24/7 care criteria</td><td>Not taking forward to consultation
Failure to meet the >600 admissions per year criteria.
Failure to improve access to time critical interventions.
Failure to meet the equitable access to 24/7 care criteria</td><td>Option to take forward to consultation</td><td>Option to take forward to consultation</td></tr>
</table>
Preferred Options
C and D
</td>
<td>


<table>
<tr><th>OPTION A
(PREVIOUSLY OPTION 1)
NO CHANGE</th><th>OPTION B
(PREVIOUSLY OPTION 8)
7 DAY SERVICE YEOVIL AND TAUNTON</th></tr>
<tr><td>7-day TIA service at SFT</td><td>7-day TIA service at SFT</td></tr>
<tr><td>5-day TIA service at YDH</td><td>7-day TIA service at YDH</td></tr>
</table>
No Preferred Option
</td>
</tr>
</table>

Consultation

The proposals for reconfiguring acute stroke services in Somerset will be significant and will therefore need to go to formal public consultation.

Public consultation will be undertaken in line with NHS England guidance with support from The Consultation Institute.

Throughout this journey we have involved people and communities and used their feedback to inform our thinking and proposals. We will continue to fully engage with staff and the public in a way that ensures many voices, including those which are often under-represented, are heard.

Next steps

The next phase of the programme will focus on preparation for consultation, implementing the findings from the consultation and developing the decision-making business case (DMBC).

We will:

- Continue to engage with staff, people with lived experience, and their relatives and carers
- Continue to engage with Dorset on the impact of Options C&D on their services
- Appoint an external agency to support the public consultation
- Develop the consultation plan and supporting materials with our stakeholders and support from the Consultation Institute
- Use the Health Equity Assessment Tool (HEAT)[19] to inform the consultation plan
- Undertake a 12-week public and staff consultation, ensuring that we have reached out to the key groups identified through the EIA / HEAT
- Analyse the consultation results through an appointed external agency
- Continue to test and refine the activity, workforce, and financial modelling
- Undertake more detailed travel analysis, to include public transport analysis and staff travel
- Continue to evaluate the environmental impact of Options C&D
- Establish implementation task and finish groups for workforce, digital, quality and finance to explore the investments required to deliver the programme support the development of the DMBC
- Develop the DMBC

[19] Health Equity Assessment Tool (HEAT) - GOV.UK (www.gov.uk)

2. Introduction

Stroke is both a sudden and devastating life event, with 100,000 new strokes a year and over a million people living with the consequences of stroke[20]. It is the fourth single leading cause of death in the UK, with 35,000 deaths every year due to stroke, or one death every 17 minutes[21]. It is the single largest cause of complex disability. It therefore has a significant impact on health and social care, unpaid carers, and lost productivity. The combined health and social care costs of stroke are rapidly increasing, with social care costs projected to more than triple by 2035[22].

The good news is that the number of deaths from stroke is going down. This is partly due to improved prevention but is also due to more public awareness of stroke symptoms, which means people are seeking help and getting treated more quickly. This rapid access to treatment and advances in treatment developed over recent years has led to better outcomes and more people are surviving stroke than ever before.

There are three different types of strokes:

1. **Ischaemic stroke** is caused by a blockage cutting off the blood supply to the brain. This is the most common type of stroke, accounting for approximately 85% of all strokes[23]. This type of stroke is treated with:
    a. thrombolysis - clot-busting medication, that must be given within 4 hours, and/or
    b. thrombectomy - mechanical clot removal, that needs to be undertaken within 24 hours.
2. **Haemorrhagic stroke** is caused by bleeding in or around the brain. This accounts for around 15% of all strokes[24]. This type of stroke is treated with medication to reduce blood pressure and may require surgery, called a craniotomy, to remove any blood from the brain and repair any burst blood vessels[25]. There are two types of haemorrhagic stroke:
    a. Bleeding within the brain - intracerebral haemorrhage (ICH) is the most common type of haemorrhagic stroke, accounting for around 60%.

[20] Patel A, Berdunov V, Quayyum Z, King D, Knapp M, Wittenberg R. Estimated societal costs of stroke in the UK based on a discrete event simulation. Age Ageing. 2020 Feb 27;49(2):270-276. doi: 10.1093/ageing/afz162. PMID: 31846500; PMCID: PMC7047817.
[21] www.brainresearchuk.org.uk/neurological-conditions/stroke
[22] Current, future and avoidable costs of stroke in the UK – Stroke association https://www.stroke.org.uk/sites/default/files/costs_of_stroke_in_the_uk_report_-executive_summary_part_2.pdf
[23] Ischaemic stroke | Stroke Association
[24] Haemorrhagic stroke | Brain Haemorrhage | Stroke Association
[25] Stroke - Treatment - NHS (www.nhs.uk)

b. Bleeding on the surface of the brain - subarachnoid haemorrhage (SAH). SAH is the least common type of stroke, accounting for 30% of haemorrhagic strokes and 1 in 20 of all strokes.

3 **Transient ischaemic attack** or TIA (also known as a mini stroke). It is the same as an ischaemic stroke, except that the symptoms only last for a short amount of time. This is because the blockage that stops the blood getting to your brain is temporary[26]. TIA symptoms resolve without specific treatment, but treatment to help prevent future stroke may be required[27].

4 **Stroke mimics** are not actually a stroke but are caused by other conditions that "mimic" a stroke. Some of the most common stroke mimics are seizures or migraine. The initial emergency medical care is like stroke until a diagnosis is confirmed. Once the person is diagnosed, they can have treatment or support to manage their symptoms.

Advances over recent years to improve outcomes in stroke are linked to having rapid access to[28] [29]

- Recognition of symptoms and diagnosis
- Appropriate imaging
- Specialist medical, nursing, and multidisciplinary care
- Appropriate pharmacological treatments and thrombectomy
- Interventions that maintain or restore homeostasis
- Appropriate nutrition and hydration
- Optimal positioning and early mobilisation for people with acute stroke

Rapid Access to this care should be provided in a stroke unit, or more specifical a Hyper-acute Stroke Unit (HASU) which typically covers the first 72 hours after admission. Every patient with acute stroke should gain rapid access to a stroke unit (<4 hours) and receive an early multidisciplinary assessment to ensure that the most appropriate treatment is provided to everyone.

Purpose of this document

Our vision is that 'stroke patients in Somerset will receive timely acute interventions and receive access to world-class services regardless of where they live'.

The purpose of this Pre-Consultation Business Case (PCBC) is to present and summarise the work undertaken in Somerset to review hospital-based stroke care with the aim of achieving this vision. It is written with the following purposes in mind:

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[26] Transient ischaemic attack (TIA) or mini-stroke | Stroke Association
[27] Transient ischaemic attack (TIA) - Treatment - NHS (www.nhs.uk)
[28] Overview | Stroke and transient ischaemic attack in over 16s: diagnosis and initial management | Guidance | NICE
[29] Quality statement 1: Prompt admission to specialist acute stroke units | Stroke in adults | Quality standards | NICE

- To outline why we need to change stroke services in Somerset
- To describe the potential options for service improvement and reconfiguration which will enable us to deliver our vision
- Enable decision makers to decide whether formal public consultation is required and how we would go about seeking the views of the public

The PCBC will also be used to inform the necessary decision-making processes, evidencing how the proposals meet the government's four tests of service change, patient care test (also known as the 'bed test') as well as other best practice checks for planning service change and consultation.

The options described within this document have been developed with substantial engagement from local clinicians and staff, people with lived experience, community and voluntary sector partners and colleagues from our neighbouring health systems.

In addition, we have sought subject matter expertise throughout from The Consultation Institute to ensure that our engagement processes are meaningful, and the South West Clinical Senate to ensure that our clinical case for change is robust.

3. Our vision

Our vision for stroke complements the wider ambitions of the Fit For my Future strategy and Somerset's new Integrated Care System[30], as well as national guidelines.

We recognise our duties under the Health and Care Act 2022[31] to have regard to the wider effect of our decisions on

- the health and wellbeing of people,
- the quality of services provided, and
- efficient and sustainable use of resources.

Our vision for adult stroke care will ensure the provision of acute hospital-based stroke services that are timely, easy to access, high quality and efficient, with stroke experts available 24 hours a day, 7 days a week, 365 days a year.

This will lead to a quicker diagnosis and faster treatment, resulting in the best possible outcomes for the patient. This includes increased access to thrombectomy services and best use of thrombolysis.

[30] On 1 July 2022 NHS Somerset Clinical Commissioning Group (CCG) became NHS Somerset. This change happened to all CCGs across the country as part of the national reforms under the Health and Care Bill. The previous functions of Somerset CCG transferred to Somerset Integrated Care Board (ICB), following the closure of CCGs. From 1 July 2022, Somerset Integrated Care Board (ICB) became the statutory NHS organisation responsible for planning and delivering local health and care services. Working collaboratively with partner organisations, including the voluntary sector, it oversees the commissioning, performance, financial management and transformation of the local NHS, as part of the Somerset Integrated Care System (ICS). NHS Somerset is the public name of NHS Somerset Integrated Care Board (ICB).

[31] Under section 14Z43 of the Health and Care Act 2022 Health and Care Act 2022 (legislation.gov.uk)

Integrated, joined up services will support patients and their families through the hyperacute and acute phase of care, along the pathway to rehabilitation or supported discharge home.

The aims of taking forward this vision for stroke services is to ensure that stroke care in Somerset is:

- **Equitable** – everyone will be able to access the same high level of care regardless of the day of the week or time of the day, 365 days a year
- **High quality** – every patient will receive expert care, maximising their chances of a full recovery
- **Efficient** – the stroke pathway will be streamlined to help timely access to the best possible care, including getting patients more timely access to the scanner, the development of a direct hyperacute stroke unit (HASU) to early supported discharge (ESD) pathway, and harnessing of technology to provide remote care and expert input where necessary.
- **Well led** – there will be high quality clinical leadership of the whole patient pathway, ensuring consistency across providers and settings of care, and enhanced partnership working at managerial and clinical levels including emergency services, tertiary services, and cross-border services
- **Sustainable** – through improvements to prevention, treatment, efficiency, and secondary prevention the resources available to stroke care will be used effectively and will result in overall system savings when compared with continuing to do more of what we currently do in line with prevalence growth
- **Attractive** – for the Somerset stroke service to be a great system to work in, where staff are supported to do their jobs and deliver an exemplar service which attracts and retains a high-quality workforce
- **Innovative** – increased use of technology to assist within increased thrombolysis rates such as CT perfusion software

Outcome measures

We will measure the impact of the options using a set of outcome measures that reflect NICE guidance (NG128 & CG162) and include all the new NICE standards for stroke, as has already been developed by Greater Manchester[32] and Plymouth[33].

They will enable assessment of patient outcomes/experience to provide a broader understanding of the impacts of stroke care and will inform local service improvements.

- Reflect the updated NICE Quality Standard for stroke (QS2)

[32] Developing and implementing a set of outcome measures incorporating NICE Standards across the whole stroke care pathway in Greater Manchester | NICE
[33] Stroke care pathway from the emergency department to CT and the improvement of patient time from CT scan to thrombolysis | NICE

- Be as evidence based as possible (i.e., include NICE and RCP guidelines)
- Reflect the patient journey during hyperacute and acute phases of care
- Be balanced and include process and patient outcome/experience measures to better assess the impacts of stroke care, especially in the longer term
- Be implemented by all acute and community stroke teams to enable benchmarking of services locally
- Be manageable in terms of data collection, ideally reducing the existing burden of data entry for teams
- Utilise the SSNAP audit tool to collect any additional data using custom fields
- Provide information for a local dashboard to help identify areas of poor compliance/practice to inform improvement plans

Shared decision making

Shared decision making is a dynamic process in which patients and clinicians share information, express treatment preferences, and agree decisions. This is a gold standard in clinical care. Yet, there is limited evidence on successful methods to facilitate this process[34].

Involving patients and their families in making decisions about the treatments they receive after a severe stroke can help them achieve outcomes that are most acceptable to them.

Akila Visvanathan, Centre for Clinical Brain Sciences, University of Edinburgh

People who are well may regard survival with disability as being worse than death. However, this is often not the case when those surviving with disability, including stroke survivors, are asked the same question.

Many routine treatments provided after an acute stroke, such as feeding via a tube, increase survival, but with disability. Therefore, clinicians need to support patients and families in making informed decisions about the use of these treatments, through shared decision making.

Shared decision making is challenging after acute stroke: there is prognostic uncertainty, patients are often too unwell to participate in decision making, and families may not know the patients' expressed wishes about provision of care. Also, patients who have had a stroke may change their views about what treatment they want over time and in different situations.

[34] (PDF) Shared decision making after severe stroke—How can we improve patient and family involvement in treatment decisions? (researchgate.net)

Within Somerset, we aspire to making shared decision making a reality for all patients with stroke. We will work collaboratively with people who have experienced stroke, their families and carers and members of the stroke teams to ensure that people's preferences are clear and understood[35] [36]. We will achieve this by:

- Embedding shared decision making at an organisational level
  Putting shared decision making into practice by
    - Enabling and encouraging patients, families, and carers to ask questions
    - Ensuring the information, we provide is consistent, clear, and free of jargon
- Developing and using effective patient decision aids, supported by visual aids where required
- Communicating risks, benefits, and consequences of different interventions

Safeguarding

Safeguarding has been considered as part of the process of developing the PCBC.

It has been considered that safeguarding does not directly impact the shortlist of options but will be an integral part of any future implementation.

We are committed to following the Mental Capacity Act 2005 (MCA) and engaging with robust capacity and best interest assessments.

As any changes to services are implemented, due regard will be given to ensure the services meets our responsibilities outlined in the MCA including Deprivation of Liberty safeguards and Liberty Protection Safeguards as well as our statutory safeguarding duties.

[35] Recommendations | Supporting adult carers | Guidance | NICE
[36] Overview | Supporting adult carers | Quality standards | NICE

4. National context

Stroke as a national priority

Whilst stroke mortality has halved in the last two decades[37], the changing demographics mean that the number of people having a stroke will increase by almost half, and the number of stroke survivors living with disability will increase by a third by 2035[38].

As such, stroke is a high priority on the national agenda.

The National Stroke Programme[39], which is a collaboration between NHS England and Improvement (NHSEI) and the Stroke Association, supports local organisations to meet the ambitions for stroke set out in the NHS Long Term Plan. It aims to deliver better prevention, treatment, and care for the 85,000 people in England who have a stroke each year and aligns with the National Clinical Guidelines for Stroke[40], which are evaluated via the Sentinel Stroke National Audit Programme (SSNAP)[41].

People with suspected acute stroke (including when occurring in people already in hospital) should be admitted directly to a hyperacute stroke unit and be assessed for emergency stroke treatments by a specialist physician without delay[42].

NICE Quality Standard

The NICE Quality Standard for stroke[43] has been in place since 2010 and was updated again in 2016. The standard focuses on the management of stroke in people over age 16, from diagnosis, acute-phase care, rehabilitation, and long-term support, with a focus on high-quality care in priority areas for improvement.

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[37] NHS Digital (2018). Mortality from stroke. Available at https://digital.nhs.uk/data-and-information/publications/clinical-indicators/compendium-of-population-health-indicators/compendium-mortality/current/mortality-from-stroke

[38] Patel, A., Berdunov, V., King, D., Quayyum, Z., Wittenberg, R. & Knapp, M. (2017) Current, future and avoidable costs of stroke in the UK. Available from: https://www.stroke.org.uk/sites/default/files/costs_of_stroke_in_the_uk_report_-executive_summary_part_2.pdf

[39] NHS England » NHS England's work on stroke

[40] SSNAP - Full 2016 guideline (strokeaudit.org)

[41] SSNAP - About SSNAP (strokeaudit.org)

[42] 2016-National-Clinical-Guideline-for-Stroke-5t-(1).aspx (strokeaudit.org)

[43] Overview | Stroke in adults | Quality standards | NICE

The statements highlighted below are especially pertinent to the hyperacute and acute care that is being focused on within this programme (and are also reflected within SSNAP):

- Statement 1:[44] Adults presenting at an accident and emergency (A&E) department with suspected stroke are admitted to a specialist acute stroke unit within 4 hours of arrival. [2010, updated 2016]
- People seen by ambulance staff outside hospital, who have sudden onset of neurological symptoms, are screened using a validated tool to diagnose stroke or transient ischaemic attack (TIA). Those people with persisting neurological symptoms who screen positive using a validated tool, in whom hypoglycaemia has been excluded, and who have a possible diagnosis of stroke, are transferred to a specialist acute stroke unit within 1 hour.
- Patients with acute stroke receive brain imaging within 1 hour of arrival at the hospital if they meet any of the indications for immediate imaging.
- Patients with acute stroke have their swallowing screened by a specially trained healthcare professional within 4 hours of admission to hospital, before being given any oral food, fluid, or medication, and they have an ongoing management plan for the provision of adequate nutrition.
- Patients who need ongoing inpatient rehabilitation after completion of their acute diagnosis and treatment are treated in a specialist stroke rehabilitation unit.
- Carers of patients with stroke are provided with a named point of contact for stroke information, written information about the patient's diagnosis and management plan, and sufficient practical training to enable them to provide care.

[44] Quality statement 1: Prompt admission to specialist acute stroke units | Stroke in adults | Quality standards | NICE

NHS RightCare

NHS RightCare have developed a stroke pathway and defined the core components of a service for people who have had (or are at risk of) a stroke. The pathway defines the key components for an optimal system for prevention and management and suggests ways to reduce variation, improve outcomes, provide best value for money, and increase sustainability.

The image below shows the RightCare recommendations for commissioners[45]:

Commissioners responsible for **Stroke** for their population should:

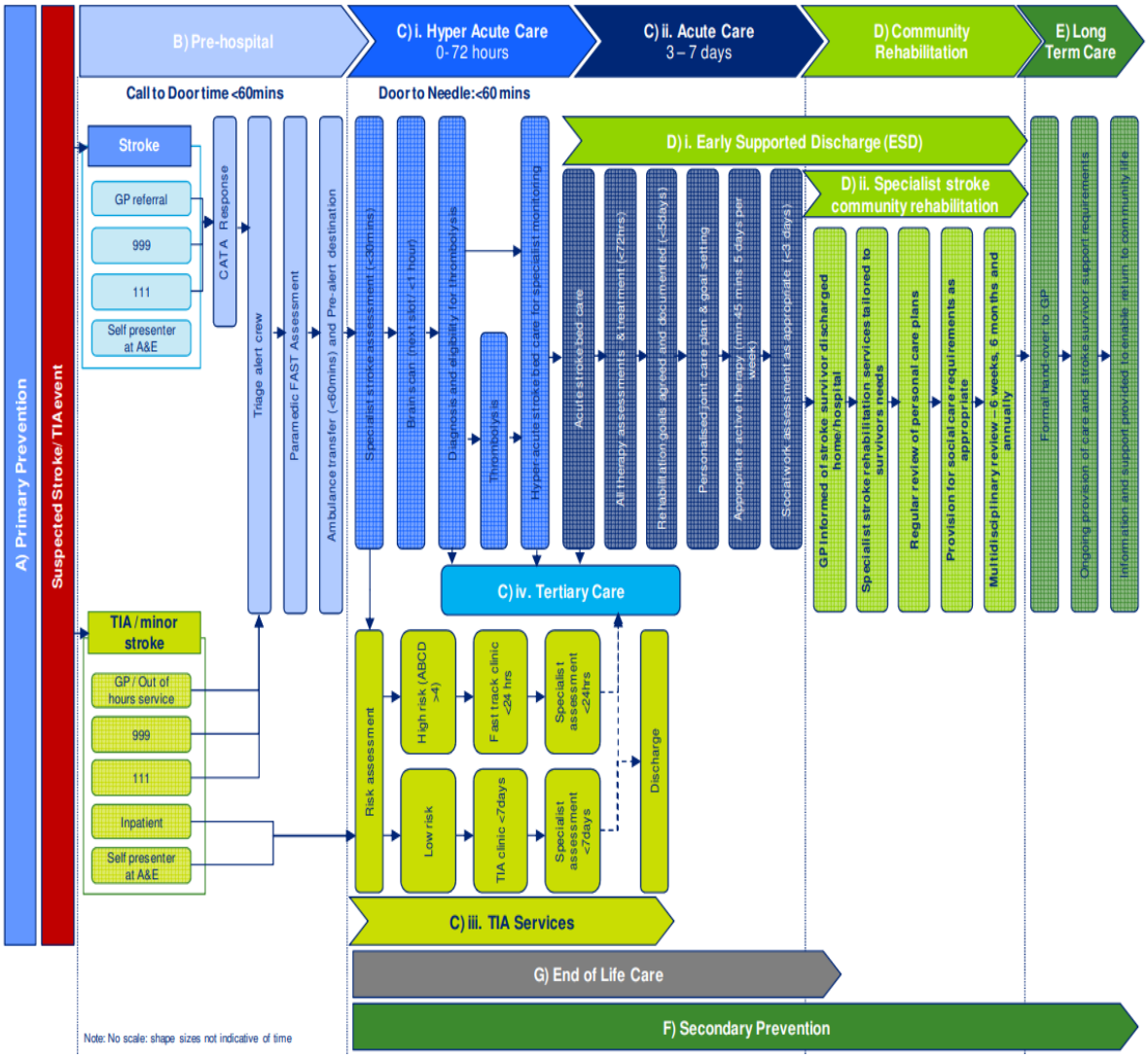
- focus on the key components for stroke care across a system:
  - Ensuring **rapid diagnosis and treatment**
  - Prompt and ongoing **rehabilitation and secondary prevention**
- work across their system to ensure that schemes to deliver the **priorities for optimisation** are in place:
  - a pathway from **999 call to optimal treatment**
  - admission to a **hyperacute stroke unit** and a **swallow screening** within four hours
  - stroke unit and **early supported discharge** delivered as **seven day specialist stroke rehabilitation**
  - **individualised assessment** for all patients and carers and delivery of a treatment plan
  - **six month review** and annual follow-up with access to appropriate interventions
- implement the **RightCare CVD prevention** pathway to help prevent strokes

The stroke pathway

The images[46] below describe the components of the stroke pathway, from primary prevention within the community through to end-of-life care.

This reconfiguration is focused on the acute phase of stroke care, including hyperacute and acute management of all strokes as well as TIAs and mimics (as described as Ci, Cii, Ciii and Civ in the diagram below), however it acknowledges that the interdependencies with other services, such as community rehabilitation, have a direct influence over activity flows.

[45] NHS RightCare » Stroke Pathway (england.nhs.uk)
[46] configuration-decision-support-guide-appendices-2.pdf (england.nhs.uk)



Prevention

Atrial fibrillation (AF) is the most common sustained cardiac arrhythmia (an abnormality of the heart's rhythm; it may beat too slowly, too quickly, or irregularly[47]) and its prevalence is increasing. A patient with atrial fibrillation has a 5-fold increase in the risk of stroke and 20–30% of all strokes are attributed to this arrhythmia[48].

Not only is AF a major risk factor for having a stroke, but when strokes occur in people with AF, they can experience increased levels of mortality, morbidity and disability and have longer hospital stays than stroke patients without AF.

[47] Arrhythmia - NHS (www.nhs.uk)
[48] Safe and effective management of stroke prevention in atrial fibrillation | NICE

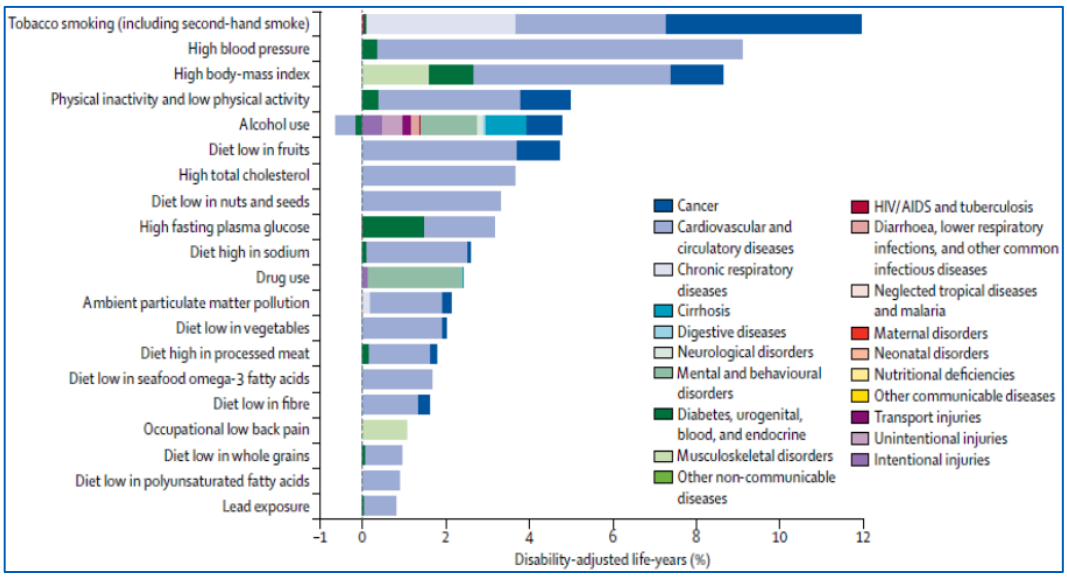
As such, prevention of strokes through the effective management of AF is a critical element of reducing both the incidence of stroke and severity of outcomes experienced by those who do go on to have a stroke.

The exact causes of AF are unknown, but it is more common with age and affects certain groups of people more than others. It is also more common in people with certain health conditions, such as high blood pressure, and is associated with lifestyle factors such as drinking excessive amounts of alcohol, being overweight and smoking[49].

These are also risk factors for stroke more broadly and are more prevalent within certain areas of Somerset. Understanding who is more likely to be at risk of stroke enables more effective prevention strategies to be put in place, including better targeted local support for those people who are most at risk.

A Prevention Charter for Somerset has been developed which supports all organisations to contribute effectively to the prevention agenda. The Improving Lives Strategy will build on this, committing all partner organisations to the vision and principles of prevention[50].

The image[51] below shows that the global burden of disease and relationship with the risk factors – especially for cardiovascular and circulatory diseases – many of which are lifestyle associated and preventable[52].



[49] Atrial fibrillation - Causes - NHS (www.nhs.uk)

[50] Joint Strategic Needs Assessment (JSNA) - Somerset Intelligence - The home of information and insight on and for Somerset - Run by a partnership of public sector organisations

[51] Reproduced from the Lancet article, 2012, UK health performance: findings of the Global Burden of Disease Study 2010

[52] LW4L.pdf (publishing.service.gov.uk)

Whilst prevention is not directly within the scope of this work, it is essential to acknowledge that reducing the incidence of stroke through better prevention is critical to helping us to manage the growth in demand for stroke services which is linked to our increasing aging population[53].

Acute care

People who have had a stroke need access to high quality acute care as quickly as possible[54].

Over recent years, there have been significant advances in proven, highly effective methods of stroke treatment and care and this includes strong national evidence for optimising acute stroke care[55].

NHSEI recommendations include the centralisation of acute stroke services[56]. Areas that have centralised hyper-acute stroke care into a smaller number of well-equipped and well-staffed hospitals, that includes acute stroke units of a sufficient size to ensure expertise, efficiency, and a sustainable workforce[57] have seen the greatest improvements.

When stroke care is centralised in larger units, patients tend to be treated more quickly and effectively so what may be lost in travel time can be more than made up by better process after arrival.[58]

Hyper acute interventions such as brain scanning, and thrombolysis are best delivered as part of a networked 24/7 service. These networked structures have led to better patient outcomes, including a 5% relative reduction in mortality at 90 days and reduced length of stay[59] [60], this has been found to be especially valuable in rural areas[61].

Whilst these changes do mean a reduction in the overall number of stroke-receiving units, the consequence is an increase in the number of patients receiving high-quality specialist care and an improvement in clinical outcomes.

The hyper-acute and acute care aims of the National Stroke Programme are to[62]

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53 Introduction | Stroke rehabilitation in adults | Guidance | NICE
54 NICE impact stroke
55 national-stroke-service-model-integrated-stroke-delivery-networks-may-2021.pdf (england.nhs.uk)
56 https://www.england.nhs.uk/ourwork/clinical-policy/stroke/
57 Access to and delivery of acute ischaemic stroke treatments: A survey of national scientific societies and stroke experts in 44 European countries (2018)
58 Microsoft Word - Annual Report 1718.docx (strokeaudit.org)
59 Hunter RM (2013) Impact on clinical and cost outcomes of a centralized approach to acute stroke care in London: A comparative effectiveness before and after model.
60 Morris S, Hunter RM, Ramsay A, Boaden R, McKevitt C, Perry C, Pursani N, et al (2014) Impact of centralising acute stroke services in English metropolitan areas on mortality and length of hospital stay: difference-in-differences analysis. BMJ 349: 4757.
61 Elameer M, Price C, Flynnn C, Rodgers H (2018) The impact of acute stroke service centralisation: a time series evaluation.
62 NHS England » NHS England's work on stroke

- Deliver a ten-fold increase in the proportion of patients who receive a clot-removing thrombectomy to end their stroke so that each year 1,600 more people will be independent after their stroke
- Train more hospital consultants to offer thrombectomy in more sites, providing a national service
- Deliver clot-busting thrombolysis to twice as many patients, ensuring 20% of stroke patients receive it by 2025 – the best performance in Europe
- Enhance the Sentinel Stroke National Audit Programme (SSNAP) to identify further need and drive improvements across the stroke pathway

In addition, the NHS Long Term plan hyper-acute and acute stroke milestones are[63] to :

- Work with the Royal Colleges to pilot a new credentialing programme for hospital consultants to be trained to offer mechanical thrombectomy
- Deliver a ten-fold increase in the proportion of patients who receive a thrombectomy after stroke, so that 1600 more people will be independent after their stroke each year
- Have amongst the best performance in Europe for delivering thrombolysis to all patients who could benefit

Rehabilitation

Rehabilitation and support for recovery is important to the overall quality of care of stroke patients receive and as more people survive stroke there is a need for a greater focus on rehabilitation[64]. Rehabilitation aims to enhance functional activities and participation in society and thus improve quality of life[65].

Whilst this is not directly in scope for this work, we need to acknowledge how the acute aspects of care align with the rehabilitation services, to ensure that people have seamless access to high quality, clinically effective interventions to optimise their outcomes following a stroke[66] and to ensure that the flow between services is smooth and timely.

Health and social care colleagues should work collaboratively to ensure that rehabilitation goals and social care needs are identified as soon as possible. This will ensure a holistic management and support plan can be implemented, which recognises both the needs of the person who has had a stroke, but also those of their carers or loved ones[67].

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[63] NHS Long Term Plan » Stroke care
[64] NICE impact stroke
[65] Introduction | Stroke rehabilitation in adults | Guidance | NICE
[66] Overview | Stroke rehabilitation in adults | Guidance | NICE
[67] Overview | Supporting adult carers | Guidance | NICE

Interventions that should be available to people to enable the fullest recovery include access to specialist stroke inpatient unit (for those with higher level needs), access to a specialist multidisciplinary stroke team within the community who can provide early supported discharge, and vocational rehabilitation for those who wish to return to work.

These interventions will not only enable people to return to their homes but will also help to reduce the wider societal burden associated with stroke.

Workforce

The role of the NHS workforce is to provide safe, effective, and timely care[68]. Every person who has had a stroke should be cared for by people with the right skills and knowledge to meet their needs across the whole stroke pathway.[69]

An appropriately staffed and skilled multi-disciplinary stroke unit is the cornerstone of the holistic care of people with stroke[70] and a hyperacute and/or acute stroke service should provide specialist medical, nursing, and rehabilitation staffing levels matching the recommendations in the table below[71]:

	Physio-therapist	Occupational therapist	Speech and language therapist	Clinical neuro-psychologist/ clinical psychologist	Dietitian	Nurse	Consultant stroke physician
	Whole-time equivalent (WTE) per 5 beds					WTE per bed	
Hyperacute Stroke Unit	0.73	0.68	0.34	0.20	0.15	2.9 (80:20 registered: unregistered)	24/7 availability; minimum 6 thrombolysis trained physicians on rota
Acute Stroke Unit	0.84	0.81	0.40	0.20	0.15	1.35 (65:35 registered: unregistered)	Consultant-led ward round 5 days/week

[68] NursingReport_WEB.pdf
[69] psp_stroke_workforce.pdf
[70] 2016-National-Clinical-Guideline-for-Stroke-5t-(1).aspx (strokeaudit.org)
[71] Source: 2016-National-Clinical-Guideline-for-Stroke-5t-(1).aspx (strokeaudit.org)

In relation to stroke, the national clinical guidelines are clear that an appropriately skilled stroke workforce is essential to ensure the best possible care of people with stroke[72]; hyperacute and acute stroke care is best delivered by specialist teams, on dedicated stroke units which only look after patients who have had a stroke.

Being admitted immediately to a specialist stroke unit, having key assessments, such as swallow screening, carried out by specialist members of the multi-disciplinary team within certain timeframes, and spending more than 90% of time in hospital on a dedicated stroke unit are all things that have been associated with higher quality care and improved outcomes.

However, a shortage of appropriately trained staff is leading to shortfalls in care for many people who have experienced a stroke.[73]

The most recent estimates suggest there are currently 676 stroke consultants working in the NHS in the UK (Sentinel Stroke National Audit Programme, November 2016). To provide a comprehensive dedicated stroke service, it is suggested that an additional 226 full-time stroke consultants are required. This is because a hospital admitting 600 stroke patients per year will require 40 Direct Clinical Care programmed activities (DCC PAs), and a hospital admitting 1,200 stroke patients will require 67 DCC PAs.[74]

See the table below for how consultant staffing numbers vary according to the number of stroke admissions per year:

[72] 2016-National-Clinical-Guideline-for-Stroke-5t-(1).aspx (strokeaudit.org)
[73] psp_stroke_workforce.pdf
[74] BASP-Stroke-Medicine-Workforce-Requirements-Report-FINAL.pdf.pagespeed.ce.K6If1Ae4ai.pdf (biasp.org)

Recommended Direct Clinical Care programmed activities (DCC PA) allocation for different numbers of stroke admissions per year

Number of confirmed stroke admissions/ year	Hyper-acute (1st 72 hours)	Post Hyper-Acute		TIA/OPD		Additional activities (e.g. MDT meeting/ case conference/ family meetings, teaching)	Thrombolysis / front door assessment including stroke mimics	Additional PA for centres performing IAT	Total
		ASU	Inpatient Rehab	TIA/Minor Stroke Clinic	Stroke F/ UP				
600 (Total beds = 27) HASU = 8 ASU / in-pt rehab = 19	**23** (8am-8pm, 7 days a week)	**5** (daily ward round, 5 days, HASU cons cover at w/e)	**3** (includes MDT meetings/family meetings and 2 WR's per week)	**5** (1 clinic a day M-F, weekend TIA work by HASU cons)	Seen within TIA clinic template	MDT: **1.25** Neurorad MDT meetings: **0.75** ESD/Community: **1** Expectation that some time to deliver this will be included with 'HASU' PA allocation.	Performed by HASU consultant	**1.5**	**41**
1200 (Total beds = 52) HASU = 15 ASU/in-pt rehab = 37	**23** (8am-8pm, 7 days a week)	**7** (daily ward round, 7 days)	**5** (includes MDT meetings/family meetings and 2 WR's per week)	**12** OPD (2xclinics per day M-F, 1 per day w/e) Triage: **2**	**3**	MDT meetings: **2.5** Neurorad MDT meetings: **1.5** ESD/Community: **2**	**7**	**3**	**68**
1700 (Total beds = 71) HASU = 19 ASU/in-pt rehab = 52 N.B. 1700 has been included as 'surrogate for "1 million population, with stroke incidence of 17 per 1000)	**35** (8am-8pm, 7 days a week) for 2 consultants	**12** (2x WR per day M-F, 2 WR'S over w/e)	**7** (includes MDT meetings/family meetings and 2 WR's per week)	**17** OPD **3:** triage (3xclinics per day, M-F, 1 per w/e)	**5**	MDT meetings: **4** Neurorad MDT: **2** ESD/Community: **3**	**10.5**	**4.2**	**103**

For Neurointerventional Hub centres providing regional thrombectomy, a provision of radiology DCC PAs will be required separately to support the Interventional Neuroradiologists (INRs). This neuroradiology department/service PA allocation is outside the remit of this report.

In the 2021 SSNAP audit[75] of the stroke workforce, several areas of concern were identified. These also show a worsening from the 2016 audit[76], as detailed below:

- 52% of stroke units in England have a stroke consultant vacancy, which remain unfilled for an average of 18 months – this has worsened from 40% in 2016
- Only 46% of stroke units meet the minimum recommended staffing levels for senior nurses – this has worsened from 51% in 2016.
- Only 6% of hospitals have access to the required number of clinical psychologists for stroke patients.
- There are only 106 professionals who can perform thrombectomy in England (approximately 4 per centre). It is estimated that 150 are required[77].

According to a survey of medical students[78], only 8% of final year medical students across England, Scotland and Wales were considering a career in stroke medicine.

[75] Sentinel Stroke National Audit Programme results Jan-March 2022 https://www.strokeaudit.org/results/Clinical-audit/National-Results.aspx

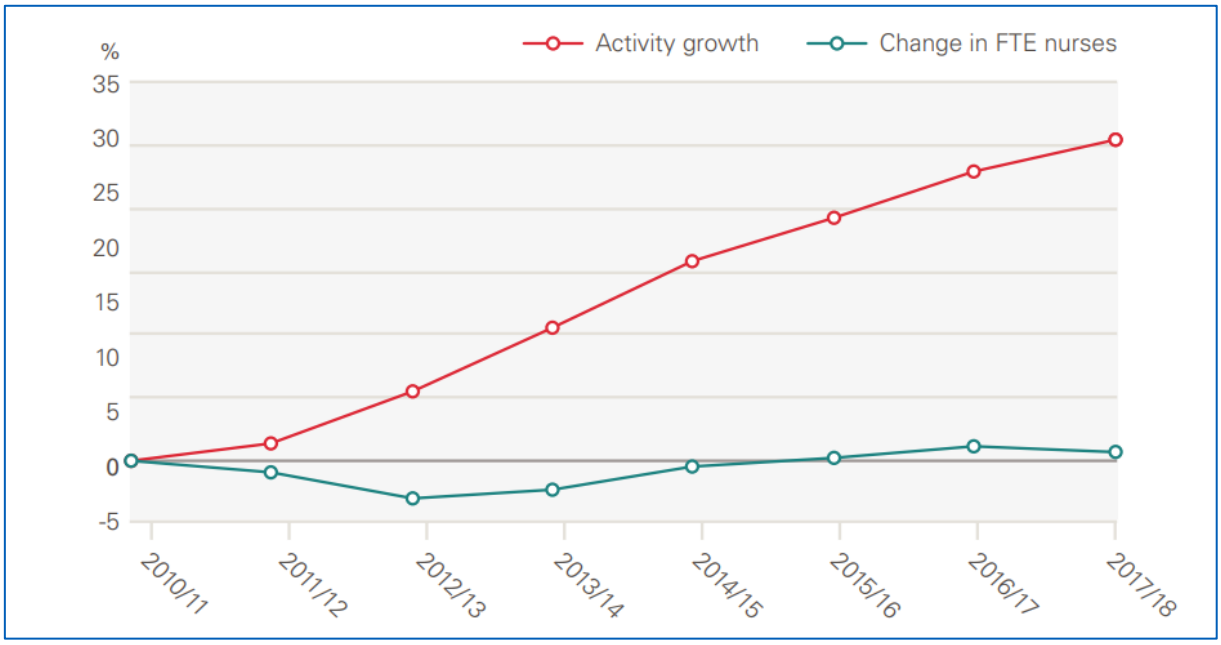
[76] Royal College of Physicians. (2016). Sentinel Stroke National Audit Programme (SSNAP): Acute Organisational Audit Report.

[77] Stroke Association *Saving Brains* (2022) Saving Brains | Stroke Association

[78] British Association of Stroke Physicians. (2018). Improving the Student and Stroke Trainee Experience at all levels: The Future of Stroke Training. Available at: https://basp.ac.uk/wp-content/uploads/2018/04/BASP-Trainees-Improving-the-Student-and-Stroke-Trainee-Experience-1.1.pdf

The current shortfall of nurses represents a major long-term and growing problem for the NHS[79]. Modest growth in NHS nurse numbers has not kept pace with demand and nursing vacancies have increased to almost 44,000 (in the first quarter of 2019/20) equivalent to 12% of the nursing workforce[80].

The image below demonstrates the increase in activity growth within the NHS, alongside the relatively unchanged numbers of whole-time equivalent nursing staff:



Source: NHS Digital, NHS Workforce Statistics; ONS Public Service Productivity: Healthcare, England[81]

Achieving the government's target for 50,000 new nurses[82] will only be possible with sustained investment and policy action on domestic supply, including a marked improvement in retention of the current nurse workforce, alongside coordinated, ethical and effective international recruitment[83].

In relation to thrombectomy, the national target of increasing rates of thrombectomy to 10% of all eligible patients[84] will have a significant impact on the workforce requirements. Thrombectomy is currently delivered by highly specialist interventional radiologists. There is guidance on how to

[79] Building the NHS nursing workforce in England - The Health Foundation
[80] NursingReport_WEB.pdf
[81] NursingReport_WEB.pdf
[82] Conservative Party (November 2019), Conservative Party Election Manifesto. Available at: https://vote.conservatives.com/our-priorities/nhs
[83] Building the NHS nursing workforce in England - The Health Foundation
[84] NHS England » NHS England's work on stroke

effectively deliver sustainable thrombectomy services[85] [86] and whether this workforce could be supported by increasing the role of interventional cardiologists in delivering thrombectomy[87].

The 2022 GIRFT stroke report[88] highlights several recommendations for addressing these workforce challenges, including:

- Working towards delivery of the NHS People Plan (see below)
- Use ISDN leadership and governance structures and the Stroke Specific Educational Framework (SSEF) to support regional approaches to workforce
- Incorporation of digital technology
- Planned training and development to support current and future workforce needs
- Provide continuous learning to support those in extended and advanced roles
- Develop national thrombectomy training academies

The People Plan[89] from NHS England and NHS Improvement and Health Education England (HEE), published in July 2020 sets out what staff working in the NHS can expect from their leaders and each other.

It focuses on fostering a culture of inclusion and belonging, as well as actions to grow and train our workforce, and work together differently to deliver patient care.

The People Plan also includes “Our NHS People Promise”, setting out a clear framework for collective action on workforce priorities over the next five years. The plan will:

- Explain how we put people issues at the heart of all we do
- Illustrate what engagement and collaboration has taken place
- Show how feedback has been listened to
- Describe the benefits for staff and service users and the difference they will see on the ground.
- Embody and promote collaboration across the NHS, local government, and wider care sector
- Create movement and momentum – the Plan is not an end point but a beginning.

The People Plan will set out action to:

- Make the NHS the best place to work, improving staff experience and retention

[85] Maximising access to thrombectomy services for stroke in England - PenARC (nihr.ac.uk)
[86] Mechanical thrombectomy for acute ischaemic stroke: an implementation guide for the UK (oxfordahsn.org)
[87] Routledge_2022.pdf (anglia.ac.uk)
[88] Stroke – Getting It Right First Time – GIRFT
[89] People Plan

- Improve the leadership culture, with an emphasis on compassionate, inclusive, and collaborative leadership behaviours
- Transform and grow the workforce with more staff, working differently in support of the NHS Long Term Plan[90] priorities by:
    - Releasing more time for care, supported by systematic use of digital technology
    - Supporting and enabling workforce redesign through better use of clinical and non-clinical roles to support registered professions, extended and advanced roles, and using current professionals across different settings.
    - Growing the future workforce and reforming education and training to ensure the right number and mix of staff, with the right skills, able to contribute to our workforce immediately, and in the medium-to-long term (5-10 years)
    - Implement a new operating model for workforce issues, with a much stronger role for integrated care systems.

There will be a focus on cross-specialty and in some cases cross-profession accreditation of clinical 'competencies'[91]. This will include work with the medical Royal Colleges and specialty societies to develop a new credentialing programme for hospital consultants from a variety of relevant disciplines who will be trained to offer mechanical thrombectomy.

This would bring the stroke workforce into alignment with other specialities where the multidisciplinary team have been enabled to undertake more advanced, clinical specialist or consultant roles. This change could help to build greater resilience within the stroke workforce and improve sustainability.

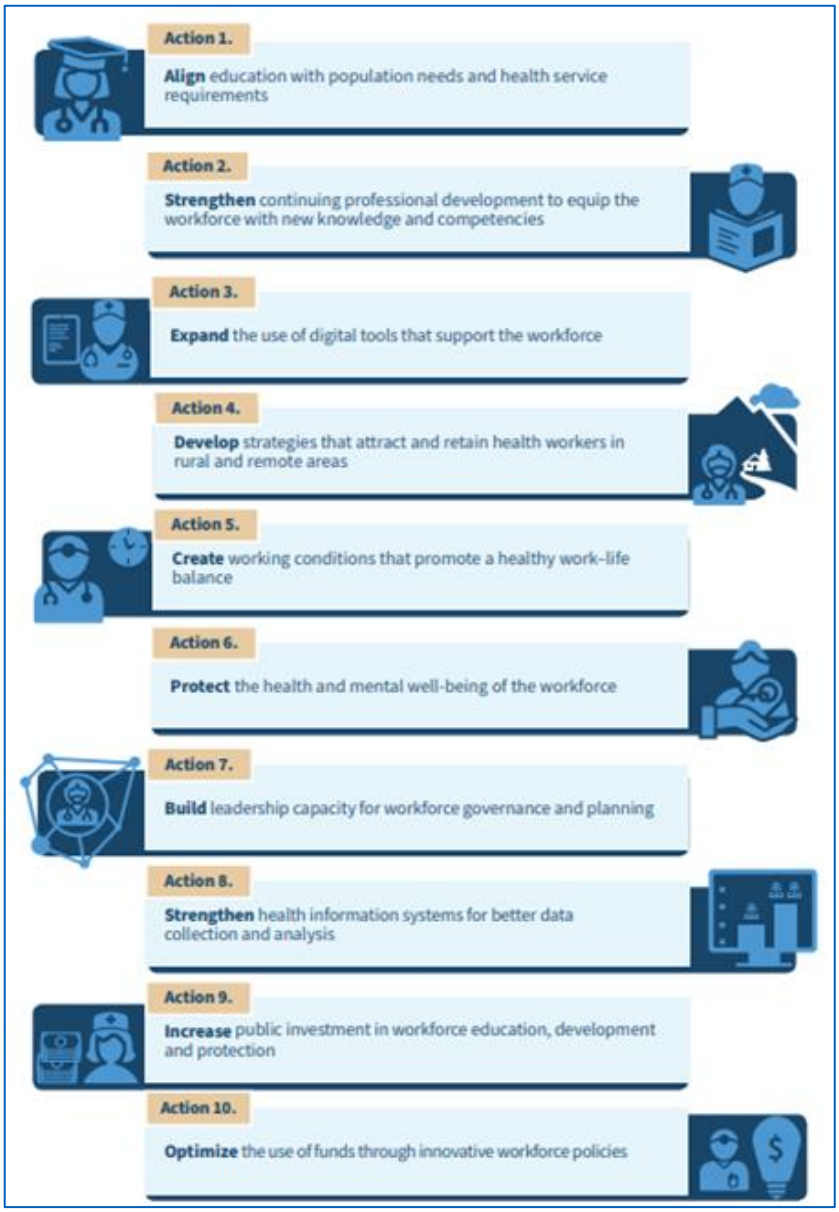
In addition, current staff must also be able to make the best use of their time. Consideration should be given to how other staff groups could support the existing workforce, for example better utilisation of therapy assistants or increasing the NHS Non-Registered Staff (NNRS)[92] programme. These supporting roles enable clinicians to focus on care delivery by undertaking administrative tasks that would otherwise be undertaken by clinicians.

There is potential to utilise technology to a greater extent to support the workforce challenges within stroke, for example, the use of remote assessment tools for the provision of out of hours cover[93].

[90] NHS Long Term Plan
[91] NHS Long Term Plan » Stroke care
[92] Non-Registered Support Staff (NRSS) is an NHS job role that was created during the Covid 19 pandemic in 2020. NRSS tend to work at either Band 2 or Band 3 roles, and whilst they are not currently widespread there is a lot of scope for this role in the future.
[93] Remote Diagnostics for Stroke Healthcare | Visionable

A recent paper from the World Health Organisation (WHO) describes the challenges facing the health and care workforce, especially medical staff, nurses, and allied health professionals[94]. These mirror the challenges within England, and that are reflected locally, and provide further evidence that workforce is possibly the single most significant issue impacting the delivery of stroke services.

They describe ten actions to help address these challenges - which broadly reflect those articulated in the NHS People Plan – as shown below:



[94] Health and care workforce in Europe: time to act (who.int)

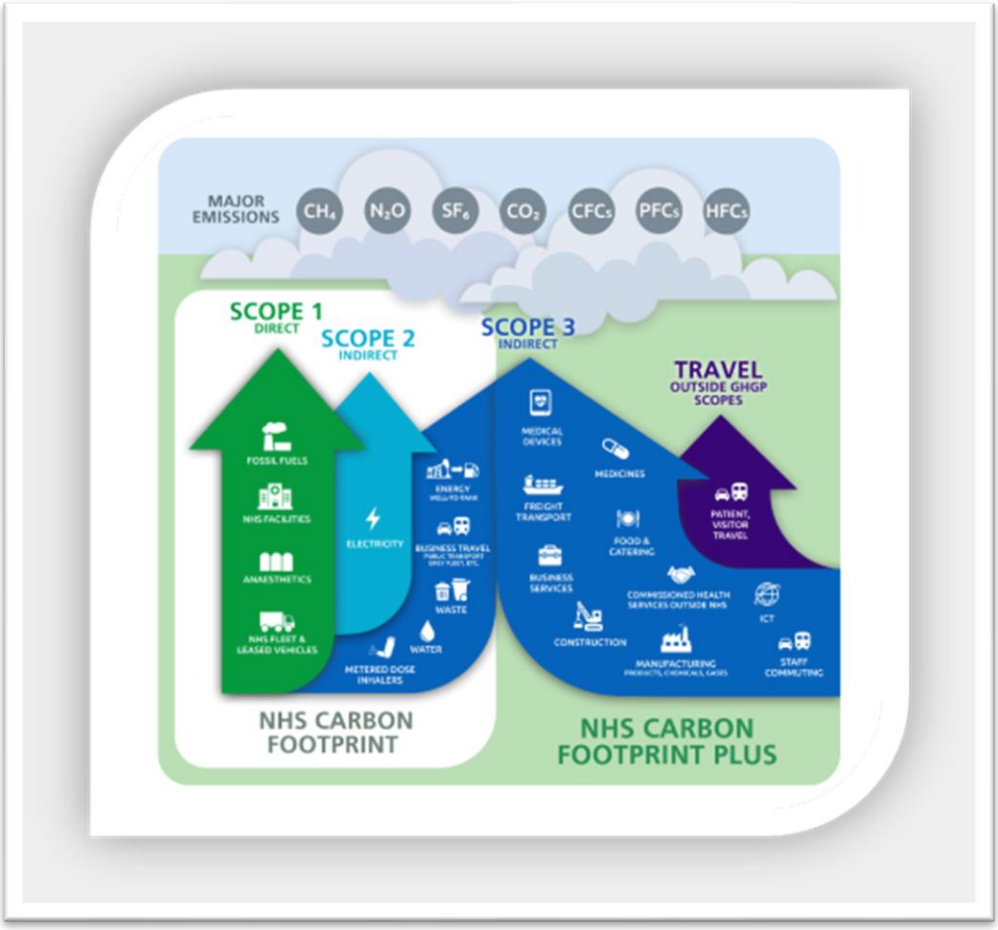
NHS Green Plan[95]

The climate emergency is a health emergency.

Climate change threatens the foundations of good health, with direct and immediate consequences for our patients, the public and the NHS. The NHS has set two national targets for its carbon footprint:

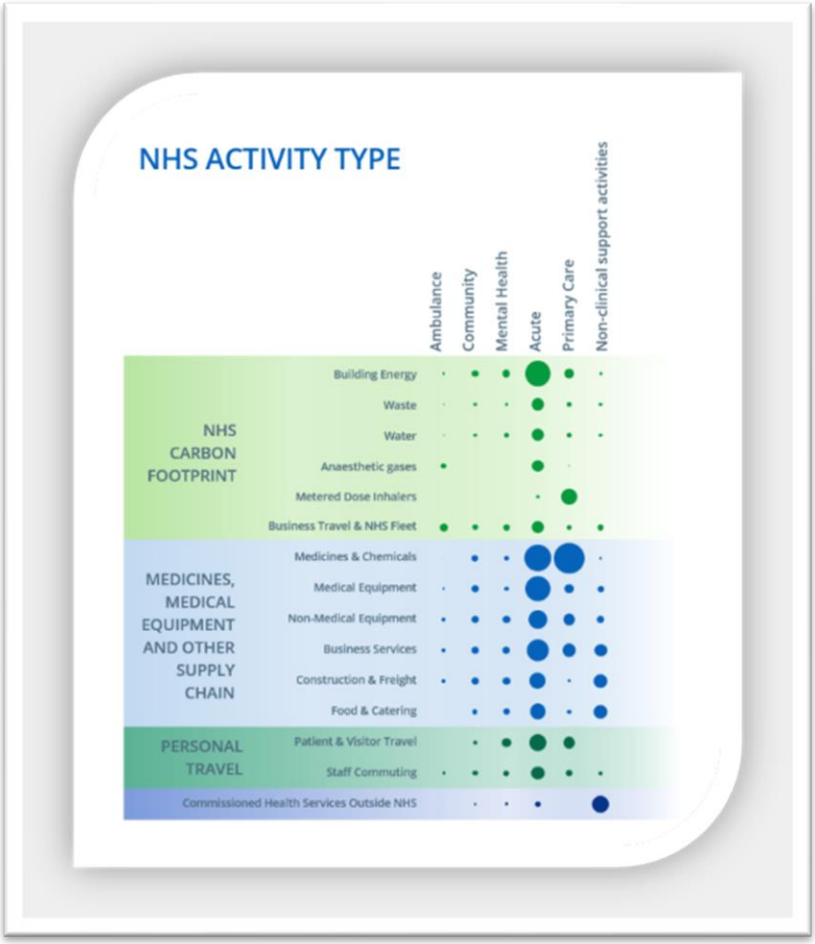
- Net zero by 2040 for emissions under the direct control of the NHS (NHS Carbon Footprint)
- Net zero by 2045 for the full carbon footprint including the whole supply chain and patient/visitor travel (known as NHS Carbon Footprint plus).

The diagram below shows the difference between the two footprints.



The graph below shows the sources of carbon emissions by activity type and setting of care. The most significant elements are in the acute sector, with medicines, buildings and travel all contributing significantly.

[95] delivering-a-net-zero-national-health-service.pdf (england.nhs.uk)



Delivering the ambitions of the NHS Green Plan will require action across every part of the NHS.

The main areas of action for the NHS and its partners can be categorised into:

- Direct interventions within estates and facilities, travel and transport, supply chain and medicines
- Enabling actions, including sustainable models of care, workforce, networks and leadership, and funding and finance mechanisms.

The above factors must be taken into consideration as part of any service redesign to ensure that the NHS is able to achieve its environmental ambitions and to realise the benefits for local populations.

5. Somerset context

In Somerset we want people to live healthy independent lives, supported by thriving communities with timely and easy access to high quality and efficient public services when they need them.

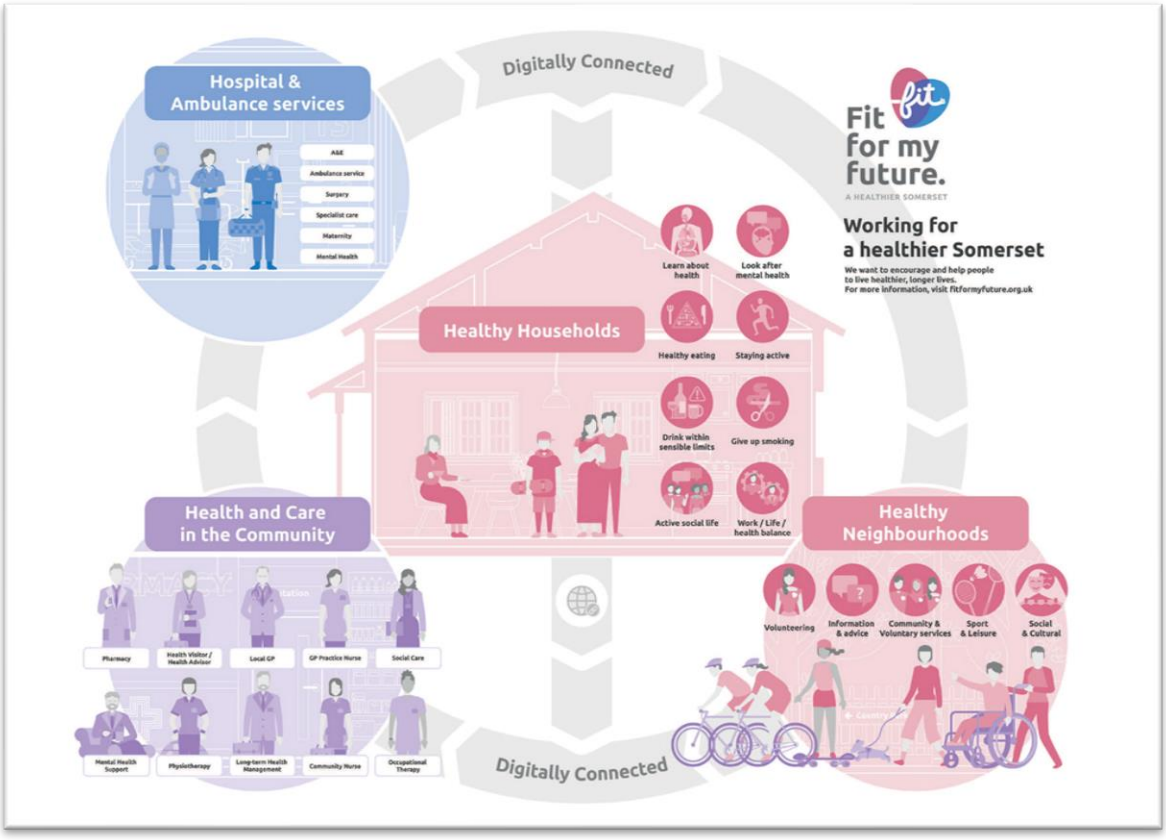
Background

Somerset became an Integrated Care System in July 2022. This change aims to make sure that NHS organisations, local councils and other partners work together to deliver more joined up services, tackle inequalities and improve the health of the local population[96].

In Somerset, we have already achieved a lot by working in partnership through the Fit for My Future Programme[97] [98] and strengthened further through our response to the COVID-19 pandemic. These changes have been made possible by different organisations, including NHS hospitals, GPs, councils, care homes, commissioners, voluntary and community organisations and others, joining forces to agree, plan and deliver care centred around local people's needs.

The image below shows the vision for Somerset, with people at the heart of their own health and care, supported by a digitally enabled infrastructure of local support, alongside community, acute and emergency care services.

[96] Integrated Care in Somerset - NHS Somerset
[97] Building a healthier Somerset together – Fit for my future
[98] Hyper Acute Stroke | A Healthier Somerset – Fit for my future (somersetics.org.uk)



We know that our health is affected by many things including, where we live, our lifestyle choices, housing, our education, whether we work or not, and poverty. By working more closely together, we can tackle these health inequalities and ensure everyone – regardless of where they live – has access to the best stroke services available.

This approach requires a shift in focus away from people having care and treatment done to them, and an increase in focus on people becoming partners in their own care. We need to move away from "what is the matter with you?" to focusing on "what matters to you?". As such, this reconfiguration is being undertaken with people with lived experience - either as stroke survivors or carers - as key partners in the process.

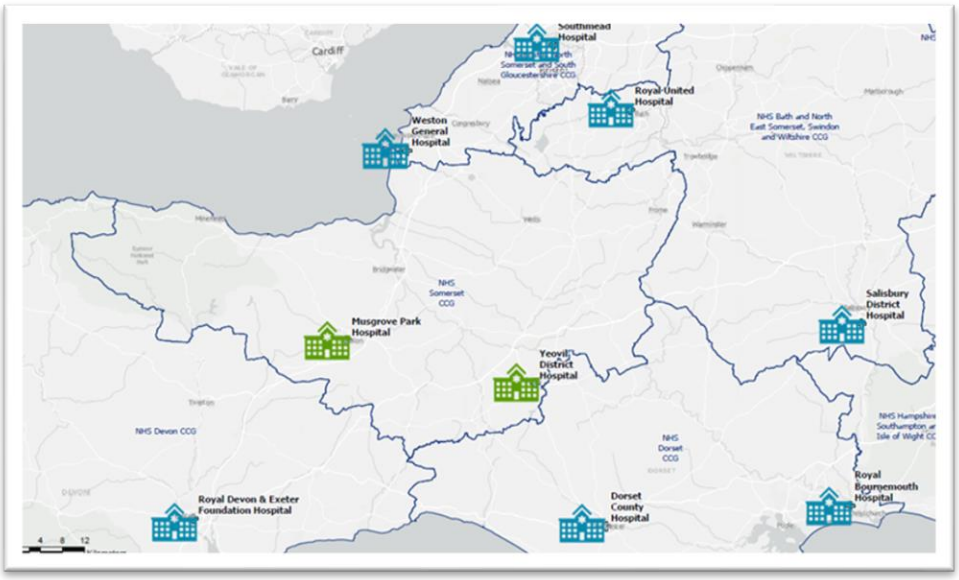
The image below describes how there are five different levels of care in Somerset, with level 1 being the universal care that ensures people are enabled to manage their own health and wellbeing, through to level 5 which is access to emergency and inpatient care.

This hyperacute stroke reconfiguration focuses on level 5 care.

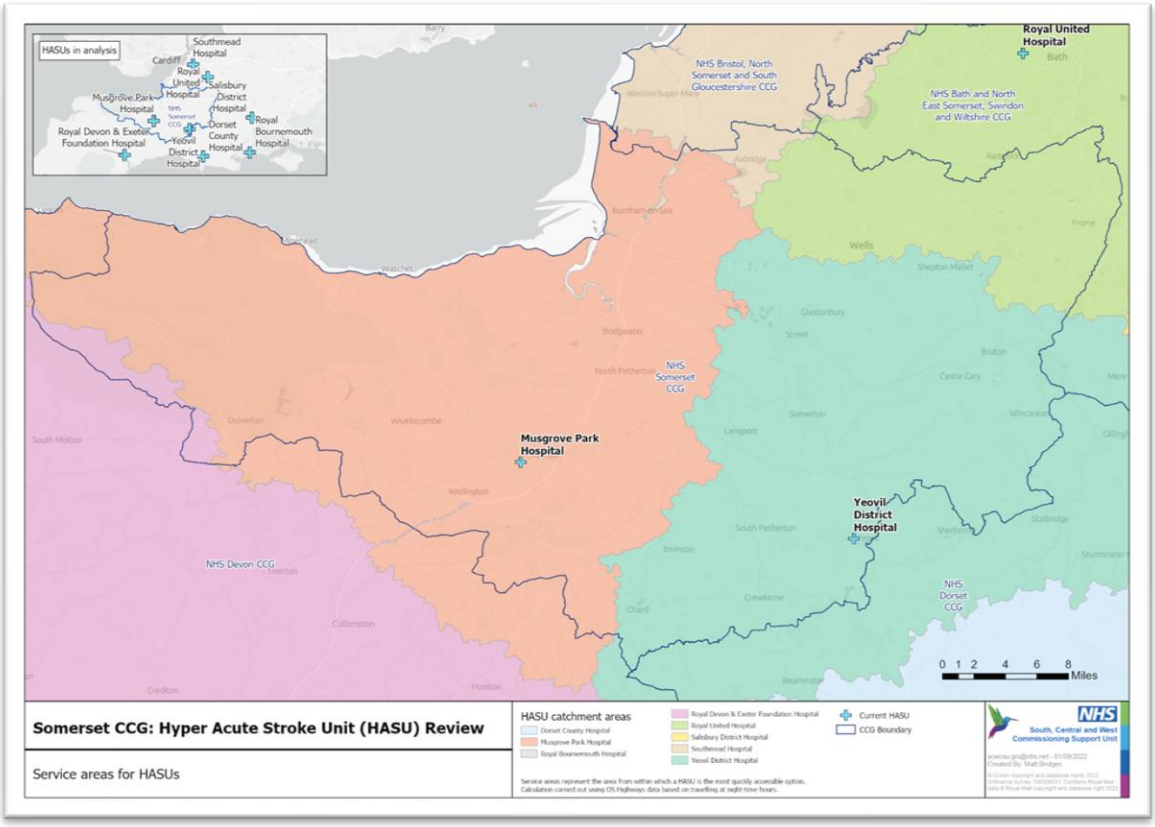
Somerset stroke services

In 2019 a review of the Somerset configuration of stroke services was carried out as part of the Fit For my Future Programme. A key recommendation from this strategy was to review the way Hyper Acute Stroke Unit (HASU) and Transient Ischaemic Attack (TIA) services are provided in Somerset.

The image below shows the current sites providing HASU care. The sites coloured green are in Somerset, the ones in blue are out of area.



The map below shows the current catchment areas for each HASU site:



Stroke care providers

There are currently two NHS providers in Somerset, Somerset NHS Foundation Trust[99] (SFT) who provide community, mental health and learning disabilities services across the county, and acute hospital services in Taunton, and Yeovil District Hospital NHS Foundation Trust[100] (YDH) who provide acute hospital services in Yeovil.

Care Quality Commission (CQC) findings for each Trust can be found in Appendix 18.

YDH and SFT are preparing to come together to create a merged organisation that will provide all community, mental health and learning disability services across Somerset, provide acute care at both Yeovil District Hospital and Musgrove Park Hospital in Taunton, and manage a proportion of the GP practices in Somerset.

[99] Home - Somerset NHS Foundation Trust (somersetft.nhs.uk)
[100] Home - Yeovil District Hospital NHS Foundation Trust : Yeovil District Hospital NHS Foundation Trust (yeovilhospital.co.uk)

The new organisation will collectively employ around 12,000 colleagues[101]. This merger provides the scope for the development of single leadership and workforce models, improved recruitment and retention potential and financial opportunities through economies of scale.

The current provision for hyperacute and acute stroke within Somerset is as follows:

Provider	Capacity
Musgrove Park Hospital, Taunton	HASU 4 beds ASU 19 beds
Yeovil District Hospital, Yeovil	HASU 4 beds (co-located with cardiology) ASU 12 beds

Musgrove Park Hospital, Taunton[102]

The stroke unit is based on Dunkery Ward, at Musgrove Park Hospital (MPH).

People access their hyperacute and acute stroke care here, as part of an integrated pathway for adults with a Somerset GP who have a confirmed diagnosis of stroke.

Rehabilitation is provided at a community hospital (specific sites at Williton or South Petherton) or in peoples' own homes. Longer-term services support people to live well after stroke.

Stroke specialist teams include stroke physicians, specialist nurses, healthcare assistants and specialist support staff, occupational therapists, physiotherapists, speech and language therapists, psychologists, and stroke coordinators.

There is also input from dietitians, ophthalmologists, and other healthcare professionals. There is close working with adult social care, the Stroke Association, and other agencies to ensure people get the best care in the most suitable location, based on individual needs.

The quote below is an extract from a letter in the local newspaper, The Somerset County Gazette[103], regarding recent experiences of the stroke pathway at Musgrove Park:

> ***My wife dragged me to the car, and we arrived at A&E at Musgrove Park Hospital on a busy Friday night. During the next two days I experienced the professional, highly***

[101] Get involved - help us to name our new organisation - Yeovil District Hospital NHS Foundation Trust : Yeovil District Hospital NHS Foundation Trust (yeovilhospital.co.uk)
[102] Stroke service - Stroke Services (somersetft.nhs.uk)
[103] Musgrove Park staff thanked after transient ischemic attack | Somerset County Gazette

efficient, and overwhelming care of a community that represents the very best of this country.

From a wheelchair at the reception desk and a short wait I passed through a variety of attentive checking procedures to a stroke ward and a bed and staff making me welcome and allaying my apprehension.

I was lucky, subsequent thorough scans and examinations showed that I had had a transient ischemic attack (TIA) and not a stroke, so I was allowed back home.

… the speed and efficiency of the operation and of all the inclusive and multi-ethnic and multi-skilled people who helped me left me wondering why the whole country could not be run like the NHS. A community where caring is the name of the game.

Yeovil District Hospital, Yeovil[104]

The stroke unit is based at Ward 8B at Yeovil Hospital (YDH).

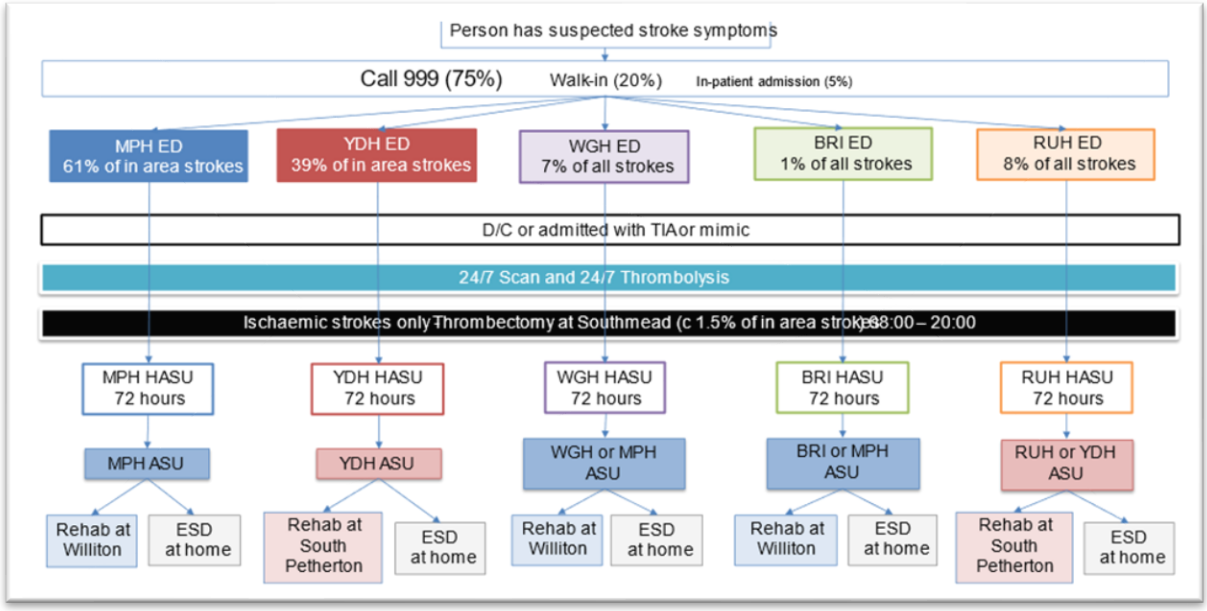
The purpose of this hyperacute unit is to provide people with a diagnosis, reduce the risk of complications, reduce the risk of a further stroke, and maximise recovery.

Rehabilitation is provided at a community hospital (specific sites at Williton or South Petherton) or in peoples' own homes. Longer-term services support people to live well after stroke.

Visitors play a crucial and active role in aiding recovery.

[104] Stroke unit - Yeovil District Hospital NHS Foundation Trust : Yeovil District Hospital NHS Foundation Trust (yeovilhospital.co.uk)

The current stroke pathway in Somerset



Stroke activity

The current prevalence of stroke in Somerset is higher than the national average at 2.38%, compared to an England-wide prevalence rate of 1.8%[105] and there are currently 13,991 stroke survivors registered with a Somerset GP[106].

The table below shows the number of stroke admissions to both YDH and MPH since 2018[107]. There is considerable variation between the two sites:

	2018	2019	2020[108]	2021
Musgrove Park Hospital (MPH)	657	708	536	705
Yeovil District Hospital (YDH)	429	468	412	454

[105] Stroke statistics | Stroke Association
[106] Stroke statistics | Stroke Association
[107] SSNAP data - Number of admissions for suspected stroke to both YDH and MPH between 2018 and 2021
[108] In the period running from April 1st 2020 to June 30th 2020, no SSNAP submissions were entered by Musgrove Park Hospital which will affect 2020 figures

It is widely accepted that to provide sufficient patient volumes to make a hyperacute stroke service clinically sustainable, to maintain expertise and to ensure good clinical outcomes, 600 stroke patient admissions per year are required[109] [110].

Whilst this is achieved in Musgrove Park Hospital, Yeovil District Hospital consistently falls below this level.

Data on stroke admissions shows an increase in activity year on year at both MPH and YDH, but in 2020/2021 there was a reduction in stroke admissions due to the impact of COVID-19. Current data shows that admission rates are increasing again.

Most suspected strokes are admitted via a 999 ambulance call out to the nearest emergency department with onsite hyperacute stroke provision. There is no major variation between years or in the percentages between MPH and YDH.

A small number of people self-present (often termed a "walk-in") and a proportion of people experience a stroke whilst already in hospital, for example whilst an in-patient.

The below table details the percentage (and number) of patients admitted via each route between 2018 and 2021 [111] [112]:

	Brought in by ambulance	**Self-presentation** "walk-in"	**Onset whilst an inpatient**
Musgrove Park Hospital (MPH)	76.4% (1992)	18.1% (470)	5.5% (144)
Yeovil District Hospital (YDH)	76.3% (1345)	16.6% (293)	7.1% (125)

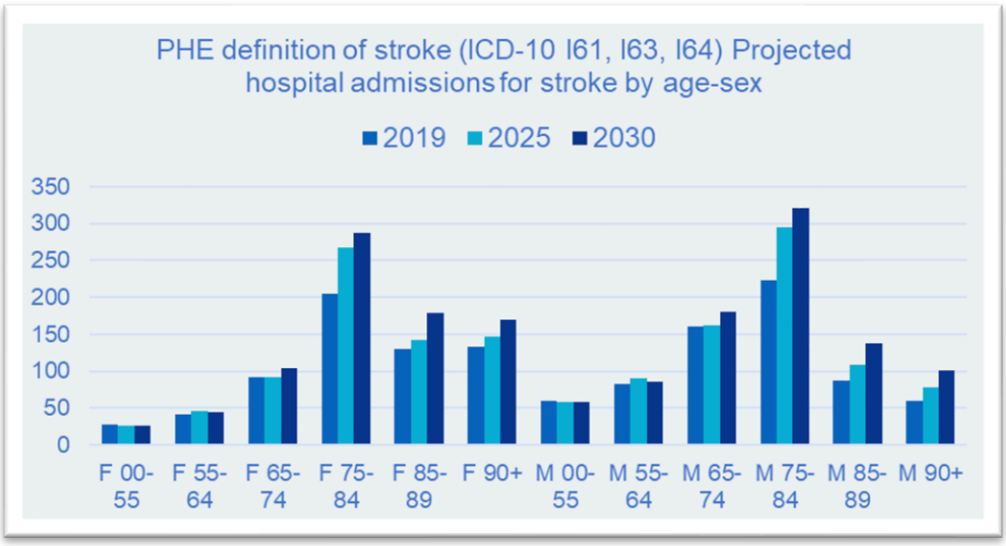
Predicted stroke activity

For Somerset, using the current levels of demand for stroke and applying expected demographic changes, Public Health have projected that we will see a significant increase in the number of strokes.

[109] https://basp.ac.uk/wp-content/uploads/2017/02/BASP-Meeting-the-Future-Challenge-of-Stroke-2011-15.pdf
[110] Frontiers | Planning and Providing Acute Stroke Care in England: The Effect of Planning Footprint Size | Neurology (frontiersin.org)
[111] Source: YDH and SFT HES data from 2018-2021
[112] This indicator will exclude any patients discharged directly from A&E or who died within A&E as they were not formally admitted to the hospital and are therefore excluded from SSNAP.

This is in part driven by the ageing population, exacerbated by the high prevalence of risk factors within some populations.

The growth in anticipated stroke activity is shown in the graph below[113]:



Out of area activity

In 2020/2021, 246 Somerset registered patients were taken by ambulance to hospitals outside of Somerset for their suspected stroke.

Most of these patients were treated at either Royal United Hospital Bath (8%) or United Hospitals Bristol, which includes both Weston General Hospital (7%), and Bristol Royal Infirmary (1%)[114].

People living in Sedgemoor in the north of the county are currently taken to Weston General Hospital. Under proposals to reconfigure stroke services in BNSSG, these people would be taken by ambulance to their nearest HASU, which is at Musgrove Park Hospital in Taunton.

[113] Source: Hospital Episode Statistics, copyright © 2018, re-used with the permission of The Health & Social Care Information Centre. All rights reserved. Office for National Statistics Mid-Year Population Estimates and Population Projections. Construct: First admissions episodes with a primary diagnosis of stoke defined using either: The ICD-10 codes used by Public Health England Cardiovascular Profiles (ICD-10 codes I61, I63, I64) OR All cerebrovascular diseases (ICD-10 codes I6*). For each age-sex band the number and rates for Somerset residents (CCG of Residence = 11x) of admissions over the 2015/16 to 2017/18 period were calculated and applied to the ONS Population Projections for 2019, 2025 and 2030.

[114] Somerset CCG patients, SWASFT 'See and Convey' Activity (2020/2021)

Modelling assumptions made by Bristol, North Somerset, and South Gloucestershire (BNSSG) as part of their reconfiguration programme indicate that 3.1 people would be conveyed to Taunton per week[115]. Of these, 2 would be stroke mimics and 1 per week would be a confirmed stroke.

Beds

The number of hyperacute stroke unit (HASU) beds and acute stroke unit (ASU) beds across Somerset are detailed in the chart below.

The projected increase in the number of strokes indicates that this number will be insufficient and that by 2030 and additional 12 will be required across the two providers. This has significant impacts on the existing estates.

The table below shows the number of current and predicted beds required for stroke:

Hospital	Setting	Current	2025 (+16%)	Difference	2030 (+30%)	Difference
MPH	HASU	4	5	+1	5	+1
	ASU	19	22	+3	25	+6
YDH	HASU	4	5	+1	5	+1
	ASU	12	14	+2	16	+4

Tertiary provision: Thrombectomy

If patients from Somerset are identified as eligible for requiring a thrombectomy[116] as the result of an ischaemic stroke, they are transferred out of county to Southmead Hospital, North Bristol NHS Trust to receive treatment.

Southmead Hospital is one of the biggest providers of thrombectomy in the country. Currently, thrombectomy provision is only available 08:00 – 20:00 hours, Monday to Friday. Under the BNSSG reconfiguration proposals there is a plan to extend the provision to a 7-day service, then to further develop this service to be 24/7 by 2022/23[117].

[115] 28 Nov 2022 update - The reference for the BNSSG Stroke DMBC no longer works and unable to locate a publicly available copy of the DMBC

[116] A small number of ischaemic strokes can be treated by thrombectomy which removes blood clots and helps restore blood flow to the brain. It is most effective when started as soon as possible after a stroke. Stroke - Treatment - NHS (www.nhs.uk)

[117] Stroke-Programme-Pre-Consultation-Business-Case-v3.3-FINAL.pdf (bnssghealthiertogether.org.uk)

As illustrated in the table below, the numbers of eligible patients receiving thrombectomy each year from across both providers is the lowest of all trusts[118] in West of England ISDN[119], at 1.8% or less[120]. There is a national drive to increase this to 10%[121].

	2019/2020		2020/2021	
	MPH	YDH	MPH	YDH
Numbers of thrombectomy	15	8	5	6
% of all stroke cases	1.5%	1.8%	0.6%	1.5%

Rehabilitation provision

On all the acute medical interventions and therapy assessments have been completed in either Yeovil or Taunton, our team will work with the individual and their family to identify the most suitable way of discharging the individual from hospital.

Within Somerset we strive for stroke rehabilitation to be provided at home or as close to home as possible.

Current options include:

- Inpatient rehabilitation within a community stroke rehabilitation unit – either at Williton Hospital or South Petherton Hospital
- Going home with therapy support from our Early Supported Discharge (ESD) team
- Community stroke service
- Follow-up with a stroke coordinator.

People who have had a stroke make a better recovery while getting specialist rehabilitation at home, so our teams in Somerset promote early discharge from our acute and community inpatient units whenever possible.

Throughout the pathway, people who have had a stroke will be supported to create meaningful goals for their rehabilitation - alongside their families and carers as appropriate - which reflect functional everyday activities.

At six weeks there is a medical review, and at six months there is a review that will ensure that all aspects of your stroke recovery have been addressed to help you to live well after your stroke. This

[118] Based on SSNAP data from Jan 21 – Dec 21
[119] Integrated Stroke Delivery Network
[120] Source: North Bristol NHS Trust Annual Thrombectomy Reports (2019/2020; 2020/2021)
[121] NHS England » NHS England's work on stroke

will include accessing support from the local community and lifestyle advice to keep active and make healthy choices wherever possible.

The Integrated Stroke Delivery Network (ISDN) is supporting the development of an integrated community stroke service (ICSS) model in Somerset.

The ICSS is a 7-days per week service that coordinates the transfer of care from hospital to home using a specialist multidisciplinary team. It provides early supported discharge, high-intensive and needs-based community stroke rehabilitation and disability management. The ICSS works closely with the voluntary sector locally - including the Stroke Association[122] and Different Strokes[123] - and social care to provide longer-term support in the community.

In addition, funding is being sought from NHSE to develop a stronger community reablement service for people who have experienced a stroke and who live within the Mendip area.

Ensuring effective and efficient community models of stroke rehabilitation will enable timely discharge from the acute or community hospitals. This is critical to ensure that patients can move between different levels of care seamlessly and smoothly, and to ensure hospital beds are reserved for those with the highest level of medical need.

Psychology provision

The stroke psychology service is concerned with the assessment and rehabilitation of cognitive, emotional and behavioural difficulties arising from a stroke, with referrals accepted from across all stages of the stroke pathway.

Treatment is provided within the framework of a brief goal-focused intervention model, with an emphasis is placed on using psychological models and theory to optimise rehabilitation outcomes. In addition to direct patient contact, the team also undertake consultation, supervision, and training of the wider team. This promotes an integrated service model whereby skills in psychological care are shared across the MDT for the benefits of those who have experienced a stroke.

The psychology team consists of Clinical Neuropsychologists, Clinical Psychologists, Health Psychologists and Assistant Psychologists. By the end of 2022, all vacant psychology posts had been appointed to, but psychology – like many other disciplines – is challenging to recruit into.

The psychology service has approximately half of the nationally recommended staffing levels for a population the size of Somerset. Going forward, it will be desirable to expand the workforce and increase skill mix to meet rising demand for psychological care in this patient group. For example,

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[122] Support in your area | Stroke Association

[123] Different Strokes | Stroke Charity Helping Younger Stroke Survivors

recruiting to entry level or practitioner roles (pre-qualification) working under the supervision of a qualified psychologist. The service is actively involved in regional psychology workforce planning initiatives.

Telemedicine

The tables below show how telemedicine is currently utilised across MPH and YDH to support the delivery of acute stroke care[124]:

Item name	England	Musgrove Park Hospital	Yeovil District Hospital
Use of telemedicine to allow remote access for management of acute stroke care	Yes 64%	Yes	Yes
Remote viewing for brain imaging	Yes 96%	Yes	Yes
Video enabled clinical assessment	Yes 64%	No	No
Telemedicine rota with other hospitals	Yes 53%	Yes	Yes
Groups of patients assessed using telemedicine	Only potentially for thrombolysis: 55% Some patients: 32% All patients: 13%	Only potentially for thrombolysis	Some patients

Stroke mimics

A 'stroke mimic' is any condition which presents with stroke-like symptoms but is a different condition[125]. The common stroke mimics are shown in the image below:

[124] SSNAP - Site (strokeaudit.org)

[125] Stroke Association, 2018, When it's not a stroke: a review of the research When it's not a stroke: a review of the research | Stroke Association

Common Stroke mimics:

- Seizure – post-ictal / Todd's paralysis
- Metabolic / toxic – hypoglycaemia, hypoxia, encephalopathy
- SOL – subdural, tumour, abscess
- Migraine – hemiplegic migraine
- Infection – meningitis, encephalitis
- Confusion / cognitive dysfunction
- Peripheral vertigo – labyrinthitis, vestibular neuronitis
- Syncope
- Functional disorder

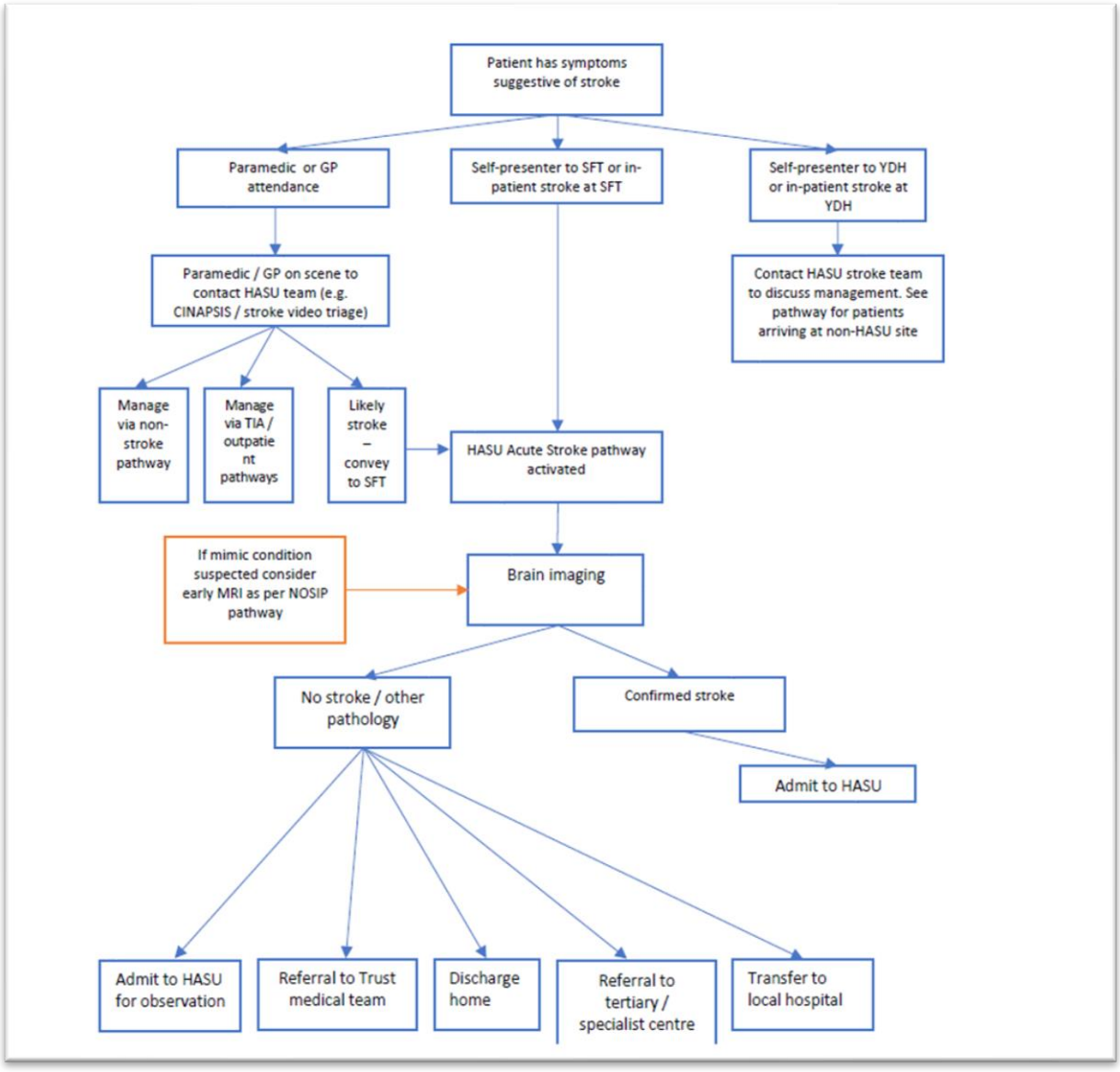
Stroke mimic pathway

Currently with HASU's sited at both SFT and YDH, stroke mimic patients requiring hospital admission can be more easily transferred to alternative acute inpatient settings within each provider.

There is a risk that centralising hyperacute stroke services at one site may lead to unnecessary conveyance of patients with a stroke "mimic" condition away from their local hospital and services. This can also increase the workload on the accident & emergency, acute medicine team and stroke team at the HASU site. However, being seen in a centralised HASU enables patients to receive more rapid assessment, diagnosis, and determination of appropriate non-stroke care pathways.

We will explore the use of a triage system whereby there is a discussion between the paramedic on the scene and the HASU stroke team to identify patients with a probable stroke mimic condition and an alternative management pathway for such patients. This may include conveyance to their local hospital or enable use of non-emergency ambulatory or outpatient pathways.

It is vital that patients with stroke mimics can access these pathways as soon as possible. Some e.g., migraine will not require admission and can be rapidly discharged home; others will need to be moved to other inpatient services, either at SFT, YDH or in an appropriate community setting.



It is difficult to establish a true rate of stroke mimics, however, it is accepted that triage of stroke mimics is more accurate when undertaken by specialist stroke clinicians.

Mimic and transient ischaemic attack (TIA) pathways

If a patient arriving to Somerset NHS Foundation Trust as a suspected stroke is found to have a stroke mimic condition, and does not require further hospital care, they will be discharged with appropriate follow-up care in their local hospital.

If the condition requires further general hospital care, the patient will be rapidly transferred to the general medical team within the HASU hospital (SFT) if the predicted length of stay is two days or less. If the predicted length of stay is more than two days, then they will be repatriated to the general medical team at the local hospital.

In SFT the neurology team provide a daily (Monday – Friday) ward referrals service where they can provide a comprehensive assessment and investigation / treatment plan. They provide an outreach service to YDH on a twice weekly basis. Thus, patients admitted to SFT who are assessed as requiring neurology team input will access this before repatriation to their local hospital.

To enable patients with suspected TIA to be assessed and treated within 24 hours (thus meeting National guidelines) there is a plan for them to be managed on an ambulatory pathway on the HASU (see the TIA pathway section).

Transient Ischaemic Attack (TIA)

As part of the acute stroke services review, it is necessary to review the provision offered to people experiencing a transient ischaemic attack (TIA).

A TIA or 'mini stroke' has the same clinical presentation as a stroke except symptoms disappear within 24 hours.

More than one in 12 people will have a stroke within a week of having a TIA. Because of this, a TIA is often called a warning stroke. Research has shown that specialist assessment and investigation promptly after TIA helps to reduce risk of stroke by 80%[126].

Clinical requirements

According to NICE[127], the 'gold standard' diagnostic strategy for TIA is expert clinical assessment.

Following expert clinical assessment, the stroke physician/neurologist in the TIA clinic should dictate the need for imaging, noting that MRI will not be informative for all people with suspected TIA, such as those presenting late.

MRI is the preferred diagnostic imaging for TIA as it is much more sensitive to acute cerebral ischaemia than CT imaging.

For suspected TIAs, NICE guidance[128] states that people admitted to the emergency department should have access to

- Rapid diagnosis using a validated tool, such as ROSIER (Recognition of Stroke in the Emergency Room)
- Immediate aspirin (300 mg daily), unless contraindicated

126 Transient ischaemic attack (TIA) | Stroke Association
127 NG128 Evidence review C (TIA imaging) (nice.org.uk)
128 Overview | Stroke and transient ischaemic attack in over 16s: diagnosis and initial management | Guidance | NICE

- Immediate referral for specialist assessment and investigation and seen within 24 hours of onset of symptoms
- Access to secondary prevention, in addition to aspirin, as soon as possible after TIA confirmed
- Same day access to MRI (including diffusion-weighted and blood-sensitive sequences)[129]
- Access to carotid imaging ahead of carotid endarterectomy, for those identified as suitable.

These standards are currently not consistently or equitably met in Somerset. The table shows the current variation in provision:

National standards	Local provision	
	Musgrove Park, Taunton	Yeovil District Hospital
7-day specialist TIA clinic	**Mon – Fri:** Consultant led service in Rapid Access Stroke Clinic **Weekends & bank holidays:** High risk patients only	**Mon – Fri:** Consultant led service **Weekends & bank holidays:** No onsite provision
Rapid diagnosis using a validated tool in ED	All patients viewed as high risk as per national guidance	TIA form has removed ratification and all patients viewed as high risk
Immediate referral for specialist assessment	**Yes** - 7 days a week	**Mon – Fri:** Yes **Weekend & bank holidays :** 9.00 – 5.00pm by CNS
Seen by specialist within 24 hours	**Mon – Fri:** Yes (but not 100%) **Weekend & bank holidays:** High-risk patients only	**Mon – Fri:** Yes **Weekend & bank holidays:** No
Same day access to MRI - including diffusion-weighted and blood-sensitive sequences	**Mon – Fri**: 4 fixed MRI slots per day **Weekends & BH**: 3 fixed MRI slots per day Unable to support instant access to MRI in addition to above	**Mon – Fri:** 1 fixed MRI slot per day **Weekend & BH:** 2 fixed MRI slots per day
Access to carotid imaging ahead of carotid endarterectomy	**Mon – Fri:** 4 carotid doppler slots daily **Weekend & bank holidays :** 3 slots for carotid imaging (usually CT carotid angiogram) daily	**Mon – Fri:** Daily fixed carotid doppler slots **Weekend:** No fixed carotid doppler slots

[129] NG128 Evidence review C (TIA imaging) (nice.org.uk)

TIA Pathways

Prior to 2019, the medical consultant from Yeovil participated in the weekend rota in Taunton. At this time, patients from Yeovil could opt to travel to Taunton for weekend TIA clinics.

However, once the Yeovil medical consultant stopped providing weekend cover this option stopped. Anecdotally, many patients from Yeovil declined the offer to travel to Taunton over the weekend, preferring instead to wait until Monday for a local clinic in Yeovil.

TIA activity SFT and YDH[130]

It is difficult to get accurate numbers of TIA referrals to YDH as patients are seen in a merged clinic.

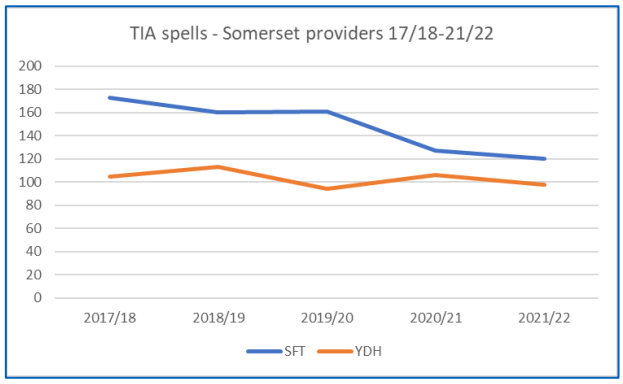
Overall, YDH activity levels look relatively static for both admitted (inpatient) patient care (APC) and outpatient (OP) activity, whilst SFT is showing a generally decreasing trend for both activity types.

Inpatient activity

The table and graph below shows the number of patients admitted at both SFT and YDH from 2017/18 to 2021/11 with TIA.

There is a significant reduction in admissions at SFT from 2019/20 onwards, which may be as an impact of Covid-19.

Year	SFT	YDH	Grand Total
2017/18	173	105	278
2018/19	160	113	273
2019/20	161	94	255
2020/21	127	106	233
2021/22	120	98	218

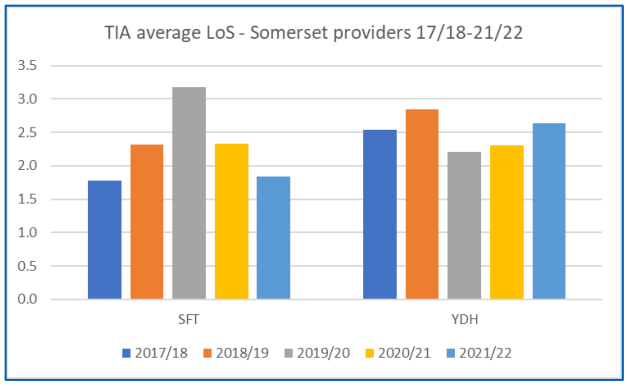


The table and chart below show the average length of stay (LOS) of patients admitted at both SFT and YDH from 2017/18 to 2021/11 with TIA.

[130] Data caveats and methodology: Admitted TIA activity (spells) identified based main diagnosis (ICD10) code: G45 'Transient cerebral ischaemic attacks and related syndromes'; Outpatient TIA activity (attendances) identified as follows: SFT - where Local Sub-specialty Code ='TIA' and YDH - where Treatment Function Code = '329' (Transient Ischaemic Attack Service). In line with NCDR usage guidelines, small record counts (less than 6) have been suppressed from the report, this is relevant only for the age-based analysis of admitted care activity - 55-59 age band in 2018/19 and 2019/20.

It is relatively static for YDH over time, though there does appear to be an increasing trend over recent years; for SFT, LOS has steadily increased to 19/20 and has steadily decreased since.

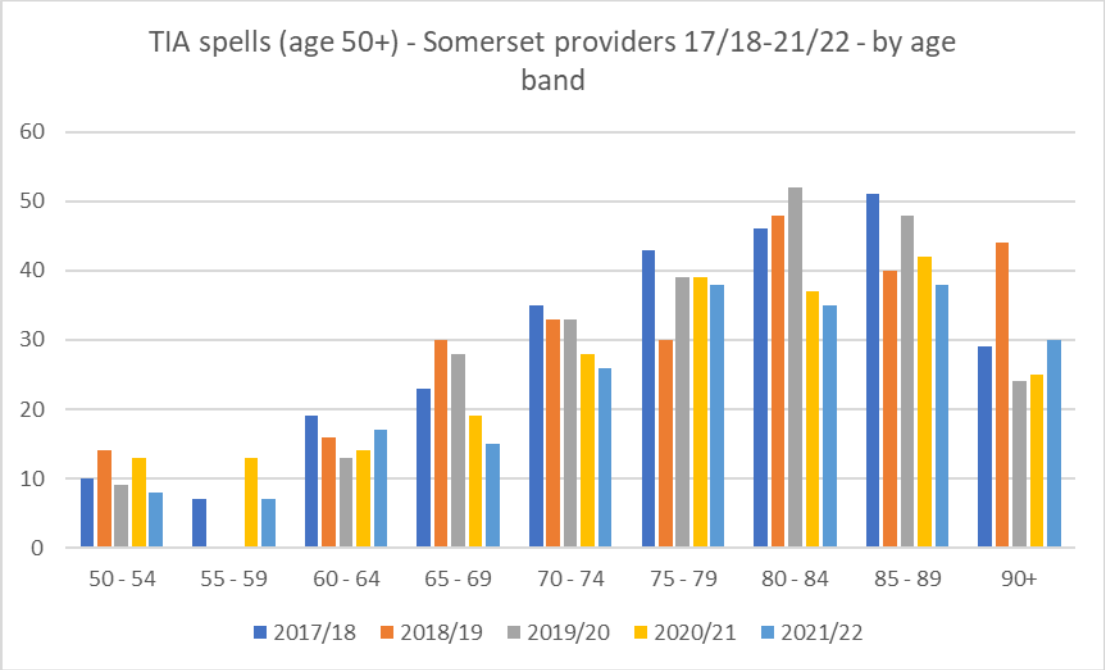
Provider	SFT	YDH	Grand Total
2017/18	1.8	2.5	2.1
2018/19	2.3	2.8	2.5
2019/20	3.2	2.2	2.8
2020/21	2.3	2.3	2.3
2021/22	1.8	2.6	2.2



The age profile of TIA attendances is generally highest in the those over the age of 75, as shown in the table and chart below.

There are some apparent differences between age bands in terms of annual trends which are apparent from the charts, though it should be noted that the numbers used within this analysis are quite small, so fluctuations may be due to random variation as opposed to specific causes.

Age band	2017/18	2018/19	2019/20	2020/21	2021/22
50 - 54	10	14	9	13	8
55 - 59	7	N/A	N/A	13	7
60 - 64	19	16	13	14	17
65 - 69	23	30	28	19	15
70 - 74	35	33	33	28	26
75 - 79	43	30	39	39	38
80 - 84	46	48	52	37	35
85 - 89	51	40	48	42	38
90+	29	44	24	25	30

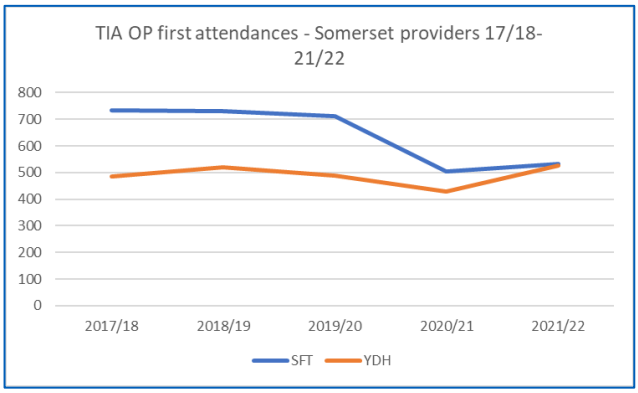


Outpatient activity

Analysis of outpatient (OP) TIA data is challenging due to a lack of diagnostic coding. For example, YDH appear to be using the national specialty code for TIA, whereas SFT do not. As such proxy codes and alternative analysis fields, such as free text, have been used within the analysis.

The chart and graph below show the first OP attendances for TIA, by year.

Year	SFT (local data)	YDH	Grand Total
2017/18	734	485	1219
2018/19	730	521	1251
2019/20	710	488	1198
2020/21	505	429	934
2021/22	533	525	1058



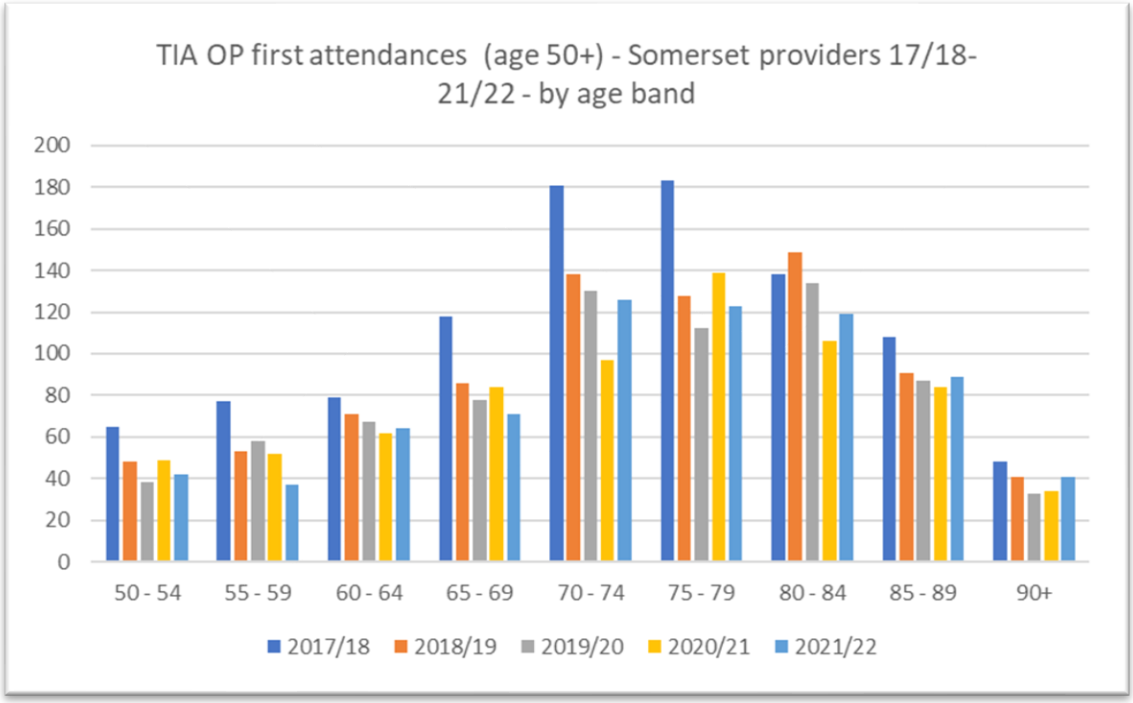
From the graph, it appears OP activity has relatively static at both SFT and YDH, until 2019/20, where the figures drop significantly. This is most likely to be because of Covid-19. At both sites, the activity levels are steadily increasing again, although not yet at pre-pandemic levels.

In relation to OP follow up activity, SFT do not record any follow up data, all OPs are recorded as first attendances. As such, no direct comparison can be drawn in relation to follow ups.

A lack of a seven-day TIA service at YDH results in patients not being seen within nationally recommended timescales. Appropriate patients are offered weekend appointments at the TIA service in Taunton but may decline and prefer to wait for a weekday appointment in Yeovil.

The age range of people attending as an OP across both providers following TIA, is shown in the table and chart below:

Age band	2017/18	2018/19	2019/20	2020/21	2021/22
50 - 54	65	48	38	49	42
55 - 59	77	53	58	52	37
60 - 64	79	71	67	62	64
65 - 69	118	86	78	84	71
70 - 74	181	138	130	97	126
75 - 79	183	128	112	139	123
80 - 84	138	149	134	106	119
85 - 89	108	91	87	84	89
90+	48	41	33	34	41



In relation to weekend activity, both Taunton and Yeovil anecdotally report that TIA activity to be around 3 patients per weekend on average.

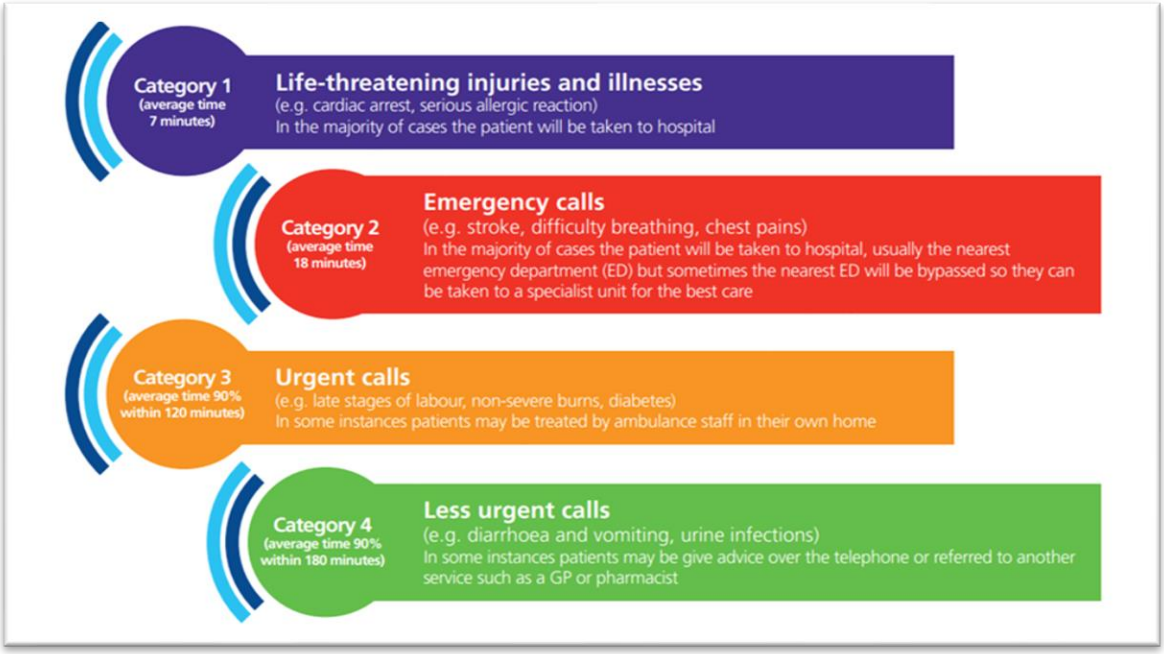
South Western Ambulance Services (SWASFT) Activity

Around 75% of people with suspected strokes are managed by a 999-emergency ambulance call.

In Somerset, this is through South Western Ambulance Service NHS Foundation Trust (SWASFT), but patients do also self-present at the emergency department or are admitted via other in-patient settings.

New national standards for ambulance trusts were introduced by NHS England in November 2017[131] following the largest clinical ambulance trial in the world, which Southwestern Ambulance Service participated in.

Calls now fit into the following categories which determine the speed and type of our response[132], as shown in the image below:



Stroke fall into category 2 Emergency Calls category, with an identified average response time of 18 minutes.

In 2021 in Somerset, this time had increased to over 1 hour.

SWASFT also provide inter-facility transfers for stroke patients, such as emergency transfer to Bristol for thrombectomy. This is also managed as a category 2 response.

An analysis of a range of SWASFT data has identified the following key findings[133]:

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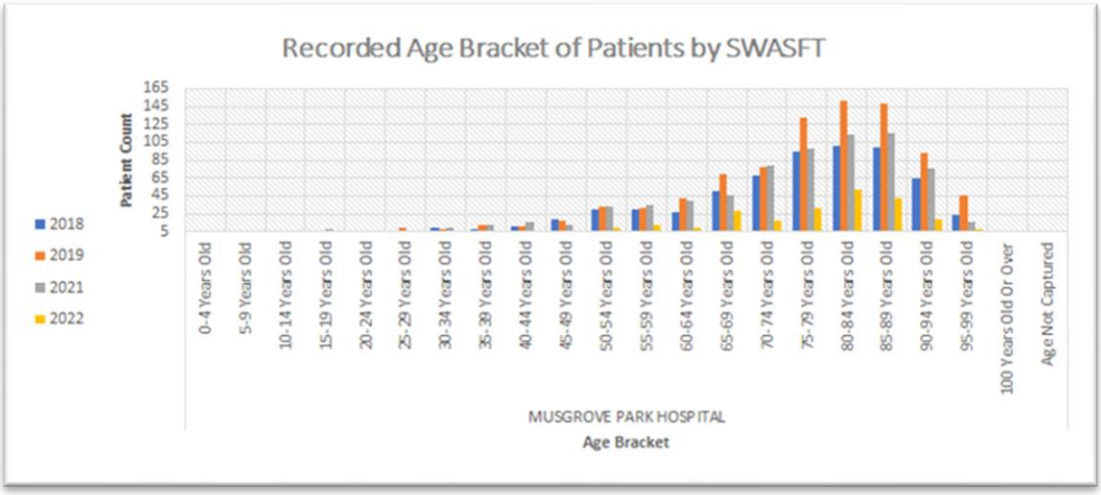
131 NHS England » New ambulance service standards announced
132 Welcome to SWASFT - (swast.nhs.uk)
133 Full explanation of the data can be found in Appendix 14

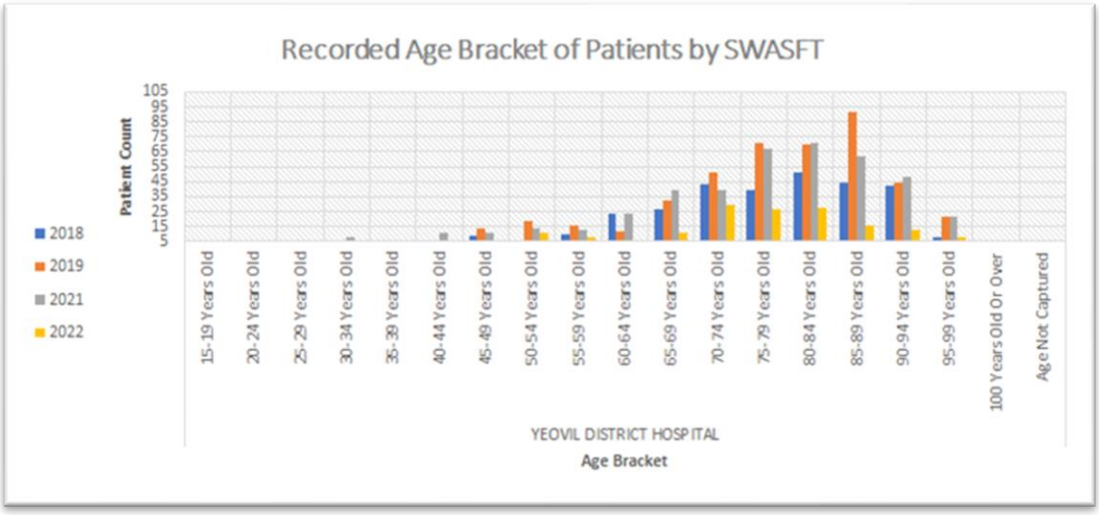
Activity

- From April 2018 to March 2022 SWAFT conveyed a total of 4,128 patients with signs and symptoms of Stroke or TIA
    - 64.2% (2,650) of these were conveyed to Musgrove Park Hospital
    - 35.8% (1,478) of these were conveyed to Yeovil District Hospital
- 92.9% of all Stroke and TIA patients had been categorised as Category 2, in line with the ARP specification[134]
- 46.7% of all patients conveyed by SWAFT to Musgrove Park Hospital are between the ages of 75 to 89 of years



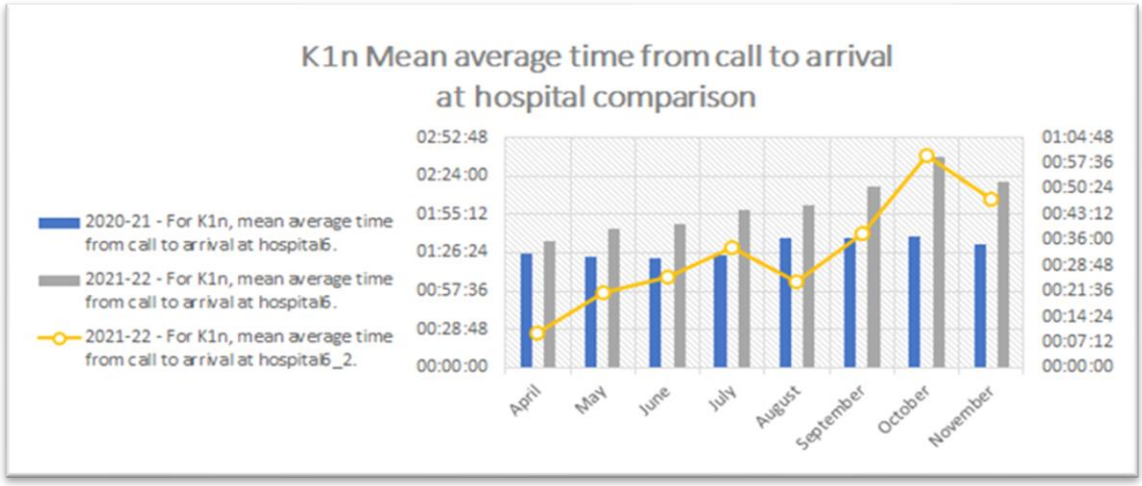
- 45.6% of all patients conveyed by SWAFT to Yeovil District Hospital are between the ages of 75 to 89 of years

[134] NHS England » Ambulance Response Programme



Response times

- The national response standard for category 2 **mean is 18 minutes or less**
- The national response standard for category 2 **90th centile is 40 minutes or less**
- SWASFT achieved both the mean and 90th response standard in April and May 2020/21, since then neither target has been achieved
- In 2021/22 both the mean and 90th centile response times deteriorated
    - **from September 2021 the mean response time was over an hour**
    - **from March 2021 the 90th centile response time was over 4 hours**
- The mean average time from call to arrival at hospital has increased significantly
    - **In April 2021/22 it was 01:35:12** (an increase of almost 10 minutes on the previous year)
    - **In October 2021/22 it was 02:38:06** (an increase of 1 hour compared to the previous year)
- As an average, the mean average time has increased by around 32 minutes compared to the previous year.
- The image below shows the mean call to arrival at hospital times:



- The mean average time from **arrival to hospital to thrombolysis** has remained stable.

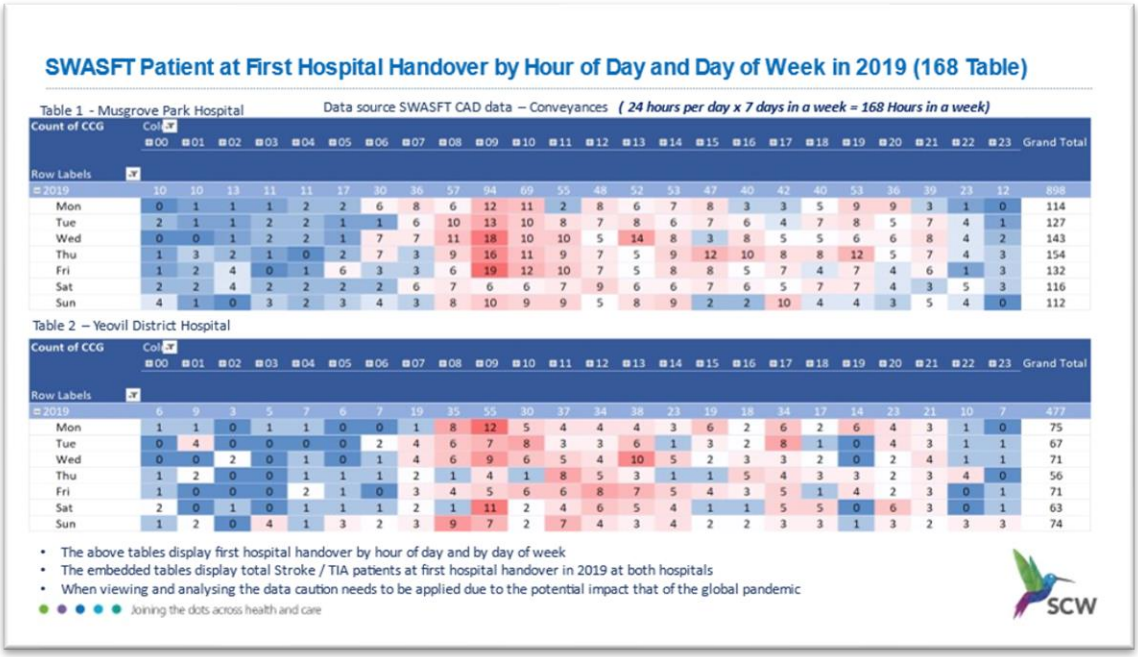
The most pressing issue which requires addressing urgently concerns overstretched ambulance services and rising staff shortages coupled with increased COVID-19 hospitalisations, which have been replicated across other emergency conditions. These ongoing pressures at the pre-hospital stage threaten to adversely affect patients throughout the hospital stroke pathway and beyond.[135]

First handovers

The image below shows the variation in activity for SWASFT first handovers across the week at both Musgrove Park and Yeovil, in 2019.

The peak activity is centred around the early part of the morning, with much less activity overnight. There is minimal variation across the days of the week, indicating the need for consistent 24/7 services.

[135] Ref.-374-SSNAP-Annual-Report-2022-FINAL.pdf (hqip.org.uk)



SWASFT Patient at First Hospital Handover by Hour of Day and Day of Week in 2019 (168 Table)

Table 1 - Musgrove Park Hospital — Data source SWASFT CAD data – Conveyances (24 hours per day x 7 days in a week = 168 Hours in a week)

Count of CCG	Col	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Grand Total
Row Labels																										
2019		10	10	13	11	11	17	30	36	57	94	69	55	48	52	53	47	40	42	40	53	36	39	23	12	898
Mon		0	1	1	1	2	2	6	8	6	12	11	2	8	6	7	8	3	3	5	9	9	3	1	0	114
Tue		2	1	1	2	2	1	1	6	10	13	10	8	7	8	6	7	6	4	7	8	5	7	4	1	127
Wed		0	0	1	2	2	1	7	7	11	18	10	10	5	14	8	3	8	5	5	6	6	8	4	2	143
Thu		1	3	2	1	0	2	7	3	9	16	11	9	7	5	9	12	10	8	8	12	5	7	4	3	154
Fri		1	2	4	0	1	6	3	3	6	19	12	10	7	5	8	8	5	7	4	7	4	6	1	3	132
Sat		2	2	4	2	2	2	2	6	7	6	6	7	9	6	6	7	6	5	7	7	4	3	5	3	116
Sun		4	1	0	3	2	3	4	3	8	10	9	9	5	8	9	2	2	10	4	4	3	5	4	0	112

Table 2 – Yeovil District Hospital

Count of CCG	Col	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Grand Total
Row Labels																										
2019		6	9	3	5	7	6	7	19	35	55	30	37	34	38	23	19	18	34	17	14	23	21	10	7	477
Mon		1	1	0	1	1	0	0	1	8	12	5	4	4	4	3	6	2	6	2	6	4	3	1	0	75
Tue		0	4	0	0	0	0	2	4	6	7	8	3	3	6	1	3	2	8	1	0	4	3	1	1	67
Wed		0	0	2	0	1	0	1	4	6	9	6	5	4	10	5	2	3	3	2	0	2	4	1	1	71
Thu		1	2	0	0	1	1	1	2	1	4	1	8	5	3	1	1	5	4	3	3	2	3	4	0	56
Fri		1	0	0	0	2	1	0	3	4	5	6	6	8	7	5	4	3	5	1	4	2	3	0	1	71
Sat		2	0	1	0	1	1	1	2	1	11	2	4	6	5	4	1	1	5	5	0	6	3	0	1	63
Sun		1	2	0	4	1	3	2	3	9	7	2	7	4	3	4	2	2	3	3	1	3	2	3	3	74

- The above tables display first hospital handover by hour of day and by day of week
- The embedded tables display total Stroke / TIA patients at first hospital handover in 2019 at both hospitals
- When viewing and analysing the data caution needs to be applied due to the potential impact that of the global pandemic

Joining the dots across health and care

In the context of the continued and well-publicised pressure on ambulance trusts, there needs to be a continued focus on reducing delays in pre-hospital emergency response and conveyance to hospital using pre-alerts to the stroke team. This will ensure that time critical acute treatments such as thrombolysis and thrombectomy, are delivered as rapidly as possible. Using pre-hospital video telemedicine between paramedics and stroke specialists in hospital will aid the diagnostic accuracy of stroke, enhance delivery of acute therapies and help to identify stroke 'mimics'.[136]

Somerset Green Plan[137]

Somerset ICS believes that an environmentally sustainable society is a healthier society, and we will embrace the synergies between the sustainability and health agendas in everything we do.

We recognise the climate emergency and through the delivery of this Green Plan we will meet NHS national targets of net zero carbon emissions by 2040 and make our contribution to the goal of a carbon neutral Somerset by 2030.

The Somerset Green Plan and its supporting infrastructure are still in their infancy. As such, assessing the impact of the proposed stroke reconfiguration options against the sustainability criteria will be strengthened and improved over time.

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136 Ref.-374-SSNAP-Annual-Report-2022-FINAL.pdf (hqip.org.uk)

137 https://www.england.nhs.uk/south/wp-content/uploads/sites/6/2022/06/Somerset-ICS-Green-Plan-2022.pdf

However, we will work closely with partners from across Somerset ICS, SCW and NHSE to ensure that we are maximising our opportunities to work towards our net zero targets, whilst recognising the need to balance the clinical outcomes.

Principles

The underpinning principles of this Green Plan are:

- **Leadership:** as a leading public sector organisation and given the synergies between sustainability and public health, we must be seen to show leadership on these issues
- **Collaboration:** we will work together with partners to exploit opportunities for joint working and peer-to-peer learning to accelerate progress
- **Cohesion:** we will ensure that all partners are pulling in the same direction and ensure compatibility in technology and infrastructure
- **Integration:** sustainability will be embedded into all ICS strategies and the decision-making process
- **Action oriented:** we are committed to deliver on this strategy through a joint action plan.

Priority Areas

The priority areas addressed by this plan are:

- **Leadership and governance**: how this Plan will be delivered
- **Awareness and engagement**: it is critical that we engage with our employees to deliver this Green Plan
- **Sustainable healthcare**: how our services will evolve to meet the sustainability challenge
- **Public health and wellbeing:** how improved public health will mean a smaller carbon footprint
- **Estates and facilities:** we will aim for net zero carbon emissions and zero waste from our estates
- **Travel and transport:** we will aim for net zero carbon emissions for all aspects of travel relating to NHS
- **Supply chain, procurement, and commissioning decisions**: how we will drive sustainability down through our supply chain and commissioned services
- **Adaptation and offsetting:** we will prepare for locked in climate impacts and offset or inset our residual carbon emissions once we have reduced them as far as possible
- **Decarbonisation through digitisation:** a cross-cutting theme of this plan.

Alignment with stroke

In relation to the acute stroke services reconfiguration, key areas of focus and potential impact are:

- **Travel** – for ambulance activity[138], as well as staff and relatives/carers and seeking mitigation through digital delivery and optimising the number of journeys that are undertaken.
- **Estates and facilities** – how can we optimise the existing estate, including identifying opportunities for mitigating any increase in carbon emissions through sustainable building practices and estates management.
- **Digitisation** – how can we build on the learning from COVID-19 to support innovation in workforce models and telehealth[139] [140] to provide digitally enabled services that deliver optimal health outcomes which will also facilitate a reduction in travel.

As we look ahead to restoration and recovery post pandemic, not only for our services but also for ourselves, we must ensure that we remember what we have learnt over the last two extraordinary years. We should use our experiences to build resilience, both personally and within our teams, to be even stronger and with an increased resolve to continue to deliver high quality, evidence-based stroke care.

Dr Deb Lowe National Clinical Director for Stroke, England

We will undertake an environmental impact assessment[141] and modelling of the options as part of the next phase of our work, which will focus on the following areas:

Area	Questions to explore
Models of care	• Will it minimise 'care miles' making better use of new technologies such as telecare and telehealth, delivering care in settings closer to people's homes? • Will it create incentives to promote prevention, healthy behaviours, mental wellbeing, living independently and self-management? • Will it provide evidence-based, personalised care that achieves the best possible health and well-being outcomes with the resources available? • Will it reduce avoidable hospital admissions or permanent admissions to residential care or nursing homes? • Will it pay for services based on health outcomes rather than activity for example through personal budgets? • Will it deliver integrated care, that co-ordinate different elements of care more effectively and remove duplication and redundancy from care pathways?
Travel	• Will it reduce 'care miles' (telecare, care closer) to home?

138 Scoping ambulance emissions: recommendations for reducing engine idling time | Journal Of Paramedic Practice
139 Remote Consultations | Centre for Sustainable Healthcare
140 Remote Consultations: Do they reduce Greenhouse Gas Emissions? Your Guide to calculating the Answer (2021 version) | CSH Networks (sustainablehealthcare.org.uk)
141 NY-119-Sustainability_Impact_Assessment_2020_V1.0.pdf (northyorkshireccg.nhs.uk)

	• Will it reduce repeat appointments? • Will it provide / improve / promote alternatives to car-based transport (e.g., public transport, walking and cycling)? • Will it support more efficient use of cars (car sharing, low emission vehicles, community transport, environmentally friendly fuels, and technologies)? N/A - Not Applicable 2 Domain Review questions Assessment of Impact Brief description of impact If negative, how can it be mitigated? / If positive, how can it be enhanced? • Will it improve access to services and facilities for vulnerable or disadvantaged groups or individuals? • Have you quantified the health outcomes via the HOTT (Health Outcomes of Travel Tool)?
Procurement	• Will it specify social, economic, and environmental outcomes to be accounted for in procurement and delivery in line with the Public Services (Social Value) Act 2012? • Will it stimulate innovation among providers of services related to the delivery of the organisations' social, economic, and environmental objectives? • Will it reduce waste, environmental hazards and toxic materials for example by reducing PVC, antibiotic use, air pollution, noise, mining, and deforestation? • Will it reduce use of natural resources such as raw materials, embedded water, and energy to promote a circular economy? • Will it support the local economy through local suppliers, SMEs or engage with third sector or community groups? • Will it promote ethical purchasing of goods or services e.g., increasing transparency of modern slavery in the supply chain globally?
Facilities management	• Will it reduce the amount of waste produced or increase the amount of waste recycled? • Will it reduce water consumption? • Will it improve the resource efficiency of new or refurbished buildings (water, energy, density, use of existing buildings, designing for a longer lifespan)? • Will it improve green space and access to green space?
Workforce	• Will it provide employment opportunities for local people? • Will it promote or support equal employment opportunities? • Will it promote healthy working lives (including health and safety at work, work-life/home-life balance, and family friendly policies)? • Will it offer employment opportunities to disadvantaged groups and pay above living wage?
Community engagement	• Will it promote health, increase community resilience, social cohesion, reduce social isolation and support sustainable development? • Will it reduce inequalities in health and access to services? • Will it increase participation including patients, the public, health professionals and elected officials to contribute to decision making?

	• Have you sought the views of our communities in relation to the impact on sustainable development for this activity? • Will it increase peer-support mechanisms?
Adaptation to climate change	• Will it support mitigation of the likely effects of climate change (e.g., identifying proactive and community support for vulnerable groups; contingency planning for flood, heatwave, and other weather extremes)?
Estimated carbon benefit	• What is the estimated carbon benefit (in terms of tCO2e) from the implementation of this project? As opposed to the current business as usual position.

6. Impact on neighbouring health systems

Any changes to the provision of acute stroke care in Somerset will have an impact on our neighbouring health and care systems, and as such understanding these implications and interdependencies is essential.

We have engaged with and involved our neighbouring health systems and organisations throughout the development of our case for change and PCBC. Key partners from Dorset and SWASFT have been present on our Steering Group and Clinical Reference Group. Letters of support from each of the organisations can be found in Appendix 17.

In addition, we have maintained links with the HOSCs from each area.[142]

Impact on Dorset

Changing stroke services in Somerset would have the biggest impact on the Dorset system.

Dorset have recently submitted a Business Case to support their ambition to provide an equitable stroke and neurology pathway for patients in Dorset. This has been driven in part by findings from the Getting It Right First Time (GIRFT) evaluation of the stroke services across Wessex in 2019. They concluded that there needed to be an urgent review due to the lack of a 7-day HASU service, 7-day therapy and 7-day TIA service in West Dorset.

The aim in Dorset is to develop a 7-day, 22 bedded Acute Stroke and Neuro Centre at DCHFT (of which 5 beds form a HASU) and 7-day TIA provision. This will ensure all people that experience a stroke have access to high quality hyper acute stroke care 24/7. All elements of the pathway will meet National Clinical Guidelines and will provide stroke care in the most appropriate setting for the patient and their family.

To achieve this, a two-staged programme is proposed, as follows:

- Stage 1:
    - The development of a 5 bedded Hyper Acute Stroke Unit (HASU)

[142] See Appendix 03e

- 17 bedded Acute stroke and neuro unit at DCHFT
- Establish permanent community-based stroke and neuro beds in the West by funding the current pilot of 10 stroke and neuro Rehabilitation beds at Yeatman Hospital, Sherborne
- Support of discharge via a suitably resourced community stroke and neuro service which includes provision of intensive, early rehabilitation for ESD patients (Early supported discharge) and priority rehabilitation and management of non ESD patients.

- Stage 2:
  - To increase the footprint of the stroke unit including HASU dependent on the Yeovil and Somerset review
  - Increase in the Rehabilitation beds to accommodate discharges from Yeovil and Salisbury and review of location
  - Significant development of a county wide community stroke and neuro service that meets national ICSSM (Integrated Community Stroke Service Model) requirements (Dorset Stroke and Neuro service).

The reconfiguration across both Somerset and Dorset has significant interdependencies and as such regular, ongoing communication between the two systems has been taking place.

Dorset colleagues are strongly represented within our governance processes and stakeholder groups, and we continue to work together to develop a collective approach that will optimise outcomes for patients, carers and both our health and care systems.

Impact on Bristol, North Somerset, and South Gloucester (BNSSG)[143]

BNSSG has been undergoing a stroke reconfiguration programme as part of the Healthier Together programme. The following plans have been approved in February 2022 and will be implemented by the end of the year.

The development of a single HASU at Southmead Hospital, providing 24/7 emergency treatment, with the development of an ASU located next to the HASU. This will significantly reduce transfers, enable people to be treated by a specialist team and improve patient experience.

A specialist stroke workforce will be retained at the Bristol Royal Infirmary to support people with specialist needs who cannot be transferred to the Southmead Hospital units.

[143] Stroke services consultation - Healthier Together (bnssghealthiertogether.org.uk)

This change will have an impact on people living in the Sedgemoor area of Somerset, who would previously have been taken to Weston General Hospital for their care. These people will now be closer to Musgrove Park Hospital in Taunton, so ambulances would take them there. The predicted impact of this change is an additional 3.8 patients per week, around 198 per year, conveyed to Musgrove Park Hospital.

Impact of centralisation

There is a risk of creating in-region inequalities with the centralisation of stroke services on one hospital site.

This needs to be considered particularly for those patients nearest geographical boundaries who may experience additional travelling times within some of the potential changes being proposed.

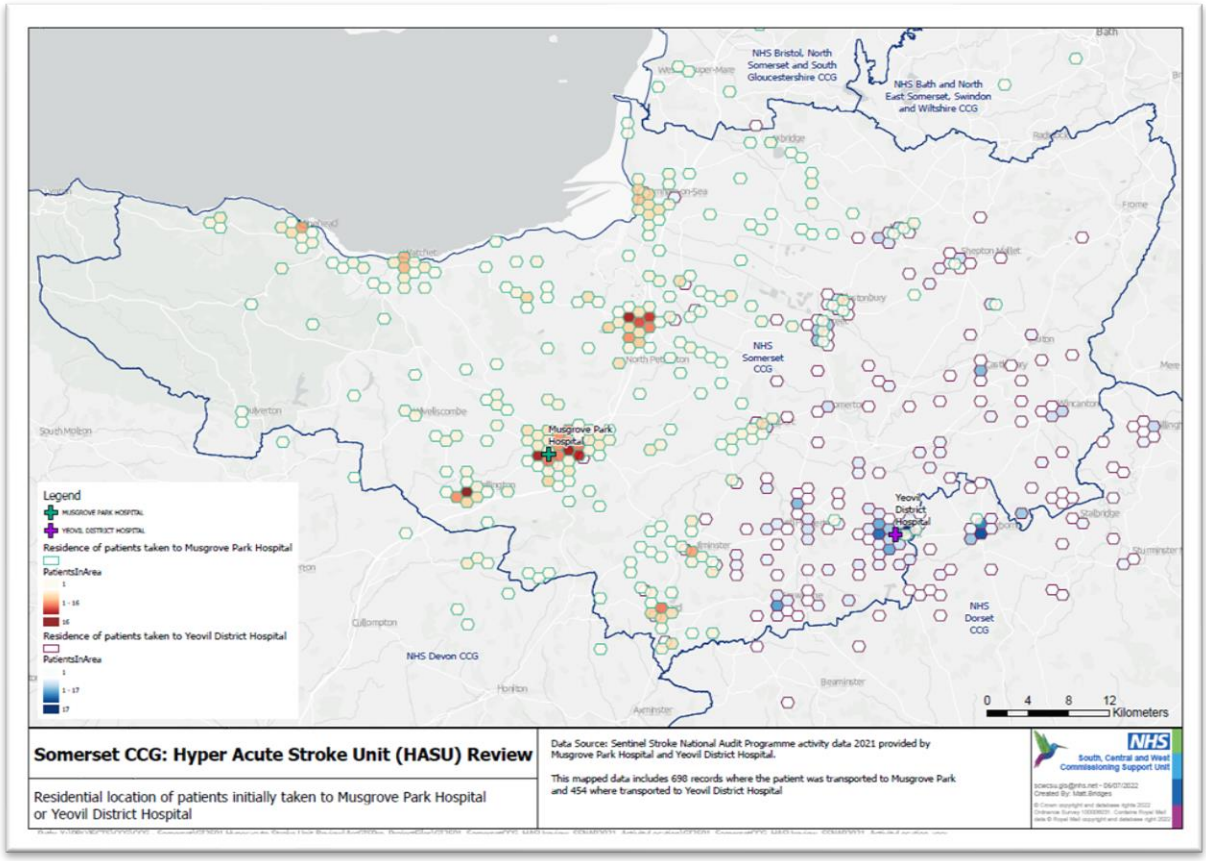
Several out of area patients are treated for stroke each year across both providers, this is most significant in YDH:

- Around 20% of stroke patients treated at Yeovil District Hospital are Dorset residents[144]
- 5% of stroke patients treated by Musgrove Park Hospital reside in Devon or North Somerset[145].

Any changes to the provision of hyperacute stroke services in Dorset, BNSSG or Devon will have an impact on these rates and conversely, any change to provision in Somerset, especially in Yeovil, will have an impact on neighbouring systems. This is explored further within the detailed modelling in Chapter 16.

The map below shows where patients who had a stroke live and whether they were transported to either Musgrove Park Hospital or Yeovil District Hospital[146].

[144] Sentinel Stroke National Audit Programme (SSNAP) submissions from January 1st 2018 to December 31st 2021 and cross-references with SUS data
[145] Sentinel Stroke National Audit Programme (SSNAP) submissions from January 1st 2018 to December 31st 2021
[146] SSNAP data 2021, provided by MPH and YDH. The data included records from 698 patients that were transported to MPH and 454 that were transported to YDH.



It is possible to see from this analysis that

- People are not always transported to their geographically closest hospital
- A significant number of people living in Dorset were transported to Yeovil for their stroke care
- People in Mendip, especially Glastonbury and Wells, went almost equally to either Taunton or Yeovil

Impact on thrombectomy

Centralisation of stroke services will have an impact on thrombectomy activity as it will lead to more people being seen by specialist teams 24/7, which will enable faster decision making and onward referral for thrombectomy intervention.

Any centralisation in Taunton is likely to have two primary impacts:

- There is likely to be an increase in activity going to Southmead (who are aiming to provide a 24/7 thrombectomy service in 2023)
- There would be a shift in current stroke activity from Yeovil into Dorset which may lead to an increase in thrombectomy activity at Southampton.

The tables below describe the position in both Southmead and Southampton[147] between 2016/17 and 2017/18:

The first two tables show how the numbers of patients eligible for thrombectomy and the number receiving thrombectomy have been increasing across both sites; however, these are below the target of 10% of eligible patients:

Southmead:

Thrombectomy Output: **Based on the team conducting the intra-arterial intervention**						*Thrombectomy Provider* South West SCN North Bristol NHS Trust	*Thrombectomy Provider* South West SCN North Bristol NHS Trust
Category	*Item Reference*	*Item*	*Data type*	*National*	*National*	*North Bristol Hospitals*	*North Bristol Hospitals*
Time period:				*Apr 2016-Mar 2017*	*Apr 2017-Mar 2018*	*Apr 2016-Mar 2017*	*Apr 2017-Mar 2018*
Thrombectomy	*H20.1*	Thrombectomy (all stroke types)	n	594	781	56	71
	H20.2		d	85878	86651	689	787
	H20.3		%	0.7	0.9	8.1	9

Southampton:

Thrombectomy Output: **Based on the team conducting the intra-arterial intervention**						*Thrombectomy Provider* Wessex SCN University Hospital Southampton NHS Foundation Trust	*Thrombectomy Provider* Wessex SCN University Hospital Southampton NHS Foundation Trust
Category	*Item Reference*	*Item*	*Data type*	*National*	*National*	*Southampton General Hospital*	*Southampton General Hospital*
Time period:				*Apr 2016-Mar 2017*	*Apr 2017-Mar 2018*	*Apr 2016-Mar 2017*	*Apr 2017-Mar 2018*
Thrombectomy	*H20.1*	Thrombectomy (all stroke types)	n	594	781	16	27
	H20.2		d	85878	86651	834	836
	H20.3		%	0.7	0.9	1.9	3.2

The second two tables show the timings of thrombectomy delivery.

It is possible to see that the median timings from onset to arrival, onset to arterial puncture and onset to completion have all increased (worsened) at Southmead, but reduced (improved) at Southampton:

[147] SSNAP Annual Portfolio for April 2017-March 2018 admissions and discharges; National Results, Kings College London

Southmead:

Thrombectomy Output: Based on the team conducting the intra-arterial intervention						Thrombectomy Provider: South West SCN, North Bristol NHS Trust	Thrombectomy Provider: South West SCN, North Bristol NHS Trust
Category	Item Reference	Item	Data type	National	National	North Bristol Hospitals	North Bristol Hospitals
Time period:				Apr 2016-Mar 2017	Apr 2017-Mar 2018	Apr 2016-Mar 2017	Apr 2017-Mar 2018
Timings from onset if received thrombectomy	H23.4	Onset to arrival time (if onset is known) (hours:mins)	Median	1:25	1:30	1:18	1:42
	H23.5		Lower IQR	0:59	1:04	0:59	1:15
	H23.6		Upper IQR	2:39	2:21	1:59	2:12
	H23.7	Time from onset to arterial puncture (hours:mins)	Median	3:56	4:07	3:45	5:01
	H23.8		Lower IQR	3:00	3:05	2:40	3:58
	H23.9		Upper IQR	5:10	5:15	5:00	6:45
	H23.10	Time from onset to completion (hours:mins)	Median	5:06	5:00	4:30	5:52
	H23.11		Lower IQR	3:59	4:02	3:15	4:41
	H23.12		Upper IQR	6:17	6:13	6:08	7:48

Southampton:

Thrombectomy Output: Based on the team conducting the intra-arterial intervention						Thrombectomy Provider: Wessex SCN, University Hospital Southampton NHS Foundation Trust	Thrombectomy Provider: Wessex SCN, University Hospital Southampton NHS Foundation Trust
Category	Item Reference	Item	Data type	National	National	Southampton General Hospital	Southampton General Hospital
Time period:				Apr 2016-Mar 2017	Apr 2017-Mar 2018	Apr 2016-Mar 2017	Apr 2017-Mar 2018
Timings from onset if received thrombectomy	H23.4	Onset to arrival time (if onset is known) (hours:mins)	Median	1:25	1:30	1:25	1:17
	H23.5		Lower IQR	0:59	1:04	0:59	0:45
	H23.6		Upper IQR	2:39	2:21	2:04	1:54
	H23.7	Time from onset to arterial puncture (hours:mins)	Median	3:56	4:07	4:28	3:55
	H23.8		Lower IQR	3:00	3:05	3:50	3:23
	H23.9		Upper IQR	5:10	5:15	5:15	5:10
	H23.10	Time from onset to completion (hours:mins)	Median	5:06	5:00	6:10	4:56
	H23.11		Lower IQR	3:59	4:02	4:58	4:15
	H23.12		Upper IQR	6:17	6:13	6:47	6:04

Thrombectomy is currently undertaken by a small number of highly specialised staff (as shown in the tables below). Nationally there is a challenge in recruiting and training these staff. This presents a challenge in supporting the increased demand that centralisation is likely to place on this intervention at both sites.

Southmead:

Thrombectomy Output: Based on the team conducting the intra-arterial intervention						Thrombectomy Provider: South West SCN, North Bristol NHS Trust	Thrombectomy Provider: South West SCN, North Bristol NHS Trust
Category	Item Reference	Item	Data type	National	National	North Bristol Hospitals	North Bristol Hospitals
Time period:				Apr 2016-Mar 2017	Apr 2017-Mar 2018	Apr 2016-Mar 2017	Apr 2017-Mar 2018
Specialty of the lead operator	H25.17	Denominator	d	594	781	56	71
	H25.18	Interventional neuroradiologist	n	579	765	55	67
	H25.19		%	97.5	98	98.2	94.4
	H25.20	Cardiologist	n	1	0	0	0
	H25.21		%	0.2	0	0	0
	H25.22	Interventional radiologist	n	13	11	1	4
	H25.23		%	2.2	1.4	1.8	5.6
	H25.24	Other	n	1	5	0	0
	H25.25		%	0.2	0.6	0	0

Southampton:

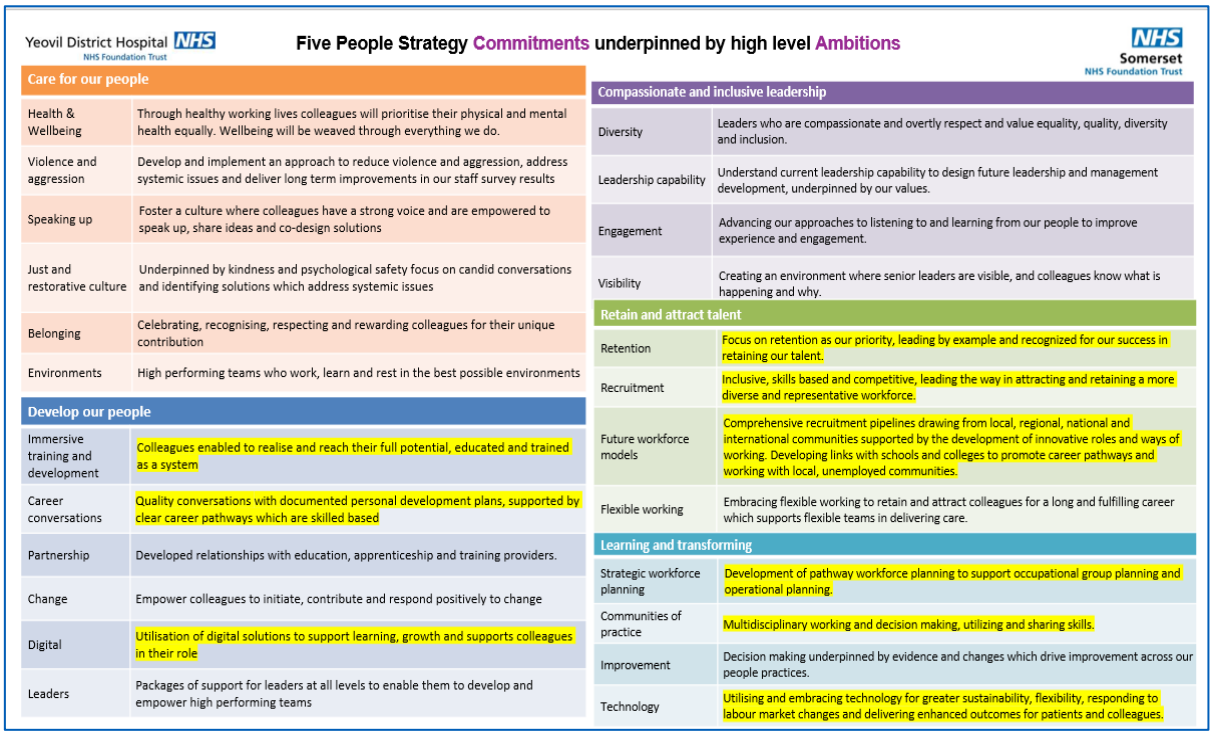
Thrombectomy Output: Based on the team conducting the intra-arterial intervention						Thrombectomy Provider: Wessex SCN, University Hospital Southampton NHS Foundation Trust	Thrombectomy Provider: Wessex SCN, University Hospital Southampton NHS Foundation Trust
Category	*Item Reference*	*Item*	*Data type*	*National*	*National*	*Southampton General Hospital*	*Southampton General Hospital*
Time period:				*Apr 2016-Mar 2017*	*Apr 2017-Mar 2018*	*Apr 2016-Mar 2017*	*Apr 2017-Mar 2018*
Specialty of the lead operator	*H25.17*	*Denominator*	*d*	*594*	*781*	*16*	*27*
	H25.18	Interventional neuroradiologist	n	579	765	16	27
	H25.19		%	97.5	98	100	100
	H25.20	Cardiologist	n	1	0	0	0
	H25.21		%	0.2	0	0	0
	H25.22	Interventional radiologist	n	13	11	0	0
	H25.23		%	2.2	1.4	0	0
	H25.24	Other	n	1	5	0	0
	H25.25		%	0.2	0.6	0	0

7. Our workforce

As already described, the demand for stroke care is predicted to increase over the coming years. As such, the number of specialist stroke staff will need to increase to ensure the delivery of safe and effective stroke care, in line with national guidance.

A People Plan[148] has been jointly developed between Somerset Foundation Trust and Yeovil District Hospital to support the transition to a unified way of working by setting out a vision for how to retain, develop, inspire, and attract staff.

The image below describes the 5 overall commitments, with supporting high level ambitions. The ones most relevant to the stroke workforce and supporting the stroke reconfiguration have been highlighted in yellow.



Yeovil District Hospital NHS Foundation Trust

Five People Strategy Commitments underpinned by high level Ambitions

Somerset NHS Foundation Trust

Care for our people	
Health & Wellbeing	Through healthy working lives colleagues will prioritise their physical and mental health equally. Wellbeing will be weaved through everything we do.
Violence and aggression	Develop and implement an approach to reduce violence and aggression, address systemic issues and deliver long term improvements in our staff survey results
Speaking up	Foster a culture where colleagues have a strong voice and are empowered to speak up, share ideas and co-design solutions
Just and restorative culture	Underpinned by kindness and psychological safety focus on candid conversations and identifying solutions which address systemic issues
Belonging	Celebrating, recognising, respecting and rewarding colleagues for their unique contribution
Environments	High performing teams who work, learn and rest in the best possible environments

Develop our people	
Immersive training and development	Colleagues enabled to realise and reach their full potential, educated and trained as a system
Career conversations	Quality conversations with documented personal development plans, supported by clear career pathways which are skilled based
Partnership	Developed relationships with education, apprenticeship and training providers.
Change	Empower colleagues to initiate, contribute and respond positively to change
Digital	Utilisation of digital solutions to support learning, growth and supports colleagues in their role
Leaders	Packages of support for leaders at all levels to enable them to develop and empower high performing teams

Compassionate and inclusive leadership	
Diversity	Leaders who are compassionate and overtly respect and value equality, quality, diversity and inclusion.
Leadership capability	Understand current leadership capability to design future leadership and management development, underpinned by our values.
Engagement	Advancing our approaches to listening to and learning from our people to improve experience and engagement.
Visibility	Creating an environment where senior leaders are visible, and colleagues know what is happening and why.

Retain and attract talent	
Retention	Focus on retention as our priority, leading by example and recognized for our success in retaining our talent.
Recruitment	Inclusive, skills based and competitive, leading the way in attracting and retaining a more diverse and representative workforce.
Future workforce models	Comprehensive recruitment pipelines drawing from local, regional, national and international communities supported by the development of innovative roles and ways of working. Developing links with schools and colleges to promote career pathways and working with local, unemployed communities.
Flexible working	Embracing flexible working to retain and attract colleagues for a long and fulfilling career which supports flexible teams in delivering care.

Learning and transforming	
Strategic workforce planning	Development of pathway workforce planning to support occupational group planning and operational planning.
Communities of practice	Multidisciplinary working and decision making, utilizing and sharing skills.
Improvement	Decision making underpinned by evidence and changes which drive improvement across our people practices.
Technology	Utilising and embracing technology for greater sustainability, flexibility, responding to labour market changes and delivering enhanced outcomes for patients and colleagues.

[148] See Appendix 20

Current stroke workforce at Musgrove Park Hospital, Taunton

The stroke service is provided from Dunkery Stroke Unit at Musgrove Park Hospital, where the hyperacute and acute stroke beds are located.

It is staffed in the following way:

- There are currently 4 WTE stroke consultants, plus an additional 0.4 WTE stroke consultant who is due to start in September.
- There is also 0.8 WTE associate specialist, with an additional 0.6 WTE cover coming from a colleague who is working in stroke rehabilitation but is keen to further develop expertise in acute stroke and TIA management. This additional 0.6 WTE has been part funded from the allocated additional 1 WTE stroke consultant post. The decision was made to do this because of the lack of stroke consultants in the job market.
- The stroke consultant (and associate specialist) team currently provide:
    - 09:00 – 17:00 cover Monday to Friday
    - 09:00 – 15:00 cover at weekends
    - HASU ward rounds 2x per day Monday to Friday and 1x per day at weekends
    - ASU ward rounds 1x per day Monday to Friday
    - 7-day TIA clinics
    - 5 stroke follow-up clinics per week (although since the Covid pandemic a number have been cancelled to enable the stroke consultants to provide medical cover for an additional general medical ward. This is a “temporary” measure that has been in place for over a year.
    - Input to the on-call stroke consultant on the AGWS (Avon, Gloucester, Wiltshire, Somerset) stroke thrombolysis network
    - 4 sessions (PAs) (each PA is 4 hours) of cover to the stroke recovery units in Williton and South Petherton
    - 2 stroke consultants also participate in the general medicine on-call rota, which impacts on availability for stroke related activity
- There are 3 WTE Band 7 Stroke Practitioners who respond to thrombolysis calls from the Emergency Department 7-days a week between the hours of 08:00 to 20:00. These skilled practitioners can interpret CT scans and assess the patient prior to thrombolysis being given. Where stroke thrombolysis / thrombectomy is indicated, they support the stroke consultant (in-hours) and the medical registrar (out-of-hours) in the assessment and management including ensuring direct admission to the HASU, administration of thrombolysis, and swallow screening. They also see to referrals for suspected strokes across the hospital wards. They have started attending stroke follow-up clinics with an aim to begin delivering this element of service. Currently they are working towards Advanced Practice through a modular approach

with Bristol University. They also support the hyperacute unit and provide training for the Band 6 nurses.

- There are 5.19 WTE specialist HASU Nurses (over establishment by 0.03 WTE). They work solely within the hyperacute unit at a ratio of one nurse to two hyperacute beds. These hyperacute band 6 nurses carry the thrombolysis bleep and respond to thrombolysis calls and support the ED overnight with the delivery of treatment if appropriate.
- The physiotherapy team are dedicated to the stroke unit. They provide a 7-day assessment only service, where we see new patients and those that would deteriorate due to respiratory complications and tone changes over the weekend. The aim is to provide 45 mins a day for those that will tolerate it, however, that has not been achieved recently due to a band 6 vacancy and staff being required to cover outliers. The outlier service is now covered by the neuro team.
    - Band 7: 1 WTE
    - Band 6: 1 WTE (vacant, but filled with 0.1 WTE via the Bank)
    - Band 5: 2 WTE
    - Band 3: 2 WTE
- The Occupational Therapy (OT) team provide 45 minutes of OT per day for all stroke patients Monday to Friday. However, if there are vacancies or if there are stroke outliers on other wards, meeting this is a challenge. On weekends, there is a therapy service for new stroke assessments only, which is covered by one OT and one physio. They will assess new strokes within 24 hours of stroke diagnosis. The stroke service is funded for 3.6 qualified OT's and 2 OT assistants, as follows:
    - Band 7: 0.6 WTE
    - Band 6: 2 WTE (1 vacant - hope to fill early October)
    - Band 5: 1 WTE
    - Band 4: 0.6 WTE
    - Band 3: 1.4 WTE
- The Speech and Language Therapy (SLT) team provide cover Monday to Friday, plus Bank Holidays. There is no weekend provision. The team consists of:
    - Band 6: 2 WTE (sometimes experienced Band 5's to fill gaps and cover)
    - Band 4: 0.5 WTE
- There is dietetic cover to the HASU only on Monday to Friday. It is provided by a 0.5 WTE Dietitian (this is currently split 50:50 between a Band 6 and Band 5, although the funding is for Band 6). There is a vacancy for a Band 6 0.3 WTE Dietitian and Band 3 0.2 WTE Dietetic Assistant.
- There are several general nurses / HCAs who also support in the delivery of care.

- Band 7: 1 WTE
- Band 6: 1 WTE
- Band 5: 17.28 WTE (over establishment by 2.33)
- Band 3: 2 WTE enablement staff (vacant)
- Band 2: 13.85 WTE (over establishment by 2.04)
- Band 1: 1 WTE Apprentice HCA (vacant)
- Also, there are 4 WTE Band 4 overseas nurses that are awaiting PINS
- Band 2 Receptionist = 1.89

Current stroke workforce at Yeovil District Hospital

The stroke service beds are split across two locations at Yeovil District Hospital; the hyperacute stroke beds are co-located within the acute Coronary Care Unit (CCU) on ward 8B and the acute stroke beds are co-located with General Medicine on ward 9A.

It is staffed in the following way:

- There is specialist Stroke Consultant cover five days a week with a daily ward round of stroke beds. A second ward visit is undertaken if there are clinical concerns. At weekends there is a daily telephone consultation for all new patients and those with clinical needs.
- There is a 0.4 WTE Band 8b Stroke Nurse Consultant who is available 2 days a week, who provides thrombolysis cover, ward round and clinic support
- There are 2.6 WTE specialist stroke nurses that visit all new patients, assist with thrombolysis, and facilitate ensuring the stroke pathway is met. They work Monday to Friday 08:00 – 18:00 and weekends 09:00 – 17:00. They also deliver the Aspire course, a 12-week course for stroke survivors.
    - Band 7: 1 WTE
    - Band 6: 1.6 WTE
- The occupational therapists and physiotherapists provide cover 5 days a week. At weekends, they prioritise new admissions and people requiring input to enable same day discharges but will provide stroke rehab if time allows. If all other core weekend work has been completed, they may do additional stroke therapy, however this is not consistent. There are also Band 3 rehabilitation assistants working at the weekend. Therapy staff cover other wards and therefore they are unable to deliver the recommended 60 minutes of stroke therapy, per discipline, per day.
- Speech and Language cover is 5 days a week. They are unable to deliver the recommended 60 minutes of rehab every day.

- The ward is staffed to the level of an acute medical ward with the HASU being staffed to that appropriate for the patient needs, however staff are also required to manage patients with cardiac and general medical high-dependency needs as well as stroke.
- There are numerous vacancies across the disciplines within the service, except for the specialist nurse team. In addition, the Stroke Consultant is due to retire imminently, which presents a significant risk to the service. A locum advert has been active for some time with a varying degree of success.

Current workforce gaps

The table below summarises the current gaps in the staffing position, based on the recommended staffing levels for stroke[149]. It should be noted that the workforce information changes regularly, and therefore was correct only at the time of publication.

Further analysis will be required on a regular basis to ensure accuracy.

In addition, it should be noted that much of the medical and allied health professional workforce do not solely work within stroke services and will include more junior members of staff that may work across a few specialities.

	In post		Vacancies/ gap from budget
	Substantive	Locums	
YDHFT			
Medics (consultants)	0.95*	1**	0.05
Medics (other than consultants)	4.8	1	-
Consultant stroke nurse	0.4	-	-
Specialist nurses / practitioners	2.6	-	-
Nurses (incl. HCAs)	24.41	-	1.4
Allied health professionals (incl. assistants)	5.61	-	0.70
SFT acute			
Medical: consultants	4.8	-	2.0
Medical: doctors in training	4	-	-
Specialist nurses / practitioners	3	-	-
Nurses (incl. HCAs)	43.99	-	-
Allied health professionals and psychologists (incl. assistants)	14.85	-	1.3
SFT Community SRU, ESD & CST			
Medical: consultants	(0.4WTE - included in acute *WTE)*	-	-
Medical: specialty doctors	2.0		
Consultant Therapist	1.0	-	-
Specialist nurses / practitioners	0.8	-	1.0
Nurses (inc HCAs)	63.54	-	7.71

[149] 2016-National-Clinical-Guideline-for-Stroke-5t-(1).aspx (strokeaudit.org)

Allied health professionals and psychologists (incl. assistants)	43.51	-	2.2

*: The substantive stroke consultant at YDHFT is physically at YDH 3 days a week and is available by phone for his remaining hours.

**: The locum stroke consultant at YDHFT is on a rolling contract rather than fixed term and may leave at any time.

Notes:
1. All figures are whole time equivalents.
2. All nurses complete general and stroke-specific inductions which includes stroke specific training e.g. The Stars training as well as spending time with MDT members to support training on stroke-specific needs.

Musgrove Park Hospital

Current workforce as at October 2022:

	In post		Vacancies	National recommended levels** (based on 19 ASU and 4 HASU beds)
	Substantive	Locums		
Acute (HASU & ASU)				
Stroke consultants	4.8***	-	2	**NOT MET##** **HASU: 24/7 consultant availability** **ASU: Ward round 5 days of week**
Other stroke medics	4 *(Junior Doctors)* 1x Physician Associate 1x Medical Support Worker	-	-	
Clinical nurse specialists/ stroke practitioner nurses/ Advanced nurse practitioners	3	-	-	
Physiotherapists (including 2.0 WTE Assistant Physiotherapists)	6.0	-	0.6	**MET – for 5 day working** **3.77** HASU: 0.58 ASU: 3.19 **MET – for 7 day working** **5.29** HASU (Adj for 7 day working): 0.8176 ASU (Adj for 7 day working): 4.4688
Occupational therapists (including 2.55 WTE assistant OTs/*apprentice assistant*))	6.25 *(Band 6s work rotationally in Neuro and Stroke)*	-	0.5	**MET – for 5 day working** **3.62** HASU: 0.54 ASU: 3.08 **MET – for 7 day working** **5.07** HASU: 0.7616 (Adj for 7 day working) ASU: 4.3092 (Adj for 7 day working)
Ward nurses (inc. HASU, ASU Nurses and Band 2-4 nursing staff)	43.99	-	-	**MET** HASU: 11.6 *(80:20 Registered: Unregistered)* ASU: 25.65 *(65:35 Registered: Unregistered)*
Speech & language therapists	2.0	-	-	**MET (5 day)** **1.79** HASU: 0.27 ASU: 1.52
Dietitian	0.6	-	0.2	**MET** **0.69**

				HASU 0.12' ASU: 0.57
Community stroke care				
Stroke consultant therapist (works across acute & community)	1	-	-	
Community stroke rehabilitation units**				
Consultant	(0.4WTE included in acute consultants staffing above)	-	-	
Physician	2.0 Associate Specialists	-	-	
Clinical nurse specialists/ stroke practitioner nurses/ Advanced nurse practitioners	0.8 at South Petherton community Hospital	-	1.0 at Williton Community Hospital	
Nurses *(inclusive of Band2-Band7)*:	South Petherton CH – 33.52 (inclusive of 20.3 Band 2-4) Williton CH – 26.02 (inclusive of 15.26 Band 2-4)	-	5.58 2.13	**MET** 1.35 WTE per bed 47.25
Physiotherapists	4.3	-	-	**NOT MET** **5.88** 0.84 / 5 beds weekdays only 7 day working 1.176 / 5 beds
Occupational Therapists	1.4	-	1.0	**NOT MET** **5.67** 0.81 / 5 beds weekdays only 7 day working 1.134 / 5 beds
Speech and Language Therapists	1.7	-	-	**NOT MET** **2.8** 0.40 / 5 beds weekdays only
Rehabilitation Assistants	4.0		-	Mitigates shortfall of OT and PT staff to a degree
Community stroke team and Early Supported Discharge****				
Physician				**NOT MET** 0.1 WTE per 100 referrals/year 1.0 WTE
Nurses	3.2	-	-	**NOT MET** **4.68 WTE** 0.6 WTE per 100 referrals/year
Physiotherapists	8.1	-	0.6	**MET** **7.8**

				1 WTE per 100 referrals/year
Occupational Therapists	7.48	-	-	**NOT MET** 7.8 1 WTE per 100 referrals/year)
Speech and Language Therapists	1.4	-	-	**NOT MET** **3.12** 0.4 WTE per 100 referrals/year
Rehabilitation Assistants	12.33	-	-	**MET** 7.8 1 WTE per 100 referrals/year
Clinical Psychologists###				
Clinical Psychologists (include support role)	2.8 *(split 1.8 qualified and 1.0 unqualified)*	0	0.6	**Not MET** ***MPH: 0.92*** ***YDH: 0.64*** ***SRCs: 1.4*** ***ICSS: 1.5-3.0*** ***Recommended = 4.46-5.96***
Total	**180.69**	**0**	**14.21**	

N.B. All figures are whole time equivalents.
** Based on National Clinical Guideline for Stroke - figure Table 2.1. 2016-National-Clinical-Guideline-for-Stroke-5t-(1).aspx (strokeaudit.org) and https://www.england.nhs.uk/wp-content/uploads/2022/02/stroke-integrated-community-service-february-2022.pdf

*** Consultants provide daily cover for TIA service and community stroke rehabilitation units.

****Based on National service model for integrated community stroke service – Feb 2022 - https://www.england.nhs.uk/wp-content/uploads/2022/02/stroke-integrated-community-service-february-2022.pdf

##: Consultant care is available 7 days a week, but not 24 hours.

Clinical Psychologists work flexibly across the whole pathway and as such their hours are not split between the different services.

The ICSS recommends 0-0.5 WTE social worker for the MDT. Currently the community team liaise with Somerset Adult Social Care on a patient-by-patient basis. A dedicated social worker integral to the team could be more efficient and can be explored as the ICS develops.

Yeovil District Hospital

Current stroke workforce as at October 2022:

	In post		Vacancies/ gap from budget	National recommended levels** (based on 12 ASU and 4 HASU beds)
	Substantive	Locums		
Acute (HASU & ASU)				
Stroke consultants	0.95	1.0	0.05	**NOT MET** HASU: 24/7 consultant availability ASU: Ward round 5 days/week
Other stroke medics	4.8 *(4.0 Juniors and 0.8 Registrar)*	1 *(for current additional support – not a fixed post)*	-	
Consultant Nurse (*Consultant level nurse included in consultant HASU & ASU activity*)	0.4	-	-	
Clinical nurse specialists/ stroke practitioner nurses/ Advanced nurse practitioners	2.6	-	-	
Physiotherapists (including Rehabilitation Assistants)	*2.0* *Adjusted WTE to cover stroke workload/beds (~50%)*	-	0.6	**NOT MET** **2.6** HASU: 0.58 ASU: 2.02
Occupational therapists (including 1.13 Rehabilitation Assistants)	*2.21* *Adjusted WTE to cover stroke workload/beds (~50%)*	-	0.1	**NOT MET** **2.48** HASU: 0.54 ASU: 1.94
Ward nurses (including HCAs)	HASU: 9.14 ASU: 15.27 *Adjusted WTE to cover stroke beds only (4/12)*	-	HASU: 0.9 ASU: - *Adjusted WTE to cover stroke beds only*	**NOT MET** HASU: 11.6 *(80:20 Registered: Unregistered)* ASU: 16.2 *(65:35 Registered: Unregistered)*
Speech & language therapists	1 *(works under an SLA from SFT)*	-	-	**NOT MET** **1.23** HASU: 0.27 ASU: 0.96
Stroke specialist dietician	0.4	-	-	**NOT MET** **0.48** HASU: 0.12 ASU: 0.36
Total	38.77	2	1.65	

N.B. All figures are whole time equivalents.
* Consultants provide daily weekday cover for TIA service
** Based on National Clinical Guideline for Stroke - figure Table 2.1. 2016-National-Clinical-Guideline-for-Stroke-5t-(1).aspx (strokeaudit.org)

Current challenges

A comprehensive and integrated end-to-end stroke pathway presents a highly complex workforce challenge for health and social care providers.

As was recognised in the recent Getting It Right First Time (GIRFT) programme National Specialty Report[150] stroke services have been at the vanguard of many improvements in clinical care: one of the first medical specialties to deliver seven-day ward rounds, extended nursing and therapy roles, in-reach into busy A&E departments, and early supported discharge (ESD) teams to drive more rapid assessment and transfer. This resulted in a 49% reduction in length of stay between 2001-14 based on SSNAP data.

However, there has not always been a parallel increase in staffing or change in bed base. Many appropriately staffed stroke units can be perceived by hospital managers as being “overstaffed older people’s care wards” and are often the first port of call when staffing is short elsewhere. Furthermore, stroke nursing can be perceived as disproportionately labour-intense, and medical trainees see stroke as a very rota-intense specialty.

[150] Getting It Right First Time (GIRFT) programme National Specialty Report

The current workforce pressures and the way staffing is configured across Somerset impacts on our ability to meet national stroke standards and means that we cannot make the changes necessary to improve or sustain an effective, safe stroke service. These are summarised below:

- Difference in the availability of specialist medical staff to diagnose and treat stroke patients at Taunton and Yeovil.
- Not enough staff to provide equitable service 24 hours a day, 7 days a week. Patients are less likely to be assessed by a Stroke Consultant if they arrive at hospital at night or at the weekend.
- Recruitment challenges for medical and nursing staff across both sites.
- Consultant recruitment is challenging due to uncertainty of current Stroke provision in certain settings
- Staff training and development opportunities are not coordinated across Somerset.
- Career development pathways and succession planning are not clear.

New models of care are required that create greater flexibility across both sites and across the patient pathway, so that specialist clinical skills can be directed to where they will have the greatest impact on improving care and outcomes for people who have experienced a suspected or confirmed stroke.

However, several risks have been identified through the work undertaken by the programme so far, as follows:

- The burning platform of risk associated with the pending retirement of the current stroke consultant may force changes to the service in an unplanned and less than optimal way.
- During the process of developing options for service change, the sustainability of existing services may be compromised as recruitment and retention is impacted.
- There may be insufficient workforce to deliver the redesigned stroke care pathway or to deliver current services during the transition process.
- Capacity planning assumptions may not be accurate which leads to capacity deficits in the future state which may result in patients not receiving timely access to stroke care.

We recognise that service change is unsettling for staff. Some of the options presented at longlisting and shortlisting have significant implications for staff working in stroke services across the county and as such we have made a commitment to ensure that the voices of staff are listened to and that they inform the development of the service reconfiguration options and clinical model.

Ultimately, we need to ensure that our stroke specialist staff are supported to deliver care in a way that enables them to respond quickly and easily to fluctuating service pressures and optimises patient care both during and after the reconfiguration.

Retaining existing staff is a key objective of the reconfiguration programme and success in this area will lead to a successful implementation programme across Somerset.

Workforce training and development

Fundamentally one of the keys to unlocking the workforce challenge is to adopt and deliver a "skills and capabilities" model rather than one solely based on professional qualifications.

We should foster collaborative rather than competitive behaviours between disciplines which allows greater flexibility in the range of workforce solutions available for an existing workforce. It allows non-registered staff and the voluntary sector to develop a range of skills that are additive to stroke survivors' care delivery.

When individuals are given the skills, and then the freedom to use those skills, it will deliver tangible benefits in terms of quality of care and efficiency.[151]

One of the top reasons for people leaving their NHS post is that they do not receive the development and career progression that they need[152].

In Somerset Foundation Trust one of the challenges with retaining stroke nursing and therapy staff in the past has been a perceived lack of options in this regard: to seek personal or career development these staff have moved to other specialties / departments, or other NHS trusts.

The Somerset Stroke Framework is designed to describe and support the development of the skills and knowledge that all health care professionals and support staff require to deliver high quality care as part of the Somerset Stroke Pathway in both the hospital and community setting.

Continuous Personal Development (CPD) − or more specifically workforce development – offers staff career progression that motivates them to stay within the stroke service and, just as importantly, equips them with the skills to operate at advanced levels of professional practice and to meet patients' needs of the future.

A joint report between the King's Fund, Nuffield Trust, and Health Foundation[153] addressing workforce issues in the NHS and social care highlighted the importance of role enhancement in the professional workplace.

There is good evidence that nurses and others in advanced practice roles can help to deliver more patient-focused care and undertake activities traditionally done by other staff, including doctors. A recent

151 Getting It Right First Time (GIRFT) programme National Specialty Report
152 Chapter 5; NHS Long Term Plan 2019
153 Closing the Gap: Key areas for action on the health and care workforce

six-country review of advanced nursing roles found that they were growing at between three and nine times the rate of doctors.

In hospital settings, advanced practice roles offer opportunities to improve clinical continuity; provide mentoring and training for less-experienced staff; and offer a rewarding, clinically facing career option for experienced staff. They also enable consultant medical staff to work at the top of their licence. The nursing associate role, regulated by the Nursing and Midwifery Council, aims to bridge the skills gap between registered nurses and health care support workers in NHS trusts. The hope is that nursing associates will deliver hands-on care, freeing up registered nurses to do more advanced tasks. The role also provides the support workforce a career ladder to nursing.

To deliver the "skills and capabilities" workforce model we will use available resources to enable mapping of competencies for our staff that not only ensures they are fully equipped to undertake their current role, but also gives them a clear and objective plan to develop and extend their role. This is key to upskilling our stroke workforce.

The Stroke Specific Educational Framework (SSEF)[154] aims to establish nationally recognised, quality assured and transferable education programmes in stroke. The SSEF consists of 16 Elements of Care; within each Element of Care there are key competencies that reflect the "knowledge and understanding" and "skills and abilities" a member of staff should possess if they work in that area on stroke care delivery. This SSEF has been updated to support education of other key members of the multidisciplinary team, including a more developed section for Advanced Clinical Practitioners (ACPs) and a description of practical competencies for extended and advanced practice roles.

Health education England (HEE) have also produced the Stroke Training Guide[155] which provides learners with a comprehensive list of available resources that can be used simultaneously with the SSEF to support workforce upskilling, training, and development.

The Royal College of Nursing (RCN) has developed a UK Career Framework for Stroke Nurses[156] which outlines the range of career pathways within stroke nursing and minimum recommended education requirements, in addition to knowledge and skills. It provides a guide for stroke services and employers to develop local career development frameworks for the nursing workforce. Registered nurses working in stroke care can map their career development, as well as assess their skills and knowledge based on this resource and linked resources.

154 Stroke Specific Educational Framework (SSEF)
155 Stroke Training Guide
156 UK Career Framework for Stroke Nurses

HEE have also developed the HEE-Star model[157] which can be applied to workforce challenges in any setting. It is built around five key enablers:

- Supply
- Up-skilling
- New Roles
- New ways of working
- Leadership

Theme (HEE-STAR) Model	Key Deliverables	Milestones
Supply	Ensure clear understanding of workforce requirement Develop pipeline plans for future supply from registrar posts Recruitment of associate specialists and develop CESR plan Review recruitment and retention options including overseas recruitment	Detailed workforce modelling of options in business case Business case for 3 additional stroke ANPs in acute stroke unit Advert for ANP in stroke rehabilitation unit Appointment of new consultant from registrar post within 6 months of CCT Appointment of associate specialist with stroke rehabilitation experience
Up-skilling	Engagement with RCN Stroke Career Framework and Stroke Specific Education Framework (SSEF): Review roles and design clear development plan for current stroke ANPs in post Review development plans for current therapy assistants and therapists Career development plan for nursing associates	Associate Director of patient care developing clear plan Associate Director of patient care developing recruitment and training plan
New Roles	Development of Physician Associate posts on stroke unit Creation of new Stroke Advanced Clinical Practitioner posts New Nursing associate posts	1st year concluded of 4-monthly rotation of physician associates on stroke unit Business case for Stroke ACP posts
New ways of working	Expansion of ACP role to cover traditionally medical (consultant) activities (e.g., stroke clinics) Development of ACP role Rotational posts across organisational boundaries	Current stroke ANPs started attending clinics to develop their experience Business case for additional ACPs Therapy rotations between acute and community units Successful trial of remote follow-up clinics

[157] HEE-Star model

	Virtual / remote delivery of patient care (clinics, ward rounds)	
Clinical Leadership	Merger of SFT and YDH trusts will facilitate a review and integration of governance and leadership structures Strong multidisciplinary leadership across both trusts High visibility and oversight at Trust board and ICB level	Consultant stroke AHP from SFT is rehab lead for ISDN Consultant stroke nurse from YDH is manager for CVD within NHSE/I Sign-up from SFT CEO & executive team, and ICB to deliver on plans

Recruitment and retention

Somerset, like elsewhere in England, struggles to recruit to specialist stroke roles. As such, within Somerset there is an aspiration to explore more innovative and creative ways to recruit and retain specialist stroke staff and ensure workforce sustainability.

Potential solutions may include greater cross-site working and opportunities for rotations or secondments between sites, the development of a single workforce across the hyperacute phase of the stroke pathway, development of more advanced clinician roles (such as Physicians Associates and Advanced Clinical Practitioners), provision of a clear training and development plan for all staff, creating or utilising digital technology to overcome the workforce challenges created by our geography.

It is important that the workforce is enabled to function in the most in the most efficient and effective way to ensure that their time and skills at being used in the best way, for example by reducing time that specialists may spend on completing tasks that may be more appropriate to be delivered by other members of the team.

The benefits of enhancing the workforce model are extensive and include:

- Creating a more attractive place to work, which will lead to improved recruitment and retention levels, recruitment, and lower vacancy rates
- Ensuring adequate staffing levels and skill mix to meet national service specifications and deliver the best quality treatment, care and support for people who have had a suspected or confirmed stroke or TIA
- Improved equity of provision for development, education and high-quality training for all staff involved in the delivery of stroke care across the county
- A reduction in avoidable temporary staffing levels and costs, either through bank or agency
- Improved sickness levels
- Improved staff satisfaction and engagement levels, leading to improved retention rates
- Improved succession planning and talent management

Medical Recruitment

The stroke medical consultant workforce has been a real concern across the UK: just over 50% of stroke services currently have a consultant vacancy based on the last SSNAP Acute Organisational Audit[158]. In Somerset there has been difficulty in recruitment of consultant stroke physicians, particularly to Yeovil District Hospital.

Following several reviews of medical training[159] [160] all UK curricula needed to incorporate the GMC Generic Professional Capabilities Framework[161] by 2020. This created an opportunity allow more flexibility and opportunity for doctors to train in stroke medicine:

- Neurology – the entire stroke medicine curriculum is to be embedded in neurology training with internal medicine, so all neurologists will be trained in the management of stroke. This may facilitate closer working between (if not integration of) acute neurology and acute stroke services in the future.
- Geriatric medicine – all trainees will undertake core stroke medicine with an opportunity to elect to train in more detail under the "Theme for Service" special interest model.
- Acute internal medicine – all trainees will undertake core modules in stroke medicine with an opportunity to elect to train in more detail under the "Specialist Skill"

These changes to the postgraduate medical training curriculum may create a more streamlined pipeline supply of future consultant stroke physicians: by enabling more trainee doctors to gain exposure to stroke medicine there is a great opportunity to positively influence their career choices.

Another option to consider is the recruitment and development of associate specialists. Somerset Foundation Trust (and indeed the stroke service at Somerset Foundation Trust) has a track record of developing the knowledge and skills of associate specialists, including progression to specialist accreditation through the CESR route. We will continue to explore these opportunities, as well as innovative recruitment methods including appointment of overseas candidates.

Integration of the stroke workforce

Preparation for the merger of Taunton and Somerset NHS Foundation Trust and Somerset Partnership NHS Trust in 2020 was a driver for a project aiming to integrate the acute stroke team at Musgrove Park Hospital and the stroke rehabilitation teams in the stroke rehabilitation units and

158 2021-PAOrgPublicReport.aspx (strokeaudit.org)
159 Shape of Training review, 2014
160 GMC review of curricula and assessment standards 2017
161 GMC Generic Professional Capabilities Framework

community. This led to several developments to break down barriers and improve the ways of working, which included:

- Development of integrated stroke clinical governance processes including single integrated stroke performance dashboard
- Whole pathway mapping and streamlining of processes (e.g., referral from acute to community teams)
- Pathway shadowing so that stroke team members had a greater understanding of colleagues' pressures at other points along the stroke pathway
- Improvement in information sharing to reduce repetition and reduplication of work, and delays
- Therapy staff rotation between acute and rehabilitation setting
- Regular Leadership Exchange meetings between senior nurses in acute and rehabilitation units

There are additional opportunities that could also be realised through the merger and this stroke reconfiguration, including full integration of the stroke teams to develop a single Somerset-wide stroke team with a single stroke clinical leadership team with shared objectives and goals. Benefits could include:

- Clarity of leadership and direction across the whole stroke pathway, from prevention through to rehabilitation
- Clearly defined governance, leadership, and employment models
- Financial adaptability to enable flexibility within recruitment to meet the needs of the service
- Alignment of pay and reward across roles and sites
- Harmonisation of paperwork and processes between the two trusts to reduce unnecessary variation, duplication, and delays
- Single workforce plan across the pathway with visibility of new role development, education pathways, vacancies, and targets.
- Alignment and integration of recruitment
- Opportunities for staff rotations and secondments between hospital sites and across the whole of the stroke pathway
- A consistent Somerset-wide stroke education and training programme

The two trusts have already organised stroke workshops attended by members of the acute stroke services in Musgrove Park Hospital and Yeovil, as well as representatives of the community stroke units and community rehabilitation service.

These enablers are being addressed by a workforce subgroup and will continue to develop as the programme progresses to the decision-making phase.

Cross-border collaboration

There is an opportunity to work more closely with our cross-border systems, especially Dorset. There is potential to explore collaboration and partnership working, including some of the ideas mentioned above, such as secondments, training, and innovation within recruitment. These will be explored more fully within the next phase of our work.

Next steps for developing sustainable staffing

A workforce working group has been established to fully explore the current position, current challenges and implications of delivering the final shortlisted options.

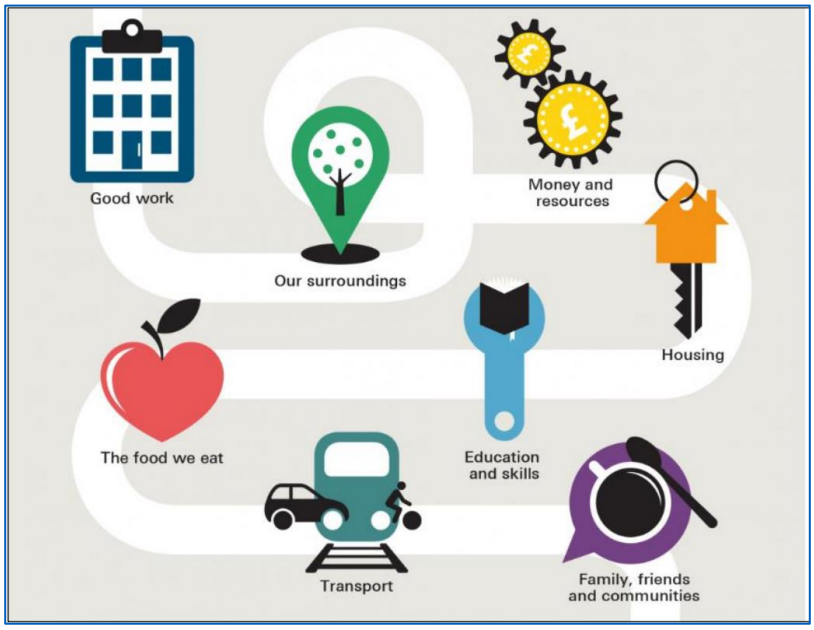
This group has already met through two well-attended workshops, with further workshop sessions planned for 2023.

This group has representation from across both YDH and MPH, including medical staff, nursing, therapies and psychology, as well as service leads and Human Resources. It will be important to ensure Dorset representation on this group going forwards to ensure opportunities for cross-border collaboration are maximised.

8. Health inequalities and stroke

Our health and wellbeing are shaped by a complex interaction between many factors[162]. These include the accessibility and quality of health and care services, individual behaviours and, most importantly, the wider determinants of health, both individual, such as housing and income or societal, such as air quality or the economy.

An estimated 60-80% of health is attributable to the wider determinants of health[163].



[164]

Meeting the needs of socially excluded and marginalised groups is a key test of a healthcare system's effectiveness and compassion.

Adrian James, Registrar, The Royal College of Psychiatrists[165]

[162] Evidence hub: What drives health inequalities? - The Health Foundation
[163] Chapter 6: wider determinants of health - GOV.UK (www.gov.uk)
[164] Infographic: What makes us healthy?
[165] Version-3.1-Standards-2018-Final.pdf (pathway.org.uk)

Health inequalities exist because of systematic variations in these factors. Health inequalities are the differences in the status of people's health, the care that people receive and the opportunities that they have to lead healthy lives. All of these contribute to peoples' physical and mental health[166].

Health inequalities are avoidable, unfair, and systematic differences in health between different groups of people. There are many kinds of health inequality, and many ways in which the term is used. This means that when we talk about 'health inequality', it is useful to be clear on which measure is unequally distributed, and between which people[167].

Health inequality can be experienced by people who fall into one or more of the groups below:

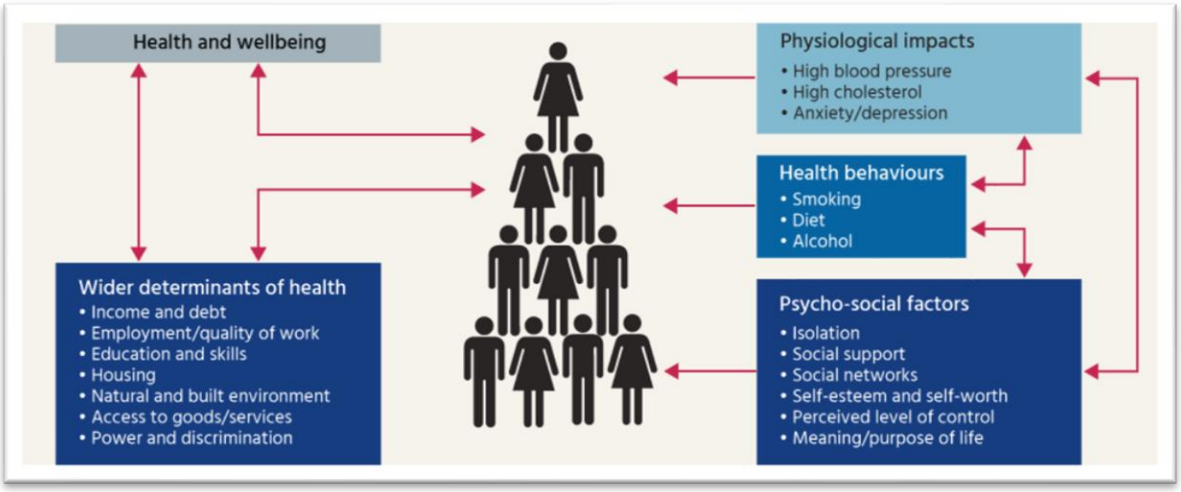
- **Protected characteristics**, including age, sex, race, religion or belief, disability, sexual orientation, gender reassignment, pregnancy and maternity, marriage and civil partnership
- **Inclusion health groups**[168], such as those experiencing homelessness, drug and alcohol dependence, vulnerable migrants, Gypsy, Roma and Traveller communities, sex workers, people in contact with the justice system and victims of modern slavery
- **Socio-economic factors**, such as household income, employment status or educational achievement
- **Geography**, such as access to services, whether someone lives in a rural or urban area, environmental factors, access to transport or living in areas of higher deprivation

Health inequalities can lead to differences in:

- **Health status**, e.g., life expectancy
- **Access to care**, e.g., availability of given services
- **Quality and experience of care**, e.g., levels of patient satisfaction
- **Behavioural risks to health**, e.g., smoking rates
- **Wider determinants of health**, e.g., quality of housing

The relationships and interdependencies between these factors can be seen in the image below[169]:

166 What are health inequalities? | The King's Fund (kingsfund.org.uk)
167 What are health inequalities? | The King's Fund (kingsfund.org.uk)
168 NHS England » Inclusion health groups
169 Adapted from Labonte R. Heart health inequalities in Canada: modules, theory and planning. Health Promotion International 1992;7(2):119-128.



The unwarranted variation in stroke care may inversely impact different groups within society.

NHS RightCare[170]

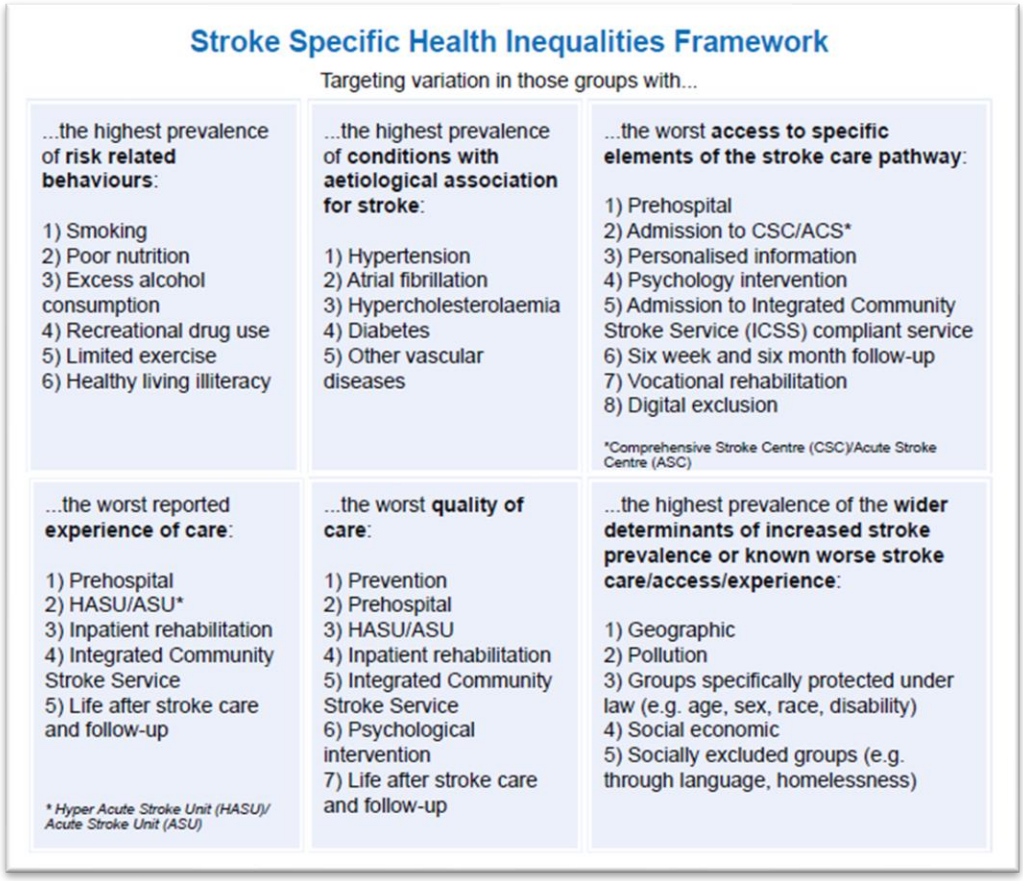
An NHS England health inequalities improvement programme (Core20PLUS5)[171] will see each Integrated Care System (ICS) have a designated Health Inequalities Lead. It is recommended that each Integrated Stroke Delivery Network (ISDN) coordinates their health inequalities work with their ICS Health Inequalities Leads.

NHS RightCare have developed the Stroke Specific Inequalities Framework[172] which is designed to highlight variation relation to health inequalities and stroke outcomes[173]:

Assessing the impact of intervening in some of the opportunities listed below can be used to prioritise funding and target those most in need.

This framework identifies different areas of potential inequality and suggests metrics for identifying needs and tracking impact.

170 B0850-RightCare-Stroke-Toolkit_July-2022.pdf (england.nhs.uk)
171 NHS England » Core20PLUS5 – An approach to reducing health inequalities
172 B0850-RightCare-Stroke-Toolkit_July-2022.pdf (england.nhs.uk)
173 NHS RightCare » Stroke toolkit (england.nhs.uk)



Stroke Specific Health Inequalities Framework

Targeting variation in those groups with...

...the highest prevalence of **risk related behaviours**:

1) Smoking
2) Poor nutrition
3) Excess alcohol consumption
4) Recreational drug use
5) Limited exercise
6) Healthy living illiteracy

...the highest prevalence of **conditions with aetiological association for stroke**:

1) Hypertension
2) Atrial fibrillation
3) Hypercholesterolaemia
4) Diabetes
5) Other vascular diseases

...the worst **access to specific elements of the stroke care pathway**:

1) Prehospital
2) Admission to CSC/ACS*
3) Personalised information
4) Psychology intervention
5) Admission to Integrated Community Stroke Service (ICSS) compliant service
6) Six week and six month follow-up
7) Vocational rehabilitation
8) Digital exclusion

*Comprehensive Stroke Centre (CSC)/Acute Stroke Centre (ASC)

...the worst reported **experience of care**:

1) Prehospital
2) HASU/ASU*
3) Inpatient rehabilitation
4) Integrated Community Stroke Service
5) Life after stroke care and follow-up

** Hyper Acute Stroke Unit (HASU)/ Acute Stroke Unit (ASU)*

...the worst **quality of care**:

1) Prevention
2) Prehospital
3) HASU/ASU
4) Inpatient rehabilitation
5) Integrated Community Stroke Service
6) Psychological intervention
7) Life after stroke care and follow-up

...the highest prevalence of the **wider determinants of increased stroke prevalence or known worse stroke care/access/experience**:

1) Geographic
2) Pollution
3) Groups specifically protected under law (e.g. age, sex, race, disability)
4) Social economic
5) Socially excluded groups (e.g. through language, homelessness)

Somerset context

Compared to the England average, Public Health England describes Somerset's health profile as 'varied' with better than average life expectancy and good figures for mortality from cardiovascular diseases and cancer, but worse than average incidences of alcohol related issues and overweight adults[174].

The table below summarises they key headlines for Somerset:

Topic	Headline
Population	571,600[175].
Ageing	• Somersets population is ageing at a faster rate than nationally • The number of people over 75 is expected to double in the next 25 years • By 2036 nearly 1/3 of the population of Somerset will be over the age of 65

[174] https://fingertips.phe.org.uk/static-reports/health-profiles/2019/e10000027.html?area-name=somerset

[175] Census 2021 - Somerset Intelligence - The home of information and insight on and for Somerset - Run by a partnership of public sector organisations

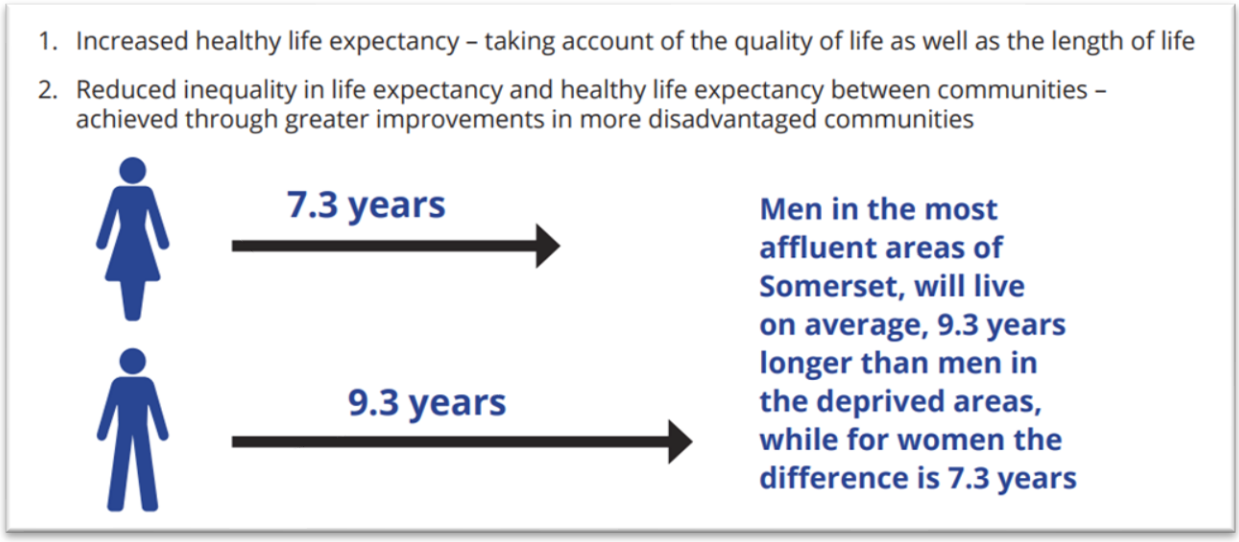
	• There has been more than a 50% increase in the number of people aged 70-74 since 2011 Census • Most strokes occur in people over the age of 50 • Attendances for TIA are highest in those over the age of 75 • Stroke mortality rates for those over 75 are worse than nationally
Rurality	• Somerset is in the top 10 most rural counties in England • 48.2% of Somerset's population live in rural areas • In some areas of rural west Somerset, nearly 20% of residents are over the age of 75[176].
Travel	• 50% of people over the age of 50 can access an A&E within 30 minutes • Over 90% of people over the age of 50 can access an A&E within 45 minutes
Deprivation	• 9 of Somerset's neighbourhoods are in the most deprived 10% in England • 29 of Somerset's neighbourhoods are in the most deprived 20% in England • Around 47,000 people live in these areas • Smoking is the single largest cause of inequality, accounting for up to half the difference in life expectancy between the most and least healthy neighbourhoods
Ethnicity	• 94.6% of Somerset's population are 'White British'.
Stroke risk factors	• Smoking remains the single largest cause of premature death in Somerset • Circulatory diseases cause more deaths in Somerset than any other condition • 66.1% of adults in Somerset are overweight or obese • Hospital admissions for alcohol-related harm in Somerset are worse than the England average • Risk factors for stroke are more prevalent in older people and people living in more deprived areas
Unpaid carers	• 58,300 people in Somerset provide unpaid care[177] around 10% of the population

The Improving Lives Strategy[178] aims to achieve the following outcomes for health and wellbeing of people in Somerset, as follows:

[176] Age - Census Maps, ONS

[177] The 2011 Census is currently the most reliable means of quantifying carers. It asked the question: Do you look after, or give any help or support to family members, friends, neighbours or others because of either: long-term physical or mental ill-health / disability or problems related to old age.

[178] Improving Lives In Somerset Strategy, Somerset Health and Wellbeing Board, 2019-2028

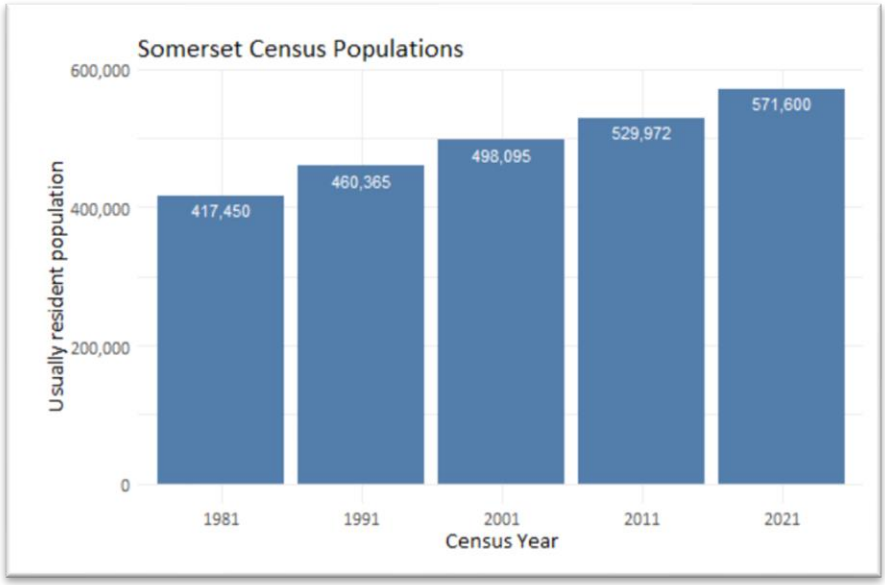


Addressing health inequalities and inequity is essential to delivering this ambition.

Ageing population

In 2021, the population of Somerset was 571,600[179].

This is an increase of around 7.8% since 2011 and a 36.9% rise in 40 years since 1981.[180]



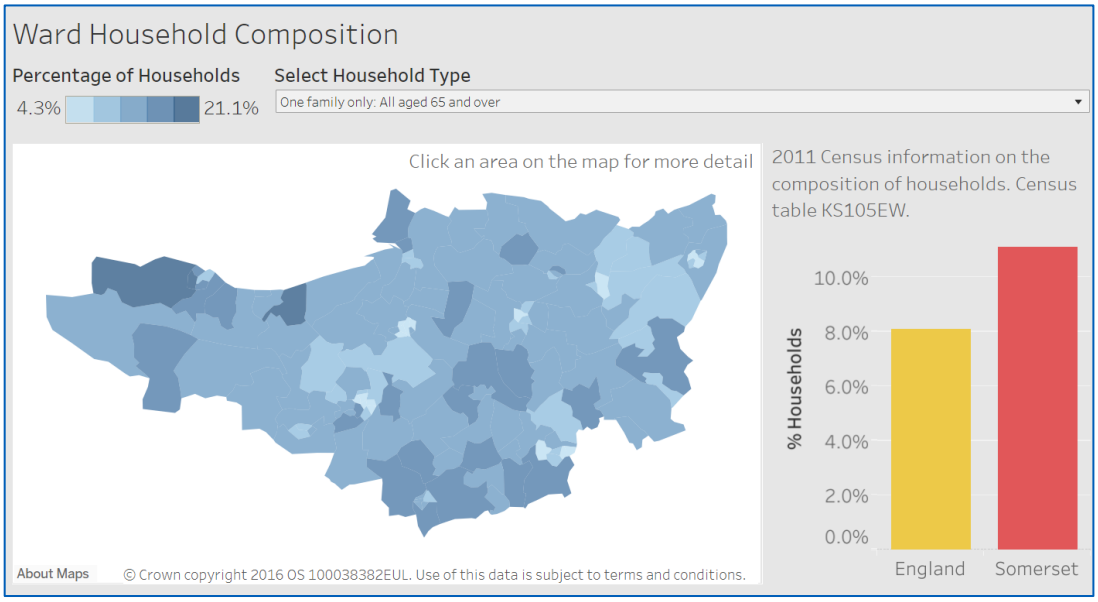
[179] Census 2021 - Somerset Intelligence - The home of information and insight on and for Somerset - Run by a partnership of public sector organisations

[180] Source: 2021 Census http://www.somersetintelligence.org.uk/census2021/

Somerset's population is ageing at a faster rate than is the case nationally. In 2017, 24.2% of Somerset's population was aged over 65 years, up from 19.8% in 2007.

Projections suggest that by 2036 nearly one third of the population in Somerset will be 65 or over[181]. This will result in a significant rise in demand for health and care services, including those associated with stroke.

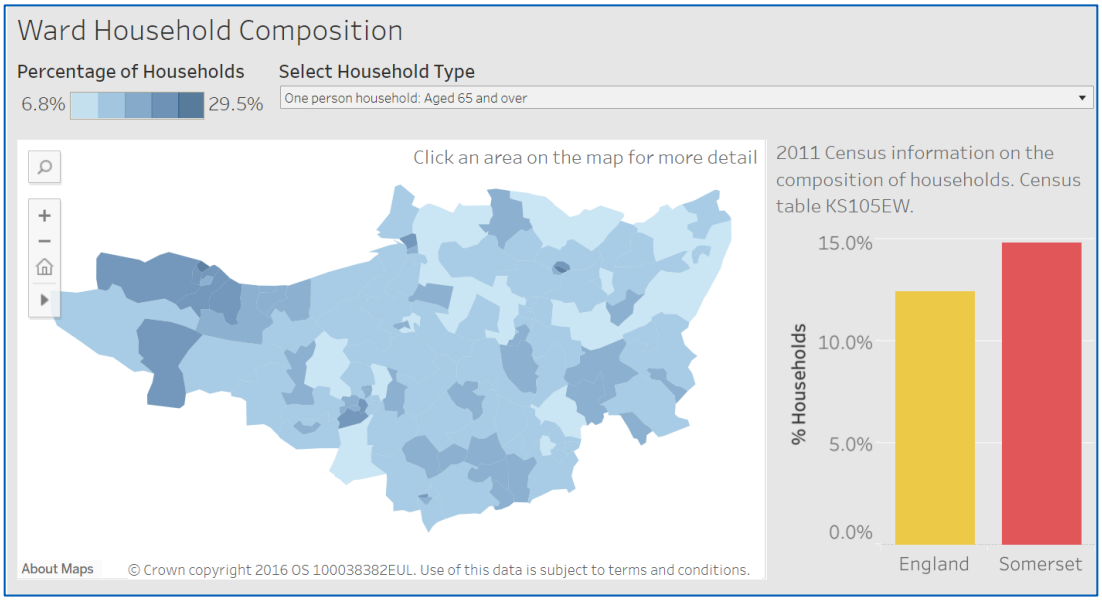
The image below shows the percentage of households in Somerset where all residents are over the age of 65 (the darker the area the higher the percentage) and how this compares nationally[182]:



The image below shows the percentage of single person households, where the occupant is over the age of 65 (the darker the area the higher the percentage) and how this compares nationally:

181 Summary of Data - Somerset Trends

182 2011 Census Demographic dashboards - Somerset Intelligence - The home of information and insight on and for Somerset - Run by a partnership of public sector organisations



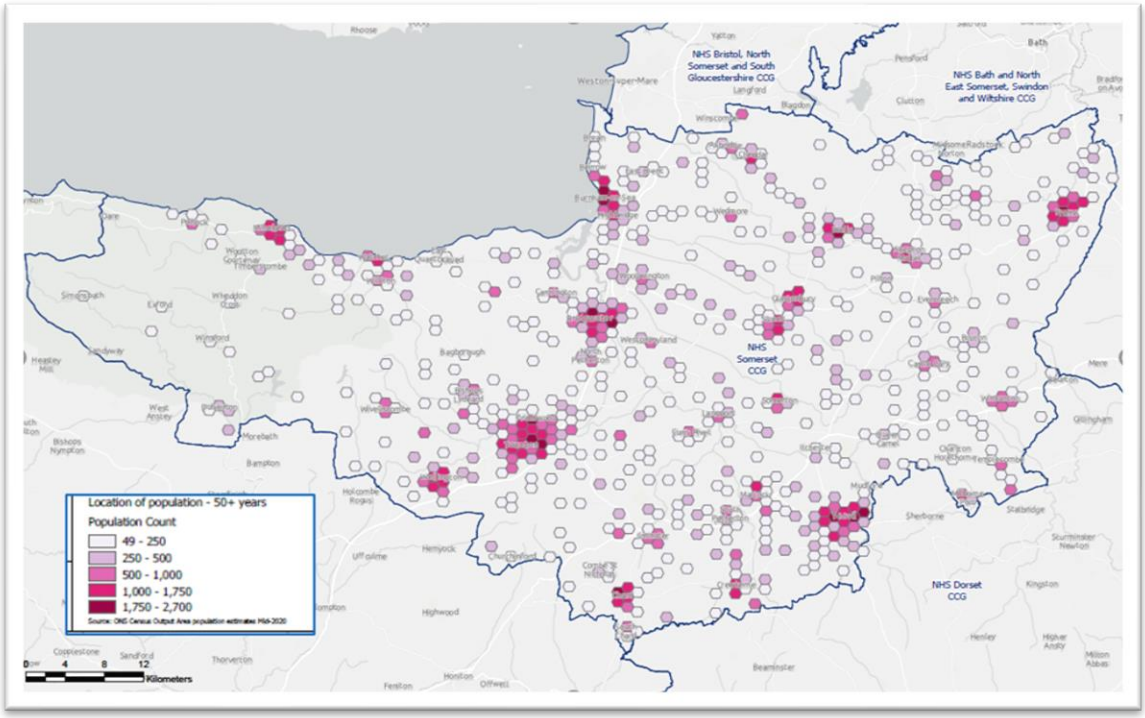
The 2021 Census revealed that there had been more than a 50% increase in the number of people aged 70-74 living in Somerset.[183] In some areas of west Somerset, nearly 20% of residents are over the age of 75[184]. This has a significant impact on health and care services, including those dealing with stroke, as described below.

In relation to stroke, the table below shows the numbers and percentages of people within different age brackets that experienced stroke within Somerset[185], with the majority occurring between the ages of 70 and 90:

		Apr 2019-Mar 2020	Apr 2020-Mar 2021
Item	*Data type*	**Somerset CCG**	**Somerset CCG**
Number of stroke patients	denominator (d)	1185	936
Case ascertainment		90%+	80-89%
Age less than 60	n	122	127
	%	10.3	13.6
Age 60-69	n	167	134
	%	14.1	14.3
Age 70-79	n	365	248
	%	30.8	26.5
Age 80-89	n	368	307
	%	31.1	32.8
Age 90+	n	163	120
	%	13.8	12.8

183 Census 2021 - Somerset Intelligence - The home of information and insight on and for Somerset - Run by a partnership of public sector organisations
184 Age - Census Maps, ONS
185 SSNAP - CCG/LHB/LCG (strokeaudit.org)

The map below shows the current population distribution of people aged over 50 within the county. Most strokes occur in people over the age of 50[186].



Access and rurality

Somerset is a largely rural county, with a resident population of 571,600 people[187].

48.2% of Somerset's population live in rural areas, making it one of the ten most rural authorities in England[188].

Travel time analysis indicates that currently, 50% of people over the age of 50 can access a hospital with an emergency department within 30 minutes and over 90% within 45 minutes[189].

Deprivation

Somerset ranks 92nd out of 151 local authority areas in terms of deprivation (where 1 is the most deprived and 151 is the least deprived) and scores 57th out of 151 on barriers to housing and services[190].

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186 Census 2021 - Somerset Intelligence - The home of information and insight on and for Somerset - Run by a partnership of public sector organisations

187 Source: SCW Geospatial Services www.healthgis.scwcsu.nhs.uk March 2022

188 ONS census data 2011

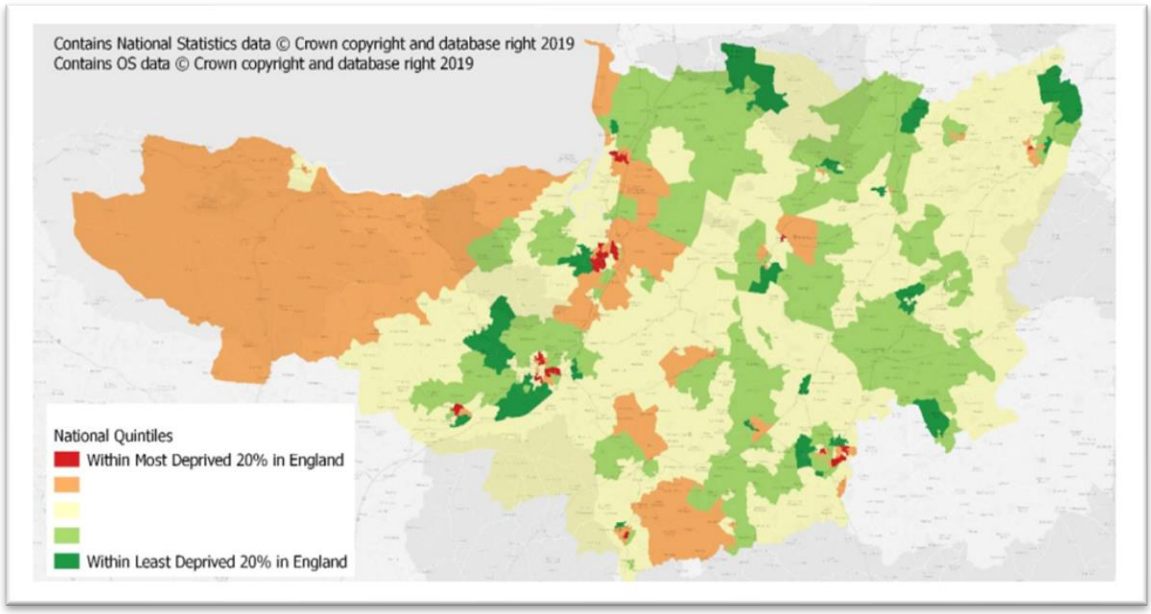
189 See Appendix 12 for more detailed analysis.

190 Deprivation - Somerset Trends

Across Somerset there are nine neighbourhoods within the most deprived 10% of neighbourhoods in England and 29 within the most deprived 20%[191] which equates to around 47,000 people[192].

Life expectancy is 5.5 years lower for men and 4.0 years lower for women in the most deprived areas of Somerset than in the least deprived areas.

The map below highlights areas of deprivation within the county, those marked in red are the most deprived[193]:



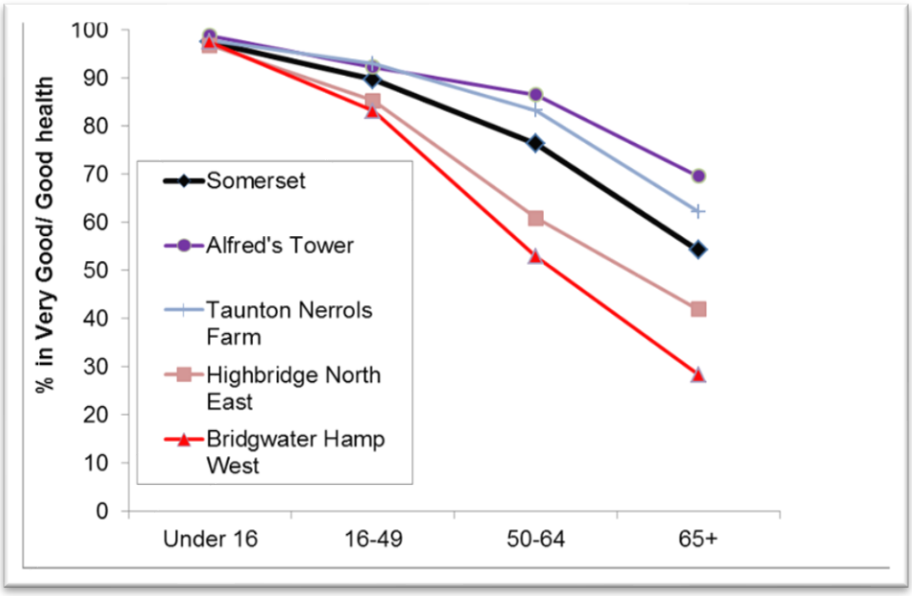
The graph below shows how self-reported good health reduces universally reduces with age and that there is a relationship between where you live and self-reported good health. It shows that the more deprived area you live in, the worse the level of self-reported good health. In the image below Bridgwater Hamp West is in the top 20% most deprived parts of England, compared to Alfred's Tower in the top 50%[194].

[191] The 2019 Index of Multiple Deprivation (IMD)

[192] Indices of Deprivation 2019 - Somerset Intelligence - The home of information and insight on and for Somerset - Run by a partnership of public sector organisations

[193] Source: [193] Index of multiple deprivation (IMD) for Somerset (2019)

[194] Health and Disability - Somerset Intelligence - The home of information and insight on and for Somerset - Run by a partnership of public sector organisations

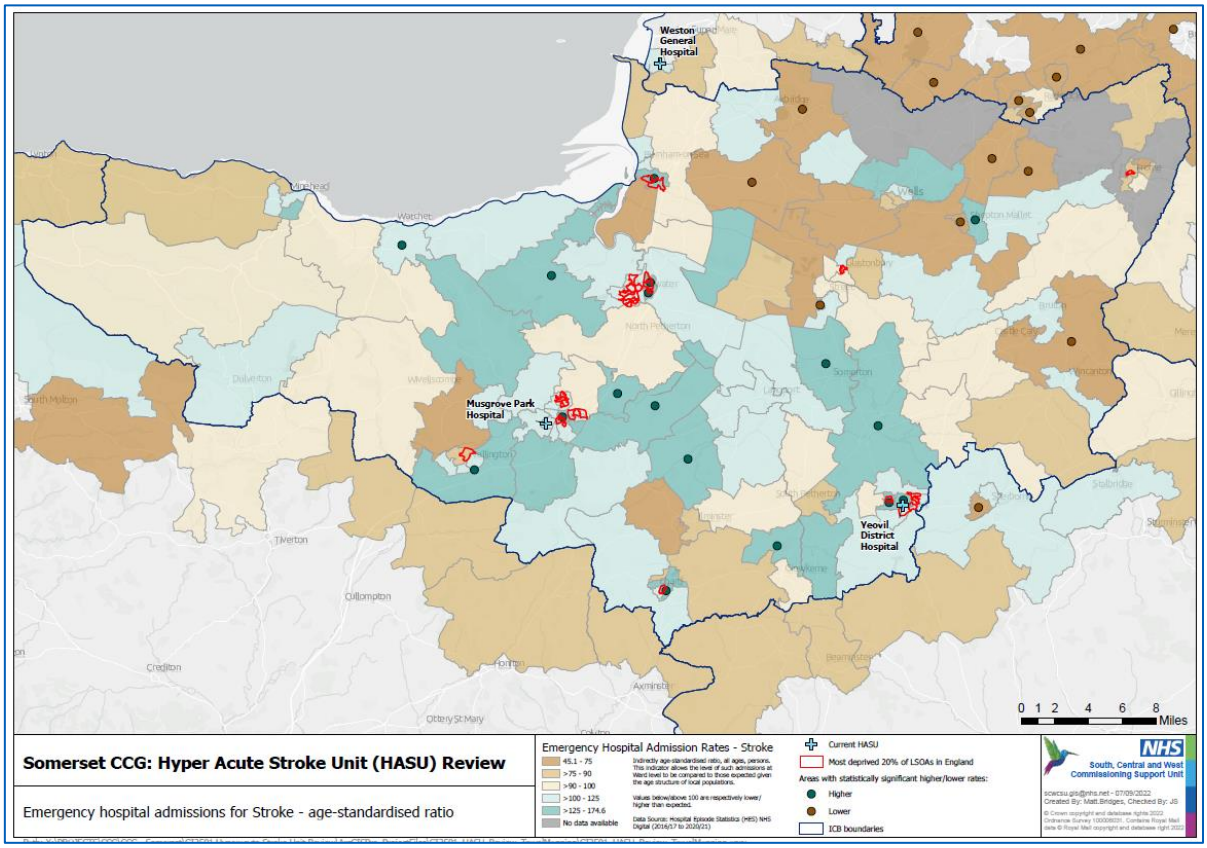


Source: Somerset Intelligence

External factors such as household income, and lifestyle factors such as smoking and drinking are key influences in this. This is significant when we consider the risk factors for stroke[195].

The map below shows the relationship between deprivation and rates of stroke incidence within Somerset:

[195] Stroke Risk Factors | Stroke Association



The green areas are the areas with highest stroke rates and those with a green dot in are significantly higher. The areas with red borders are the wards within the 20% most deprived. The map does suggest some relationship between the areas of deprivation and higher than expected rates of stroke, but there are other areas where stroke rates are above expected which are not in the most deprived areas.

Correlation analysis does not suggest a particularly strong correlation between levels of deprivation and the age-standardized rates of stroke.

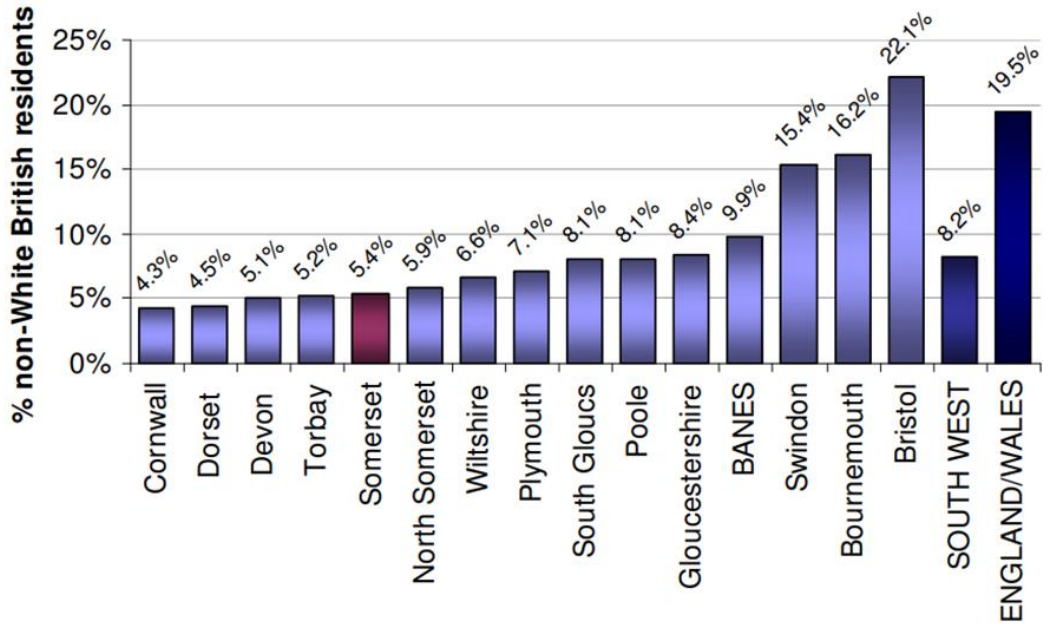
People with a lived experience of exclusion should be considered experts by experience and their involvement in planning and delivery of services is a core value[196]

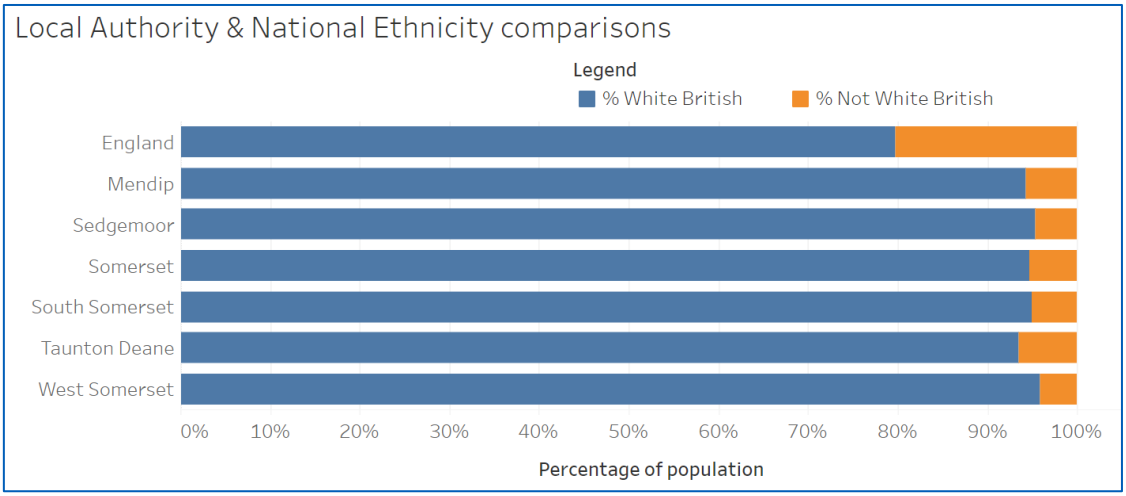
196 https://www.pathway.org.uk/wp-content/uploads/Version-3.1-Standards-2018-Final.pdf

Ethnicity[197]

94.6% of Somerset's population are 'White British'. This proportion is typical of that seen in Somerset's neighbouring local authorities but much higher than the England and Wales average (80.5%).

Figure 1: Proportion of non-'White British' residents in South West local authorities, 2011 Census





[197] Ethnicity and National Identity - Somerset Intelligence - The home of information and insight on and for Somerset - Run by a partnership of public sector organisations

Somerset's non-'White British' residents tend to be concentrated in and around the county's principal towns.

The non-white British population of Somerset was estimated at 10,717 in 2011, an increase of around 5,000 people since the 2001 Census and now comprises 2.0% of Somerset's overall population, which is well below the national average of 14.0%.

Figure 2: Map showing relative concentrations of non-'White British' residents in Somerset, 2011 Census

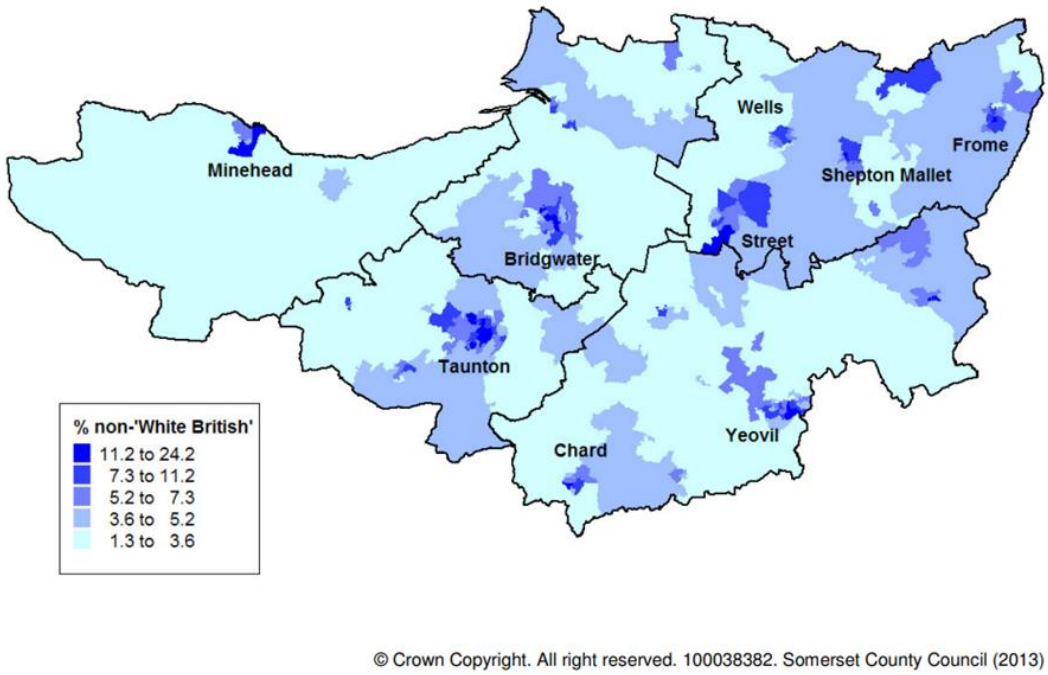


Table 2: Somerset LSOAs with highest proportions of non-'White British' residents, 2011 Census

LSOA Code	LSOA Description	Non-'White British' residents	Total population	% non-'White British'
E01029062	Shepton Mallet North	342	1,415	**24.2%**
E01029234	Yeovil Town Centre	379	1,832	**20.7%**
E01029285	Taunton Priory Road	476	2,348	**20.3%**
E01029232	Yeovil Crofton Park	303	1,527	**19.8%**
E01029322	Minehead Alcombe East	354	2,019	**17.5%**
E01029284	Taunton Town Centre	286	1,714	**16.7%**
E01029286	Taunton East Reach	275	1,662	**16.5%**
E01029095	Bridgwater Eastover Cental	258	1,581	**16.3%**
E01029239	Yeovil Sherborne Road	241	1,483	**16.3%**
E01029276	Taunton Staplegrove East	252	1,633	**15.4%**

In relation to stroke, the table below shows the numbers and percentages of people of different ethnicities who experienced stroke in Somerset in 2020/21[198]. 95.5% were white, with very low numbers in each other ethnic category.

		Apr 2019-Mar 2020	Apr 2020-Mar 2021
Item	*Data type*	Somerset CCG	Somerset CCG
Number of stroke patients	denominator (d)	1185	936
Case ascertainment		90%+	80-89%
Ethnicity	d	1185	936
White	n	1132	792
	%	95.5	84.6
Black	n	1	1
	%	0.1	0.1
Asian	n	1	2
	%	0.1	0.2
Mixed	n	2	2
	%	0.2	0.2
Other	n	1	2
	%	0.1	0.2

Gypsy and Traveller population

Gypsies and Irish Travellers are recognised ethnic groups under UK law and were included as such in the National Census for the first time in 2011. They are recognised as minority ethnic groups and are therefore protected in law against discrimination[199].

198 SSNAP - CCG/LHB/LCG (strokeaudit.org)

199 https://www.pathway.org.uk/wp-content/uploads/Version-3.1-Standards-2018-Final.pdf

There are an estimated 733 Gypsy or Irish Traveller residents in Somerset, the second highest number of any local authority in the Southwest. Just over a third are resident in Mendip.

As in the UK generally, the Gypsy and Traveller community in Somerset experiences notable health inequalities and have significantly poorer health outcomes compared with the general population of England and with other English-speaking ethnic minorities[200].

Gypsies and Travellers have the lowest life expectancy of any ethnic group in the UK and continue to experience high infant mortality rates (18% of Gypsy and Traveller women have experienced the death of a child), high maternal mortality rates, low child immunisation levels (particularly where specialist Traveller Health Visitors are not available), and high rates of mental health issues including suicide and substance misuse issues, as well as high rates of heart disease, diabetes and premature morbidity and mortality[201].

Traveller men and women live 9.9 and 11.9 years less, respectively, than men and women in the general population, a major case of this is cardiovascular disease[202].

One in six adults in the Gypsy and Traveller community were reported as long-term sick or disabled (2011 Census) and 15% described themselves as in bad or very bad health, compared with 5% of all adults in Somerset[203].

Some of these inequalities are related to the consequences of living on Traveller sites (e.g., poor sanitation) or actively travelling (e.g., continuity of access to healthcare), but others stem from direct and indirect discrimination. Common barriers reported are being able to register for services due to discrimination or language and literacy barriers, and problems associated with a lack of trust, leading to a lack of engagement with public health campaigns and preventative healthcare[204].

As such, health services in Somerset need to ensure they meet the specific needs of this group and provide tailored interventions to improve outcomes that focus on prevention, improving access to services and rehabilitation needs.

Homelessness

Homeless people are much more likely than the general population to experience depression, substance misuse and emergency hospital admissions.

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[200] Matthews Z. The health of Gypsies and Travellers in the UK. Better Health Briefing Paper 12. Race Equality Foundation. 2008.
[201] https://www.pathway.org.uk/wp-content/uploads/Version-3.1-Standards-2018-Final.pdf
[202] (PDF) Cardiovascular Health in the Irish Traveller Community (researchgate.net)
[203] Gypsy Traveller Accommodation - Somerset Intelligence - The home of information and insight on and for Somerset - Run by a partnership of public sector organisations
[204] Tackling inequalities faced by Gypsy, Roma and Traveller communities - Women and Equalities Committee (parliament.uk)

People who are homeless, or who live in marginal housing where they are vulnerable to homelessness, are at higher risk for strokes even at younger ages[205]. This may be due to the increased association with alcohol use and higher than average smoking rates, as well as the wider determinants of health such as poverty and chronic levels of stress, and the presence of co-morbidities[206]. In addition, there is a suggestion that the length of stay following stroke is longer for those who are homeless[207].

Somerset received 655 homelessness applications during 2017/18, of which a total of 397 households were accepted as statutorily homeless. At a district level, South Somerset and Taunton Deane saw the highest rates[208].

It is estimated that the number of rough sleepers in 2017 to be 57. The numbers fluctuate and are hard to accurately measure. The highest numbers of rough sleepers were in Mendip and Taunton Deane areas.

Rates of homelessness have been improving in Somerset over recent years, which is attributed largely to the success of partnership initiatives such as landlord deposit schemes, engagement through the South West Private Sector Housing Partnership and Pathway to Independence programme[209].

LGBTQ+

Little reliable data is available about the size and profile of the LGBTQ+ population. The national Census, for example, does not ask people about their sexual orientation or gender identity (these remain the only two protected characteristics not to be measured by the Census)[210].

However, based on a range of other proxy data[211], it is estimated that around 1% of people within Somerset are lesbian, gay or bisexual. It is widely accepted that this is a significant underestimate, and that the figure may be nearer 5%. There has been no validated national estimate of the transgender population[212].

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205 People in marginal housing may have higher stroke risk | American Heart Association

206 Prevalence, incidence, and outcomes across cardiovascular diseases in homeless individuals using national linked electronic health records | European Heart Journal | Oxford Academic (oup.com)

207 Abstract P260: Patients Experiencing Homelessness Have Longer Hospital Lengths of Stay After Admission for Ischemic Stroke or TIA | Circulation (ahajournals.org)

208 Homelessness - Somerset Intelligence - The home of information and insight on and for Somerset - Run by a partnership of public sector organisations

209 Pathways to Independence supports young people affected by homelessness About P2i

210 LGBT (Lesbian, Gay, Bisexual and Transgender) - Somerset Intelligence - The home of information and insight on and for Somerset - Run by a partnership of public sector organisations

211 Including Office for National Statistics Subnational sexual identity estimates, UK - Office for National Statistics (ons.gov.uk) and GP Patient Survey data

212 LGBT (Lesbian, Gay, Bisexual and Transgender) - Somerset Intelligence - The home of information and insight on and for Somerset - Run by a partnership of public sector organisations

Lesbian women[213], bisexual women and gay men have a higher prevalence of hypertension than their heterosexual counterparts of the same gender[214]. The reasons for this are not fully understood but may be due to increased rates of smoking and alcohol use, in addition to discrimination within and poor experiences of health care services[215]. Feedback within Somerset supported this finding[216], with participants highlighting the need for health and social care service providers to be trained to provide improved services for gay people.

Many stroke-focused organizations do not collect data about sexual orientation, and as such it is hard to find stroke survivors. However, it is important to recognise the potential increased risk of stroke and within these groups and ensure their lived experience of stroke, both as survivors and carers, is appropriately represented.

Unpaid carers[217]

Estimating the number of people who provide unpaid care to friends, family members or others is notoriously difficult.

The 2011 Census is currently the most reliable means of quantifying carers. It asked the question: Do you look after, or give any help or support to family members, friends, neighbours, or others because of either a long-term physical or mental ill-health / disability or problems related to old age?

Anecdotally, we know that not every carer would consider the support they give to fall under this definition; it is just 'what families do'.

As such, as part of our development of stroke services, it is critical that we hear from and involve people who are caring for those who have experienced a suspected stroke, TIA, or stroke mimic to understand how any changes will impact them.

Health behaviours

Circulatory diseases cause more deaths in Somerset than any other condition type[218].

- Smoking remains the single largest cause of preventable premature mortality in Somerset, killing around 875 people a year, half of them in middle age.

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213 Chronic Health Conditions and Key Health Indicators Among Lesbian, Gay, and Bisexual Older US Adults, 2013–2014 | AJPH | Vol. 107 Issue 8 (aphapublications.org)
214 Abstract 9744: Cardiovascular Stroke Nursing Best Abstract Award: Investigating Sexual Identity Disparities in Hypertension and Hypertension Treatment Among Adults | Circulation (ahajournals.org)
215 New study on strokes and LGBTQ+ sexuality - Queer Forty
216 SomersetGayandBiMen2.pdf (diversitytrust.org.uk)
217 Unpaid Carers - Somerset Intelligence - The home of information and insight on and for Somerset - Run by a partnership of public sector organisations
218 Circulatory Diseases - Somerset Intelligence - The home of information and insight on and for Somerset - Run by a partnership of public sector organisations

- Smoking in Somerset is estimated to add around £24 million to costs incurred by the NHS and Somerset County Council for care services.
- In 2016/17, there were 5,700 hospital admissions in Somerset attributable to smoking.
- Smoking-related hospital admissions in Somerset cost around £9.4 million, or £26.50 per head of population (2016/17)
- Smoking is the single largest cause of health inequalities, accounting for up to half the difference in life expectancy between the most and least healthy wards.[219]
- Among people with diabetes in Somerset, the risk of a stroke is 43.9% compared with the general population[220].
- 66.1% of adult Somerset residents are overweight or obese compared to an England average of 64.6%[221]
- Somerset is currently worse than the national and regional averages for participation levels of physical activity[222]
- Participation in physical activity is lowest amongst women, older people, non-white ethnicities, and those living in the areas of highest multiple deprivation[223].
- In Somerset, the area with the highest rate of obesity is Sedgemoor (which has some of the most deprived neighbourhoods in the country), with 70.8% adults are overweight or obese
- The rate for alcohol-specific hospital admissions among those under the age of 18 is worse than the average for England at 63 admissions per year. Whilst this may not appear directly linked to stroke, these behaviours often continue into adulthood. This can be seen in Somerset, where the rate for alcohol-related harm hospital admissions is also worse than the average for England, at 4,073 admissions per year[224].

The chart below shows the correlation between areas of deprivation and obesity, with Mendip being one of the least deprived areas of Somerset, and Sedgemoor being one of the most deprived[225].

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219 Smoking and Tobacco Control - Somerset Intelligence - The home of information and insight on and for Somerset - Run by a partnership of public sector organisations

220 Diabetes - Somerset Intelligence - The home of information and insight on and for Somerset - Run by a partnership of public sector organisations

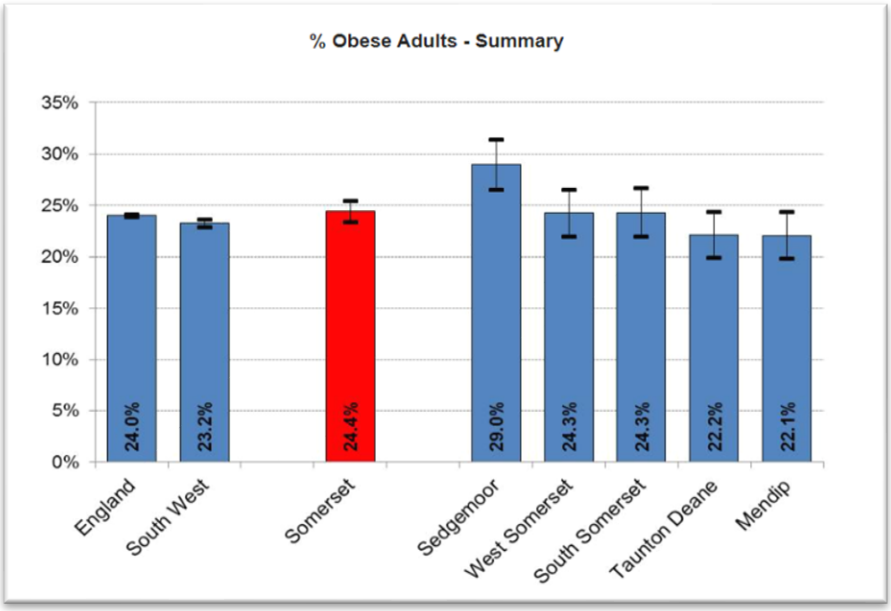
221 Active People Survey 2012-14

222 Healthy diet and physical activity - Somerset Intelligence - The home of information and insight on and for Somerset - Run by a partnership of public sector organisations

223 Healthy diet and physical activity - Somerset Intelligence - The home of information and insight on and for Somerset - Run by a partnership of public sector organisations

224 https://fingertips.phe.org.uk/static-reports/health-profiles/2019/e10000027.html?area-name=somerset

225 Overweight and Obesity - Somerset Intelligence - The home of information and insight on and for Somerset - Run by a partnership of public sector organisations



Obesity rates in Somerset compared by district, region, and national prevalence[226]

The table below shows that around a quarter of people who had a stroke in Somerset had a history of diabetes before having a stroke and over half had hypertension[227]. These are largely preventable, lifestyle related conditions. In addition, a quarter of those admitted with a stroke had previously had a stroke or TIA.

		Apr 2019-Mar 2020	Apr 2020-Mar 2021
Item	*Data type*	**Somerset CCG**	**Somerset CCG**
Number of stroke patients	denominator (d)	1185	936
Case ascertainment		90%+	80-89%
Hypertension before stroke	n	613	505
	d	1185	936
	%	51.7	54.0
Diabetes before stroke	n	254	206
	d	1185	936
	%	21.4	22.0
Stroke/TIA before stroke	n	321	236
	d	1185	936
	%	27.1	25.2

Early mortality rates (people under the age of 75) for strokes in Somerset in 2015-17 were 10.7 per 100,000 people, which was below the national rate of 13.1 per 100,000. However, over the same

[226] Overweight and Obesity - Somerset Intelligence - The home of information and insight on and for Somerset - Run by a partnership of public sector organisations
[227] SSNAP - CCG/LHB/LCG (strokeaudit.org)

period, the stroke mortality rates for those aged over 75 years for Somerset was 572.6 per 100,000 people which was greater than the national rate of 540.5 per 100,000[228].

Impact on stroke prevalence and incidence

In relation to incidence of stroke (the number of new cases), Somerset has had a significantly higher rate than England over the past few years - apart from in 2020/21, which is not representative due to the impact of COVID.

In relation to prevalence of stroke (the number of patients on a GP stroke register, i.e., stroke survivors), Somerset has a significantly higher rate than both England and the South West region each year since 2012/13.

Whilst we often focus on age as one of the key factors relating to stroke, when we look at the age profiles of Somerset it is worth noting that the Somerset has a similar older age profile to the South West as a whole, and the South West has a higher age profile than the rest of England. However, as we know, the prevalence of stroke is higher in Somerset than the rest of the South West. This suggests that age is not the only factor driving the high rate of stroke incidence, and we need to consider other non-age-related factors.

Collectively, evidence suggests that the risk factors associated with stroke are higher in both older people and in more deprived communities. As such, addressing social inequality can not only improve risks to health, but also improve individual's resilience in the face of ill health[229].

We will ensure we consider these health inequalities as a key part of our stroke services reconfiguration.

[228] Circulatory Diseases - Somerset Intelligence - The home of information and insight on and for Somerset - Run by a partnership of public sector organisations

[229] Health and Disability - Somerset Intelligence - The home of information and insight on and for Somerset - Run by a partnership of public sector organisations

9. Communication and engagement

Our approach

Our approach to communication and engagement is built upon our 10 principles for working with people and communities. These principles were developed through engagement with stakeholders across the Somerset Integrated Care System (ICS) and are in line with the Somerset CCG Communications and Engagement Strategy[230].

Somerset ICS 10 principles of working with people and communities:

1. Put the voices of people and communities at the centre of decision making and governance.
2. Understand our community's needs, experience and aspirations for health and care, with a strong focus on underrepresented communities.
3. Involve people at the start in developing plans and feedback how their engagement has influenced decision-making and ongoing service improvement, including when changes cannot be made.
4. Ensure that insight from groups and communities who experience health inequalities is sought effectively and used to make changes to reduce inequality in, and barriers to, care.
5. Build relationships with underrepresented groups, especially those affected by inequalities, ensuring their voices are heard to help address health inequalities.
6. Work with Healthwatch and the voluntary, community and social enterprise (VCSE) sector as key partners.
7. Through partnership working, co-production, insight, and public engagement address system priorities in collaboration with people and communities, demonstrating accountable health and care.
8. Use community development approaches that empower people and communities, building community capacity.
9. Provide clear and accessible public information about vision, plans and progress, to build understanding and trust.
10. Learn from what works and build on the assets of all ICS partners – networks, relationships, and activity in local places - to maximise the impact of involvement.

[230] Appendix 3b

Experience tells us that engagement involving a relocation or change in service relating to acute hospital beds can be a sensitive issue. Community and stakeholder interest is likely to be high.

Throughout this journey we want to include people and communities and use their feedback to inform our thinking and solutions.

It is important that we take stakeholders on a journey to engage and help them understand the broad ambitions of the Fit for my future programme and the Stroke Strategy. Successfully conveying and explaining the case for change is essential. We need to encourage people to be open to new and better ways of delivering hyper acute stroke services so we can work together to reach an optimum configuration for delivering hyper acute stroke care in Somerset that is better for the community and individuals, and within budget and achievable staffing levels.

Although only a small percentage of the population of Somerset will need to be admitted to a hyper acute stroke bed, it is important that our engagement and communications reach extends widely, as many people may be impacted by strokes. We will ensure we extend our reach to communities more likely to be impacted by stroke, carers, stakeholders, and the public.

Our approach builds on the engagement work already undertaken.

> **Collaboration between individuals, team, organisations and sectors is vital if we are going to tackle the stark health inequalities amplified by the COVID-19 pandemic… These challenges are complex and require meaningful involvement from those with lived experience in order to create sustainable change.**
>
> National Voices, Valuing Lived Experience Report, 2022[231]

To ensure we capture the voices of stakeholders effectively we will develop an approach which takes into consideration the differing levels of interest, involvement, and knowledge. We will work with our partners across the system to listen, understand and evolve our approach so we are able to shape engagement and communications relevant to the audience and their level of interest.

Start with people

To make sure our engagement effectively captures the widest possible views and feedback we have developed an extensive list of people who are involved in, affected by, or interested in the future configuration of the service, as well as the wider public.

Collectively, these are referred to as our stakeholders.

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231 *Valuing Lived Experience - Learning Report (nationalvoices.org.uk)

The Equality Impact Assessment (EIA)[232] and Health Equity Assessment Tool (HEAT)[233] have been utilised to inform our stakeholder analysis and engagement activities. These have been reviewed by the Somerset ICB Inequalities Steering Group.

This plan aims to engage with those groups that are most at risk of experiencing a stroke and therefore information and data regarding the economic and societal factors that make a demographic most at risk of stroke will be considered.

A detailed stakeholder analysis has been undertaken and has informed our engagement and communications activity. The full list of stakeholders can be found in Appendix 02.

Priority audiences to engage with include:

- People with lived experience of a stroke / TIA, either as a survivor or carer of someone who has experienced stroke/TIA
- Key charity, community and voluntary sector organisations supporting those with lived experience, including the Stroke Association
- Those with protected characteristics identified in the EIA and HEAT as being at higher risk of stroke
- NHS and social care staff working in stroke/TIA services
- Somerset and Dorset Health Overview and Scrutiny Committees (HOSC)

Key messages

Our key messages will evolve as the programme progresses. They include:

- Our shared vision for Somerset is that people can live healthy and independent lives, within thriving communities. Our stroke services are an important part of this vision.
- Hyper acute stroke services in Somerset need to change to make sure future services are equitable, high quality, efficient, well led, and sustainable.
- Our stroke programme team, clinicians, staff, and people with lived experience have been working hard on this clinically led review of hyper-acute stroke services to ensure the people of Somerset receive the best care possible.
- Working together is critical to our success. We need to get hyper acute stroke services right for everyone who lives or uses hospitals in Somerset.
- It is important that people have opportunity to help to shape services. The voices of patients, carers, families, and colleagues are a crucial part of achieving this vision.

[232] The Equality Impact Assessment can be found in Appendix 04a
[233] The Health Equity Assessment Tool can be found in Appendix 04b

- We want to ensure the views of patients, the public and clinicians are used to improve services.
- Your feedback will inform our proposals for hyper acute stroke services and the development of the model of care solutions, ultimately leading to a public consultation on the proposals.
- No decision has been made yet and we will continue to listen to the public to ensure their views are reflected.

Pre-consultation engagement activities

The range of approaches to engagement outlined in this plan aim to give stakeholders the opportunity to be communicated with or involved in a way which suits them. When tailoring our engagement activity for each group we will think about barriers to engagement, levels of interest and what we are hoping to gain from them.

We will also ensure our activities will build on the engagement which has already taken place to minimise repetition and ensure we maximise and value the time people give when they are engaging with us.

Our communication and engagement activities will be either targeted or open, as follows:

Targeted

- Direct emails / e-bulletins to individuals and groups
- Workshops – virtual and face to face
- Out-reach meetings with specific groups, e.g., local stroke groups or easy to ignore communities

Open

- Fit for My Future website
- Social media
- Press releases and local media

Pre-consultation communication and engagement plan

Phase 1: The engagement activities which have already been undertaken and which have informed the development of the long list are Phase 1.

Phase 2: Informed / interested stakeholder engagement

- Re-establish the Stroke Steering Group and Stroke Clinical Reference Group
- Establish the Stroke Experts by Experience Group
- Undertake engagement around the case for change

- Undertake engagement to develop the longlist
- Undertake engagement to assess the longlist
- Undertake engagement to inform the assessment and development of the shortlist

Phase 3: Wider stakeholder and public outreach pre-consultation engagement.

- Promote the stroke reconfiguration more widely
- Undertake further engagement and gather insights on the shortlist

A summary of all engagement activity undertaken can be found in Appendix 03c.

Our pre-consultation engagement analysis and evaluation

Phase 2: All feedback received during phase two will be recorded and logged by the ICB this will be analysed and themed by the ICB. This analysis will be shared with the programme team and utilised to inform the development of solutions.

Phase 3: This stage continues to gather insights on the shortlist to inform the programme of work, further things which may need to be considered, additional modelling that is required to support people to understand the options and so on. All feedback received during phase three will be recorded and logged by the ICB, this will be analysed and themed by the ICB. This analysis will be shared with the programme team and utilised to inform the continued development of the shortlist and programme of work for consideration by the Steering group.

We will evaluate the effectiveness of our communications using a range of evaluation methods including response rates, click-throughs, response rates and engagement on social media.

Planning for formal public consultation

The proposals for reconfiguring hyper acute stroke services in Somerset are significant.

Therefore, we are planning to include formal public consultation as part of our service change plans. The public consultation will be undertaken in line with NHSEI guidance on ‘Planning, assuring, and delivering service change for patients.

A separate consultation engagement and communications plan is being developed. A draft of the consultation engagement plan can be found in Appendix 03c.

The public consultation will ensure that there is good opportunity to hear from members of the public, patients, carers, staff, particularly higher risk and seldom heard groups. These groups will be targeted in our ongoing pre-consultation engagement work leading up to the public consultation.

The programme is committed to listening to people and will ensure that all the feedback from the consultation is collated and independently reviewed before being fed back to system partners. The

final Decision-Making Business Case (DMBC) will demonstrate how the feedback has been taken on board when it puts forward the final clinical model for system-wide decision.

Risks

Due to the fast-paced nature of this engagement activity and the potential sensitivities around the message and the potential changes, there are several risks that need to be considered and considered as part of this approach.

Risk	Mitigation
Reputation – change may be viewed as a loss of or reduction in services	Carefully build internal and external support, including from service users and support groups. Brief clinical and political leaders early to build acceptance for the need to change and trust in plans. Well-developed Equality Impact Assessment to identify issues and mitigation. Have clear and consistent information and communication that builds understanding of the situation and the proposed plans.
Carers, service users and staff may have differing views	Ensure we provide adequate means for all groups to comment and be involved.
Ability to reach a wide range of audiences using a hybrid model of engagement both online and face to face	We will publicise events allowing people enough notice to be able to attend and provide online and face to face opportunities where possible.
Ability to engage staff with current system pressures	Providing multiple opportunities as the programme progresses to get involved and keeping staff informed in a way that is easier for them to remain informed.
Coronavirus restrictions returning	If coronavirus restrictions return, we will review our engagement plan and adjust to make sure we comply with any new restrictions.
Purdah and local elections impacting on when we can conduct engagement and communications activities	Engagement and communications will be planned around purdah.
Legal challenge if we fail to fulfil the four tests – particularly in relation to 'strong public and patient engagement'.	Robust communications and engagement plan in place, ongoing engagement with Somerset HOSC, NHSEI assurance process. Constructive scrutiny of process, plans and decision, early engagement with clinicians and stakeholders, leading to comprehensive consultation process.

10. The case for change

The main reasons for needing to reconfigure acute stroke services within Somerset are:

Workforce sustainability

This is a burning platform, with significant risks caused ongoing challenges with recruitment and retention of specialist staff. There are currently sub-optimal levels of specialist stroke workforce, with neither provider has the number of specialist staff needed to provide the units with 24/7 consultant cover.

Clinical outcomes

We are failing to meet several national performance targets in relation to hyperacute and acute care which have a negative impact on clinical outcomes including rates of thrombolysis and thrombectomy, time taken to receive thrombolysis, TIA assessments falling outside of 24 hours and access to MDT assessments.

Inequalities

There is currently variation and inequitable provision of acute stroke care across the county, especially over weekends and out of hours where it takes significantly longer for patients to receive treatments such as thrombolysis. Patients admitted to Yeovil District Hospital at weekends are much less likely to see a consultant stroke specialist until after the weekend. There is no weekend outpatient service for patients suffering a TIA in the Yeovil area.

Financial sustainability

There is currently a poor correlation between the money spent on stroke and the outcomes achieved. There is opportunity to reduce the long-term care costs associated with stroke by improving the outcomes in the hyperacute phase.

Workforce sustainability

Workforce deficits are a real challenge to current provision and impact daily on the delivery of care to stroke patients.

Somerset cannot maintain a service configuration into the future that stretches the available specialist staff across more sites than necessary and organises them in a way that cannot respond easily to service pressures.

Operational deficits in service provision are currently exacerbated through a lack of central coordination and individual staff members cannot be readily supported by adjacent teams.

If the current situation is not rectified there is significant risk that retention of specialist stroke professionals will be adversely impacted and that recruitment to the Somerset area will become increasingly challenging.

National workforce requirements state that to provide a comprehensive dedicated stroke service, a hospital admitting 600 patients per year will require 40 Direct Clinical Care programmed activities (DCC PAs) and a hospital admitting 1,200 stroke patients will require 67 DCC PAs.

As demand increases over time, the workforce requirement will further increase.

The aim is to ensure that the clinical workforce is available at the times that strokes tend to present, which means moving to a 24/7 model rather than the current in hours/out of hours variation.

Several potential solutions have been identified to support the development, recruitment, and retention of a skilled stroke workforce in Somerset, including:

- The forthcoming merger of SFT and YDH offers an opportunity to create a single stroke delivery team.
- There is potential to enable staff to work throughout the whole stroke pathway, not only would this enable broader stroke-related skill development but could also lead to improved outcomes for patients and a more appealing, developmental role for staff.
- With the shortage of consultant stroke physicians, it is essential to ensure that the advanced nurse practitioner workforce is optimised across both YDH and SFT. Use of workforce planning, and transformation tools should be used to support this.
- Explore development of Associate Specialists through to Consultant via the Caesar route, this could include international / overseas recruitment.
- Development of clear a clear career path for nursing staff, from apprenticeships or health care assistants, through to nurse associates and onwards. This would support retention of staff and enable better succession planning.

- Development of advanced practice roles for therapists, to support the delivery of complex interventions.
- More administrative support roles, to free up clinician time to focus on patient care.
- Dedicated multidisciplinary stroke competencies, with accompanying training and development plan.

24/7 access to consultant led team

There are 9 consultants currently on the regional Avon, Gloucestershire, Wiltshire & Somerset (AGWS) out of hours (OOH) specialist rota.

The consultant is on call between 17:00 to 08:30 on weekdays, and 08:30 to 08:30 at weekends and bank holidays, and is available for emergency stroke thrombolysis calls or advice on significant intracranial bleeds.

Nursing and Staffing Ratios

There are specified requirements for staffing stroke units, based on the number of staff (based on whole time equivalent) of different grades/roles per bed. These are based on the RCP 'National clinical guideline for stroke' and are as follows:

Workforce assumptions - staffing requirements (WTE) per bed			
	HASU	ASU	Non-stroke unit
Physiotherapist	0.146	0.168	0.168
Occupational Therapist	0.136	0.162	0.162
Speech & Language Therapist	0.068	0.08	0.08
Psychologist	0.04	0.04	0.04
Dietitian	0.03	0.03	0.03
Registered nurse	2.32	0.8775	0.8775
Unregistered nurse	0.58	0.4725	0.4725
Total	3.32	1.83	1.83
Stroke Unit Minimal Staffing Recommendations (RCP 2016) - page 16			
N.B Model excludes the following staff groups:	Doctors Stroke practitioners / ANPs Ward manager Receptionists Ward assistants		

The tables below show how Somerset hospitals compare to the SSNAP key indicators for workforce[234]:

Yeovil District Hospital

Key indicator	National	England	YDH
Key Indicator 1: Minimum establishment of band 6 and band 7 nurses per 10 beds *(Criterion: Sum of band 6 and 7 (WTE) nurses per 10 stroke unit beds is equal to/above 2.375 per 10 beds for ALL stroke beds.)*	**58% (98/169)**	**59% (87/148)**	**No**
Key Indicator 2: Presence of a clinical psychologist (qualified) *(Criterion: Presence of at least one (WTE) qualified clinical psychologist per 30 stroke unit beds)*	**7% (12/169)**	**7% (11/148)**	**No**
Key Indicator 3: Out of hours presence of stroke specialist nurse *(Criterion: Met if there is at least one stroke specialist nurse per 10 beds on 10pm weekdays and 10am and 10pm*	**71% (101/142)**	**77% (93/121)**	**Yes**
Key Indicator 4: Minimum number of nurses on duty at 10am weekends *(Criterion: Met if have 3.0 nurses per 10 type 1 and 3 beds (average number of nurses on duty on type 1 and type 3 beds)*	**30% (42/142)**	**29% (35/121)**	**No**
Key Indicator 5: At least two types of therapy available 7 days a week *(Criterion: Met if 7-day working for at least two types of qualified therapy. Includes occupational therapy, physiotherapy*	**47% (79/169)**	**50% (74/148)**	**Yes**

Musgrove Park Hospital

Key indicator	National	England	MPH
Key Indicator 1: Minimum establishment of band 6 and band 7 nurses per 10 beds *(Criterion: Sum of band 6 and 7 (WTE) nurses per 10 stroke unit beds is equal to/above 2.375 per 10 beds for ALL stroke beds.)*	**58% (98/169)**	**59% (87/148)**	**Yes**
Key Indicator 2: Presence of a clinical psychologist (qualified) *(Criterion: Presence of at least one (WTE) qualified clinical psychologist per 30 stroke unit beds)*	**7% (12/169)**	**7% (11/148)**	**No**
Key Indicator 3: Out of hours presence of stroke specialist nurse *(Criterion: Met if there is at least one stroke specialist nurse per 10 beds on 10pm weekdays and 10am and 10pm weekends)*	**71% (101/142)**	**77% (93/121)**	**Yes**

[234] SSNAP - Site (strokeaudit.org)

Key Indicator 4: Minimum number of nurses on duty at 10am weekends *(Criterion: Met if have 3.0 nurses per 10 type 1 and 3 beds (average number of nurses on duty on type 1 and type 3 beds)*	**30% (42/142)**	**29% (35/121)**	**No**
Key Indicator 5: At least two types of therapy available 7 days a week *(Criterion: Met if 7-day working for at least two types of qualified therapy. Includes occupational therapy, physiotherapy and speech and language therapy)*	**47% (79/169)**	**50% (74/148)**	**Yes**

Risks

Risk	Mitigation
There is a risk that in developing options for service change and length of the process for the change, the sustainability of existing services, particularly in Yeovil, may be compromised as staff recruitment and retention is impacted leading to service failures/increased cost	Workforce planning Group will develop cross system practices to support recruitment and retention of a whole Somerset stroke workforce including Consultant joint appointments. Comms and engagement, particularly through the consultation phase will support improved staff and stakeholder communication on progress of clinical options development. Links made between STP Workforce programme and stroke Workforce Group. SFT developing a separate business case to sustain services as is. Recruitment and retention incentives where appropriate. A People Plan has been jointly developed between Somerset Foundation Trust and Yeovil District Hospital to support the transition to a unified way of working by setting out a vision for how to retain, develop, inspire, and attract staff.
There is a risk there will not be sufficient workforce to deliver the preferred option or to maintain current services during the transition process	Workforce group will design, model, and plan the Workforce required to deliver the redesign for stroke care across Somerset including the development and designing of new roles based on Workforce competency requirements. Workforce group will develop practices to support recruitment and retention of a whole system stroke workforce including a career development plan within stroke. Joint recruitment across Somerset for consultants. Recruitment and retention incentives where appropriate.
There is a risk that capacity planning assumptions are inaccurate which leads to capacity deficits in the future state which may result in patients not receiving timely access to stroke care	Detailed modelling exercise drawing on validated data sources Stress testing of numbers to test the sensitivity of peaks and troughs of activity.
Some career development opportunities are currently limited	The development and expansion of the role of Advanced Clinical Practitioner (ACP) and Physicians Associate (PA) as part of the medical rotas will both address potential workforce gaps as well as provide additional career routes for existing and new staff within BNSSG which will support recruitment and retention of staff. These roles can be developed from existing staff as well as through recruitment of staff nationally. Through the development of therapy rotations both within acute settings and between acute and community settings, a great breadth of skills and specialist expertise will be consistently achieved which will support retention as well as delivery of consistent best practice for patients The workforce planning group will develop a career framework taking account of national and international best practice to support professional development within Stroke and working in partnership with voluntary sector organisations.

Clinical outcomes and performance

Data caveats

All figures below are based on Sentinel Stroke National Audit Programme (SSNAP) submissions from January 1st 2018 to December 31st 2021, based on 'clock start' and include transfers.

It is important to note that this number is lower than data from the Hospital Episode Statistics (HES) due to SSNAP's eligibility criteria (see below), but SSNAP submissions represent over 90% of all stroke hospital admissions in the NHS.

All statistics are based on time between 'clock start' and the associated statistic, for example the time of patient arrival on a stroke unit. The 'clock start' time is the time of arrival at hospital for patients who arrive by ambulance or self-present, or time of symptom onset in those who are an inpatient at the time of their stroke.

This data includes repatriations and readmissions of patients who are within 6 months of their stroke and still in the care of an inpatient team or an Early supported Discharge (ESD) or Community Stroke Team (CST) provider.

Patients can be readmitted for several reasons, which may not all relate to the stroke, but therapy input is still collated for these patients.

There are 156 patients who were admitted to either acute hospital, throughout the 4-year period, more than once along the stroke pathway.

Sentinel Stroke National Audit Programme (SSNAP) Submission Eligibility Criteria

- Patient has a primary diagnosis of acute stroke (coded as I-61, I-63 or I-64) and was formally admitted to the hospital.
- Patient is above 16 years of age at time of stroke.
- Patient has no National Data Opt Out (NDOO) in place or has given explicit permission for their data to be used for the purpose of SSNAP submission.
- Patients who have had a stroke found incidentally, a subacute stroke, or stroke found in the outpatient setting (such as a clinic) are excluded.

Whilst Somerset's hospitals benchmark in line with national average mortality indicators for stroke, stroke provision in Somerset is not currently provided in line with all National Institute for Health and Care Excellence (NICE) and Royal College of Physicians (RCP) guidelines, nor does it consistently

meet the performance indicators known to contribute to improved outcomes for people that have experienced a stroke[235].

Performance indicators for acute stroke are considered further below and the main guidelines this programme has considered can be seen below:

Current State	Relevant National Clinical Standard
Somerset currently has two HASUs, however only SFT meets the criteria of admitting 600-1500 patients per year	RCP organisational guidance 2.2.1B: Patients with acute neurological presentation suspected to be a stroke should be admitted directly to a HASU.
Acute stroke services are spread across two hospitals	NHS Long Term Plan: The evidence is clear that centralised stroke units are more likely to reduce mortality and provide effective stroke treatment.
Not all patients who need it are offered thrombolysis within 4.5 hours	NICE ng128: Alteplase (for thrombolysis) treatment [where appropriate] should be started as soon as possible within 4.5 hours of onset of symptoms RCP 3.5.1A and 3.5.1G: Recommendations for management of ischaemic stroke
Rates of thrombolysis for eligible patients within 1 hour of clock start at both SFT and YDH consistently are below national levels	NICE ng128 and RCP 3.5.1: Treatment should be started as soon as possible. SSNAP Key domain indicator 3.3: Thrombolysis within 1 hour of arrival at hospital.
Not all patients who need it are offered thrombectomy within 6 hours	NICE ng128 1.4.5: To be offered thrombectomy within 6 hours.
The number of patients scanned on early arrival to HASU is variable at YDH and currently is below national levels (44% YDH; 54% National)	RCP 3.4.1: Patients with suspected stroke to receive brain imaging within 1 hour of arrival SSNAP Key domain indicator 1.1: Percentage of patients scanned within 1 hour of clock start
The length of time taken to be assessed by a stroke specialist consultant often falls below the national levels at both SFT and YDH	RCP 2.3.1B: Patients with suspected stroke should be assessed for emergency stroke treatments by a specialist physician without delay. SSNAP Key domain indicator 4.1: Assessment by stroke specialist consultant physician within 24 hours
Patients with stroke are sometimes delayed in accessing a bed on a stroke unit or are managed on other wards at both SFT and YDH	RCP 2.2.1C: Patients with suspected stroke should be admitted directly to HASU SSNAP Key domain indicator 2.1 Percentage of patients directly admitted to a stroke unit within 4 hours of clock start
The numbers of patients who spend at least 90% of their stay on a stroke unit varies at both SFT and YDH and often falls below national levels	SSNAP Key Domain indicator 2.3 Percentage of patients who spent at least 90% of their stay on stroke unit

[235] See Appendix 19 for Somerset performance against SSNAP key indicators

The numbers of patients receiving a swallow screen within 4 hours of clock start is variable and often is below national levels at both SFT and YDH	RCP 3.10.1E Patients with acute stroke should have their swallowing screened within 4 hours and before being given any oral food, fluid, or medication. SSNAP Key domain indicator 4.5: Applicable patients to have a swallow screen within 4 hours of arrival at hospital.

The 2022 SSNAP data[236] shows the difference in patient centred performance across MPH and YDH in a number of domains, with the performance at YDH worse overall with a score of D, compared to a score of C at MPH[237].

Routinely Admitting Teams		Number of patients		Overall Performance				Patient Centred Data										Six Month Assessment*			
Trust	Team Name	Admit	Disch	SSNAP Level	CA	AC	Combined KI Level	D1 Scan	D2 SU	D3 Throm	D4 Spec Asst	D5 OT	D6 PT	D7 SALT	D8 MDT	D9 Std Disch	D10 Disch Proc	PC KI Level	Number Applicable	% Applicable	Number Assessed	% Assessed
Somerset NHS Foundation Trust	Musgrove Park Hospital	140	155	C↓	A	A	C↓	A	D↑	D	C	C↓↓	C↓	C	C↓	B	A	C↓	179	81%	151	84%
Yeovil District Hospital NHS Foundation Trust	Yeovil District Hospital	82	99	D	A	A↑	D	B↓	E	D	D	B↑	B↑	D↓	E↓	C	A	D	87	73%	71	82%

Admissions

The targets for stroke admissions, both numbers of admissions and time of admission are not being met consistently across the county.

Target: Minimum 600 Annual Stroke Admissions by Admitting Team

600 stroke patient admissions per year are typically required to provide sufficient patient volumes to make a hyper acute stroke service clinically sustainable, to maintain expertise and to ensure good clinical outcomes.

YDH has consistently not met these minimum volumes, as seen in the table below[238]:

[236] See Appendix 19 for full SSNAP reports

[237] SSNAP April - June 2022 Routinely admitting teams SSNAP - Regional - ISDN (strokeaudit.org)

[238] Source: SSNAP submissions January 1st 2018 to December 31st 2021– red text denotes failure to meet target

	2018	2019	2020*	2021
Musgrove Park Hospital	657	708	536	705
Yeovil District Hospital	429	468	412	454

The chart below shows the numbers of stroke admissions, by type of stroke, across both YDH and MPH since 2018[239].

Key:
I = Ischaemic (Clot)
PIH= Haemorrhagic (Bleed)

Target: 90% of patients admitted to HASU within 4 hours

There is no way in SSNAP to differentiate between patients admitted to a Hyper-Acute Stroke Unit (HASU) and those admitted to an Acute Stroke Unit (ASU).

The table below shows the percentage and number of patients admitted to a designated stroke unit (either HASU or ASU) within 4 hours of clock start, on an annual basis[240]:

	2018	2019	2020	2021
Musgrove Park Hospital	65.6% (431)	64.1% (454)	68.1% (365)	59.7% (421)
Yeovil District Hospital	66.9% (287)	61.1% (286)	57.8% (238)	44.3% (201)

[239] Source: SSNAP submissions January 1st 2018 to December 31st 2021
[240] Source: SSNAP submissions January 1st 2018 to December 31st 2021– red text denotes failure to meet target

Both MPH and YDH consistently fall below this target. Ward closures due to infection control (COVID-19) impacted figures in 2020 and 2021 at both trusts.

Target: 90% of patients spend at least 90% of their time on a stroke unit

The table below shows the percentage and number of patients who have spent at least 90% of their admission on a designated stroke unit (this cannot be broken down into HASU or ASU)[241]:

	2018	2019	2020	2021
Musgrove Park Hospital	69.6% (457)	70.2% (497)	71.3% (382)	66.4% (468)
Yeovil District Hospital	73.7% (316)	69.9% (327)	67.5% (278)	59.3% (269)

If patients are discharged within 24 hours of 'clock start' they are given a non-applicable for this indicator. This equates to an average of 7.7% and 4.0% for Musgrove Park Hospital and Yeovil District Hospital respectively.

Both YDH and MPH are consistently failing to meet this target.

Target: Admissions to Tertiary Centres (Bristol)

Between 2018 and 2021 a total of 88 patients were transferred to North Bristol Hospitals for tertiary centre interventions, 51 from Musgrove Park Hospital and 37 from Yeovil District Hospital.

Of these 9 were patients with bleeds, and 79 were patients referred for thrombectomy.

Specialist clinician assessment

Access to specialist clinical assessment is not being consistently met across the county, this is not just for medical specialists, but wider multidisciplinary team expertise.

Target: 95% of people had specialist stroke assessment <30 minutes

The table below shows the percentage and number of patients receiving specialist stroke assessment in 30 minutes, based on time from 'clock start' to the time of the first review of a patient, by either a stroke nurse or stroke consultant (in person or telemedicine)[242].

Neither trust is achieving the 95% target for this.

[241] Source: SSNAP submissions January 1st 2018 to December 31st 2021– red text denotes failure to meet target
[242] Source: SSNAP submissions January 1st 2018 to December 31st 2021– red text denotes failure to meet target

	2018	2019	2020	2021
Musgrove Park Hospital	46.1% (303)	51.1% (362)	57.8% (310)	53.5% (377)
Yeovil District Hospital	30.8% (132)	23.1% (108)	20.6% (85)	20.5% (93)

The difference in these figures could be due to different working practices of both trusts:

- At MPH there is a specialist nurse on site between 08:00 and 20:00 each day, seven days per week.
- At YDH there is a specialist nurse on site between 08:00 and 18:00 Monday to Friday, and 09:00 to 17:00 at weekends.

Target: 60% of patients with stroke assessed and managed by stroke nursing staff and at least one member of the Multi-Disciplinary Team (MDT) within 24 hours of admission [plus all other relevant therapists within 72hrs and goals within 5 days]

The table below shows the results of the SSNAP Key Indicator for the percentage of applicable patients who are assessed by a nurse within 24 hours and at least one therapist within 24 hours and all relevant therapists within 72 hours and have rehab goals agreed within 5 days[243].

SSNAP reports on this quarterly, so an average has been taken for each year. SSNAP adds the 5-day goals and 72hr reviews from all other therapists, which might affect the numbers.

Patients are excluded by SSNAP in this indicator if ineligible for any part of it within the time frames above, and this has been calculated by the central SSNAP team.

	2018	2019	2020	2021
Musgrove Park Hospital	57.5%	60.5%	69.2%	67.2%
Yeovil District Hospital	56.6%	51.3%	47.9%	35.1%

Both YDH and MPH are consistently falling below this target.

Target: 100% of all conscious (eligible) stroke patients to receive a swallow screen within 4 hours of admission

[243] Source: SSNAP submissions January 1st 2018 to December 31st 2021– red text denotes failure to meet target

The table below shows the number and percentage of all patients who were given a swallow screening within 4 hours of clock start. These figures exclude those noted to have been too unwell for assessment within the first 4 hours of admission[244].

	2018	2019	2020	2021
Musgrove Park Hospital	73.8% (462)	72.1% (495)	77.1% (397)	70.6% (483)
Yeovil District Hospital	66.7% (271)	58.5% (247)	55.9% (198)	65.9% (270)

A swallow screening can only be completed by a registered nurse, who has been trained by a speech and language therapist in swallow screening, or a speech and language therapist.

Both YDH and MPH are consistently failing to meet this target.

Target: Patients who fail swallow screen to be assessed by Speech and Language Therapist within 24 hours

The table below shows the number and percentage of all patients who required SLT input for swallow (equating to 100%), who were assessed within 24 hours of clock start.

If patients are noted to have been too unwell to be seen within the first 72 hours of 'clock start' they are given a non-applicable for this indicator.

This equates to an average of 2.3% and 4.6% for Musgrove Park Hospital and Yeovil District Hospital respectively.

	2018	2019	2020	2021
Musgrove Park Hospital	89.0% (585)	90.8% (643)	91.4% (490)	90.9% (641)
Yeovil District Hospital	97.2% (417)	94.2% (441)	86.4% (356)	90.1% (409)

A swallow assessment can only be completed by a qualified speech and language therapist.

Both Musgrove Park Hospital and Yeovil District Hospital only have 5-day working Speech and Language therapists, this may impact patients who arrive over the weekend or later on a Friday.

[244] Source: SSNAP submissions January 1st 2018 to December 31st 2021– red text denotes failure to meet target

Thrombolysis

Target: 15-20% of all stroke admissions thrombolysed

The table below shows the percentage of patients of all patients thrombolysed[245].

This includes all stroke admissions, including those who have experienced bleeds and who are otherwise ineligible. The actual number of patients has been excluded to ensure patients are not identifiable.

It then details of those patients thrombolysed (that number equating now to 100%) how many were thrombolysed with door to needle times of 30, 45 and 60 minutes.

	2018	2019	2020	2021
Musgrove Park Hospital (Total)	**9.4%**	**8.6%**	**7.3%**	**9.4%**
% of those within 30 minutes	*8.1%*	*1.6%*	*0.0%*	*1.5%*
% of those within 45 minutes	*35.5%*	*19.7%*	*23.1%*	*15.2%*
% of those within 60 minutes	*54.8%*	*57.4%*	*56.4%*	*28.8%*
Yeovil District Hospital (Total)	**16.8%**	**16.0%**	**12.1%**	**11.9%**
% of those within 30 minutes	*22.2%*	*2.7%*	*4.0%*	*1.9%*
% of those within 45 minutes	*51.4%*	*22.7%*	*14.0%*	*9.3%*
% of those within 60 minutes	*75.0%*	*50.7%*	*44.0%*	*37.0%*

Targets for this indicator:

- 50% Thrombolysis in door to needle time of 30 minutes
- 90% Thrombolysis in door to needle time of 45 minutes
- 95% Thrombolysis in door to needle time of 60 minutes

Both YDH and MPH are failing to meet this target. This may be impacted by the ambulance provider call to door times.

Scanning

In relation to scanning, the two key targets are consistently being met.

Target: 50% of patients receive brain CT/MRI scan <1 hour of clock start

[245] Source: SSNAP submissions January 1st 2018 to December 31st 2021– red text denotes failure to meet target

The table below shows the percentage and number of patients receiving a CT or MRI scan[246] within 1 hour of 'clock start'[247].

At MPH there is an option for ambulances to go direct to CT should the scanner be available – this is not possible at YDH.

In both YDH and MPH this target is consistently being met.

	2018	2019	2020	2021
Musgrove Park Hospital	65.3% (429)	64.3% (455)	68.8% (369)	64.4% (454)
Yeovil District Hospital	56.6% (243)	60.7% (284)	56.1% (231)	54.0% (245)

Target: 85% of patients scanned within 12 hours of admission

The table below shows the percentage and number of patients receiving a CT or MRI scan[248] within 12 hours of 'clock start'[249].

In both YDH and MPH this target is consistently being met.

	2018	2019	2020	2021
Musgrove Park Hospital	93.9% (617)	94.5% (669)	94.2% (505)	95.5% (673)
Yeovil District Hospital	94.4% (405)	94.4% (442)	95.1% (392)	95.2% (432)

Outcomes and discharge

Stroke Mortality Rates

The table below shows the percentage and number of patients who died. In national mortality reporting by SSNAP neither trust is an outlier for mortality based on Standardised Mortality Ratios[250].

	2018	2019	2020	2021
Musgrove Park Hospital	15.5% (102)	13.3% (94)	11.4% (61)	12.3% (87)
Yeovil District Hospital	14.9% (64)	12.2% (57)	13.8% (57)	14.1% (64)

[246] The number of initial MRI scans is extremely small, so these numbers have been combined with CT scans to ensure that these patients remain unidentifiable.
[247] Source: SSNAP submissions January 1st 2018 to December 31st 2021
[248] The number of initial MRI scans is extremely small, so these numbers have been combined with CT scans to ensure that these patients remain unidentifiable
[249] Source: SSNAP submissions January 1st 2018 to December 31st 2021
[250] Source: SSNAP submissions January 1st 2018 to December 31st 2021

Destination on Discharge

The table below shows the percentage of patients discharged by discharge destination[251] (note, patients who have died are reported above). The figures are broadly similar across both MPH and YDH and across the years.

Inpatient care teams includes both community and acute hospitals.

Musgrove Park Hospital (MPH)	2018	2019	2020	2021
Care Home	4.6%	5.5%	4.1%	3.0%
Home	25.1%	23.9%	20.0%	16.3%
Home/Care Home with Early supported discharge (ESD) or Community Stroke Team (CST)	27.9%	30.5%	34.1%	34.8%
Inpatient Care Team	26.2%	26.3%	29.9%	31.6%

Yeovil District Hospital (YDH)	2018	2019	2020	2021
Care Home	3.0%	3.6%	3.4%	2.6%
Home	21.0%	17.7%	16.7%	19.2%
Home/Care Home with Early supported discharge (ESD) or Community Stroke Team (CST)	35.0%	39.3%	35.0%	34.4%
Inpatient Care Team	26.1%	27.1%	31.1%	28.9%

Patients transferred to ESD or CST teams, or inpatient care teams can be broken down further into those in-area, local teams (such as Dorset or North Somerset), or out-of-area providers.

[251] Patients discharged to 'Somewhere Else' (1.2% across both trusts) have been excluded from this indicator to avoid patients being identifiable.

The below shows the breakdown from 2018-2021 of providers transferred to (with ESD/CST and inpatient care team providers equalling 100%).

Musgrove Park Hospital	Acute	Community
In Area	3.6%	92.7%
Local Team	1.3%	0.5%
Out of Area	1.1%	< 1.0%
Yeovil District Hospital	**Acute**	**Community**
In Area	3.7%	81.6%
Local Team	< 1.0%	13.1%
Out of Area	< 1.0%	1.0%

Inequalities

There are areas of unwarranted variation in stroke care across the county.

Reviewing the SSNAP data, there are 3 areas of significant variation between Musgrove Park Hospital and Yeovil District Hospital as follows:

Metric	MPH	YDH	Significance Flag[252] (95%)
90% of patients admitted to HASU within 4 hours	59.7%	44.3%	**MPH significantly higher**
95% of people had specialist stroke assessment <30 minutes	53.5%	20.5%	**MPH significantly higher**
60% of patients with stroke assessed and managed by stroke nursing staff and at least one member of the MDT within 24 hours of admission	67.1%	35.2%	**MPH significantly higher**

[252] Confidence intervals for each of the percentages for the 2021 SSNAP figures from MPH and YDH - at the 95% level, based on Wilson's method Wilson CI - Statistics How To

Financial sustainability

The NHS is facing significant challenges to the sustainable and affordable delivery of safe, accessible, good quality services to patients and those who care for them.

> **NHS hospitals face mounting financial and workforce pressures. Reconfiguration of hospital services can provide a powerful means of improving quality in an environment where money and skilled health care workers are scarce.[253]**
>
> Reconfiguring Hospital Services, The Kings Fund

The Somerset health and social care system had a deficit prior to the COVID pandemic due to a combination of historical factors, including a period of prolonged underfunding; increasing workforce pressures; ageing and unsuitable infrastructure; changing public expectations; the material challenges faced by social care; and ongoing nationally driven inflationary and structural change.

During 2020/21 and 2021/22 the funding regime focussed on ensuring legitimate costs to the NHS of meeting the immediate threats to services, care and patient lives created by the pandemic were covered in full.

However, we now move into a new financial framework from 2022/23, intended to sustainably restore the affordable balance. But in doing this, the historic factors remain and are exacerbated by the ongoing demands because of the pandemic and the impact of other world events.

The challenges from workforce, public expectation, social care pressures and structural change have intensified.

New challenges include material loss of productivity; significant new and backlog demand across primary care, mental, community and physical health services; and high levels of inflation leading directly to cost pressures and indirectly impact on health and wellbeing because of economic distress in the population.

In 2022/23, we have returned to a national financial framework which has reintroduced a funding allocation based on fair shares for each system and a trajectory for return to this value from the exit level of funding from the 2021/22 pandemic financial regime over the next few financial years.

The national and regional expectation for Somerset, as for all systems, is to plan for and deliver aligned financial, workforce and service sustainability in the medium to long term, implementing such changes as are necessary to ensure this is achieved through wise and affordable use of resources.

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[253] Briefing on Reconfiguring hospital services - Candace Imison - The King's Fund, September 2011 (kingsfund.org.uk)

NHS Somerset has an underlying financial deficit in the region of £70m.

Work has been undertaken to assess the causes of the deficit in Somerset, namely:

- True structural costs, predominantly the unavoidable inefficient cost of sub-scale services which are necessary to ensure appropriate provision and access across the geography of Somerset and Private Finance Initiative (PFI) costs at Somerset NHS Foundation Trust
- Workforce availability to support sustainable services, including primary care
- Challenges in recruitment and retention has led to premium-rate workforce costs to cover gaps and ensure ongoing service delivery
- Inefficiencies created by the existence of sub-scale and duplicate services which are not attributable to geographical necessity and could therefore be eliminated through redesign
- Historic non-delivery of recurrent efficiency savings and reliance on non-recurrent solutions to achieve in year balance
- The productivity and cost impacts of under-utilised and expensive estate
- In some areas corporate services costs which benchmark highly compared with other systems and organisations
- Resources not being used to achieve best value because of historic investment and/or under-investment decisions

This means that to “balance the books” we have no choice but to look at radical ways to deliver services more efficiently and effectively, while still maintaining quality and safety of care.

11. Developing the model of care in Somerset

A significant amount of work has been undertaken by the Somerset stroke steering group (a partnership of clinicians, people with lived experience of stroke and other health and social care staff from across Somerset as well as colleagues from Dorset) to design a new model for acute adult stroke services that meets both clinical best practice and one that is grounded in what matters most to people and delivers the best outcomes for patients.

This work has been led by Dr Rob Whiting, Clinical Services Director for Neurological Services and Consultant Stroke Physician at SFT.

As part of the process, a review of the available evidence for optimal stroke care was built into our thinking and included:

National Stroke Service Model

It was agreed that the options for change should be in line with the draft National Stroke Service Model and address the current inequalities in stroke care provision across Somerset.

The group recognised that in rural areas compromises might need to be made as achieving a well-staffed unit working 24/7 that is also within a 45 – 60-minute drive in a blue light ambulance might not be possible[254].

Ideally, the model of care in Somerset should:

- Provide high quality emergency stroke care 24 hours a day, 7 days per week
- Minimise the number of handovers in care for patients
- Consolidate the workforce to provide optimum care, operationally flexibility and an integrated service
- Improve the affordability of the proposals

[254] stroke-services-configuration-decision-support-guide.pdf (england.nhs.uk)

- Enhance transient ischaemic attack (TIA) services, ensuring equity of access for rapid assessment in all areas of Somerset with digital links to the HASU for advice and support
- Optimise the use of digital technology and learning from COVID-19 to enhance the "reach" that specialist clinicians achieve beyond their immediate vicinity, supporting community services, primary care and ambulance crews in a way not currently seen.

To deliver the model and operate effectively, these dedicated units will need to be supported by other services, including acute medicine, urgent diagnostics, vascular surgery, critical care, and therapies.

Centralisation of services

As stroke care has developed and become increasingly complex over the years, not all hospitals can be equipped with specialist staff and equipment to provide the best evidence-based care 24 hours a day, 7 days a week.[255]

> **"It's clear that access to Hyper Acute Stroke Units helps more people make a better recovery following a stroke[256]. Every stroke patient should have access to high quality, life-saving care: centralising stroke care in hospitals throughout other large UK cities has the potential to save thousands of lives."**
>
> Dr Shamim Quadir, Research Communications Manager at the Stroke Association

Centralisation of HASUs has been associated with the following improvements in clinical outcomes and benefits for patients and their families[257] [258]:

- Reduced time from admission to thrombolysis
- Improved time from admission to brain imaging for thrombolysed patients
- Reduced total length of inpatient stay[259] [260]
- Reduced mortality

[255] King's College London, Stroke pathway – Evidence Base Commissioning, An Evidence Review (2020), p.45
[256] Super units needed for stroke care | Stroke Association
[257] psp_-_reorganising_acute_stroke_services_0.pdf
[258] The impact of acute stroke service centralisation: a time series evaluation - PMC (nih.gov)
[259] Impact of centralising acute stroke services in English metropolitan areas on mortality and length of hospital stay: difference-in-differences analysis | The BMJ
[260] Effects of centralizing acute stroke services | Neurology

Whilst there are concerns regarding longer ambulance journey times because of centralisation, especially in rural areas, these have been shown to be offset by the improved speed of thrombolysis delivery[261] [262]

Stroke services need to focus on maximising the likelihood that the local population can receive the best stroke care at the right time, even if it may slightly disadvantage a very small number of people. Not reconfiguring acute stroke services because of this would potentially disadvantage all their residents, by preventing access to best quality stroke care.

Stroke Association, Transforming and reorganising acute stroke services 2022[263]

Co-location of services

In 2014, the South-East Clinical Senate (SECS) published a detailed report "The clinical co-dependencies of acute hospital services"[264] which describes the clinical specialties and services that should co-locate with a hyperacute stroke unit (HASU) and acute stroke unit (ASU).

The table below demonstrates how Somerset Foundation Trust (SFT) and Yeovil District Hospital (YDH) meet this service provision. Using the colour coding used in the SECS report[265]:

- Purple-coded dependency (P) indicates that the supporting specialty should be based on site
- Red-coded dependency (R) indicates that the service should be able to come to the patient, but if not based in the same hospital, should be provided by visiting or in-reach from another site (either in-person or via telemedicine links if appropriate).

Clinical specialties and functions supporting HASU and ASU	HASU	ASU	SFT	YDH
A&E / Emergency Medicine	P	P	P	P
Acute and general medicine	P	P	P	P
Acute cardiology	P	P	P	P
Acute inpatient rehabilitation	Ideally on-site but could be available through network	P	P	P

[261] The impact of acute stroke service centralisation: a time series evaluation - PMC (nih.gov)
[262] psp_-_reorganising_acute_stroke_services_0.pdf
[263] psp_-_reorganising_acute_stroke_services_0.pdf
[264] The Clinical Co-dependencies of acute hospital services: A Clinical Senate Review. December 2014
[265] SECS Recommendations for clinical co-dependencies with HASU & ASU, and correlation with services provided by Somerset Foundation Trust (SFT) & Yeovil District Hospital (YDH)

Acute mental health services	P	P	P	R
Critical care (Adult)	P	P	P	P
CT scan / angiography	P	R	P	P
Dietetics	R	R	P	P
Elderly Medicine	P	P	P	P
General Anaesthesia	P	P	P	P
MRI Scan	P	Not required on site	P	P
Nephrology (not including dialysis)	R	R	P	R
Neurology	R	R	P	R
Occupational Therapy	P	P	P	P
Palliative Care	R	R	P	P
Physiotherapy	P	P	P	P
Respiratory medicine (incl. bronchoscopy)	P	P	P	P
Speech & Language Therapy	P	R	P	P
Urgent GI endoscopy (upper and lower)	P	R	P	P
X-ray and diagnostic ultrasound	P	P	P	P

Interdependencies

Minimum specifications

To ensure that safe and effective care is delivered for people who have experienced a suspected or confirmed stroke or TIA, the following minimum specifications for interdependent services should be applied:

Site with an ASU, but no HASU

- There should be 24/7 access to CT brain imaging and CT angiography
- There should be 24/7 access to telemedicine stroke advice from a stroke consultant where emergency interventions such a thrombectomy, thrombolysis or intensive blood pressure lowering in intracerebral haemorrhage may be indicated
- There should be 24/7 access to transfer a patient to HASU from hospitals with only an acute stroke unit for full stroke assessment and management
- Patients requiring specialist assessment prior to transfer should be assessed with remote telemedicine support and discussion with the consultant specialist based in the HASU, e.g., Visionable. This would potentially provide another layer of risk mitigation for stroke patients presenting to the non-HASU site where the HASU consultant could visualise the patient

- Patients who cannot be transferred to HASU should be able to access the on-site acute stroke unit, including multidisciplinary assessments and ongoing stroke care (including hyper acute stroke care) and rehabilitation until discharge or transfer
- There will be regular education and training sessions with medical registrars, emergency department staff, and stroke nurses to support safe and effective delivery of stroke thrombolysis where necessary
- The acute stroke unit should be staffed as per Royal College of Physicians recommendations
- There should be access to carotid imaging, ambulatory ECG, and echocardiography
- There should be clinical co-dependencies as set out in section on Clinical Co-dependencies

Site with no acute stroke unit or hyperacute stroke unit

- If stroke is suspected the patient should be transferred urgently by ambulance to hospital site with HASU

Emergency Department

Centralising the hyper acute stroke unit would increase the number of ambulance arrivals to a single site.

The volume of additional activity would depend on the centralised HASU site, as it would include the current activity (strokes, TIA, and mimics), minus the number of attendances that would attend out of county if the nearest HASU was not in Somerset.

It was agreed by the Clinical Reference Group that whilst MPH ED may be able to absorb the increased attendance rate centralisation would lead to, YDH ED, in its current format, would not be able to absorb the volume of activity that would be generated if a HASU was centralised at YDH.

Any centralisation would lead to increased activity for ED, and this would need to be mitigated through increased specialist stroke staffing cover and through the continued use of direct admission pathways to the stroke unit, for specialist intervention and treatment.

The on-site stroke team would need to ensure that there is opportunity to assess, treat and admit patients rapidly to the HASU from A&E 24/7.

The National Optimal Stroke imaging pathway (see Diagnostics section) helps to facilitate this rapid assessment. Some stroke mimic conditions (e.g., migraine) will have a short length of stay and can be rapidly discharged home. Other patients will need to be admitted to the acute medical unit. In these cases, this would involve repatriation to their local hospital following diagnosis.

Neurology

At SFT there is an on-site neurology service with a weekday system to respond to in-patient referrals to the neurology service. This helps to facilitate prompt diagnosis and treatment plan (where necessary) for patients with a stroke mimic condition.

YDH does not have an on-site neurology service and is reliant on a visiting neurologist from SFT once or twice per week. Thus, for patients with a stroke mimic condition requiring specialist neurology opinion, this could be provided more promptly by centralisation of the hyperacute stroke service at SFT.

Acute medicine

Currently patients with suspected stroke admitted to SFT are admitted directly to Dunkery stroke unit unless a mimic condition is diagnosed in the emergency department, or on occasions where there is no stroke bed available on Dunkery stroke unit.

It is anticipated that centralisation of hyperacute stroke services would lead to an additional 1-2 additional admissions to the acute medical unit per week, principally patients with a stroke mimic condition requiring ongoing inpatient investigation or care.

Repatriation pathways will be developed for patients whose length of stay is anticipated to be longer than 48 hours.

Diagnostics

Brain scans are essential to diagnose the type of stroke and to make sure that there is no other medical cause for the patient's symptoms. By determining the type of stroke a patient suffered it is possible to then manage subsequent care including the provision of thrombolysis, thrombectomy or urgent blood pressure lowering medication.[266]

Imaging requirements will include CT brain, CT angiography, MRI brain imaging and carotid Doppler ultrasound scanning. It is also anticipated that CT perfusion scanning will become increasingly useful in selected cases of stroke outside the traditional time window for stroke thrombolysis.

The National Stroke Service Model[267] published in May 2021 has developed a National Optimal Stroke Imaging Pathway with a recommended ideal imaging strategy for patients admitted with suspected stroke.

This has been developed on the best evidence and extensive expert consensus, including the NHS National Imaging Optimisation Delivery Board and Intercollegiate Stroke Working Party.

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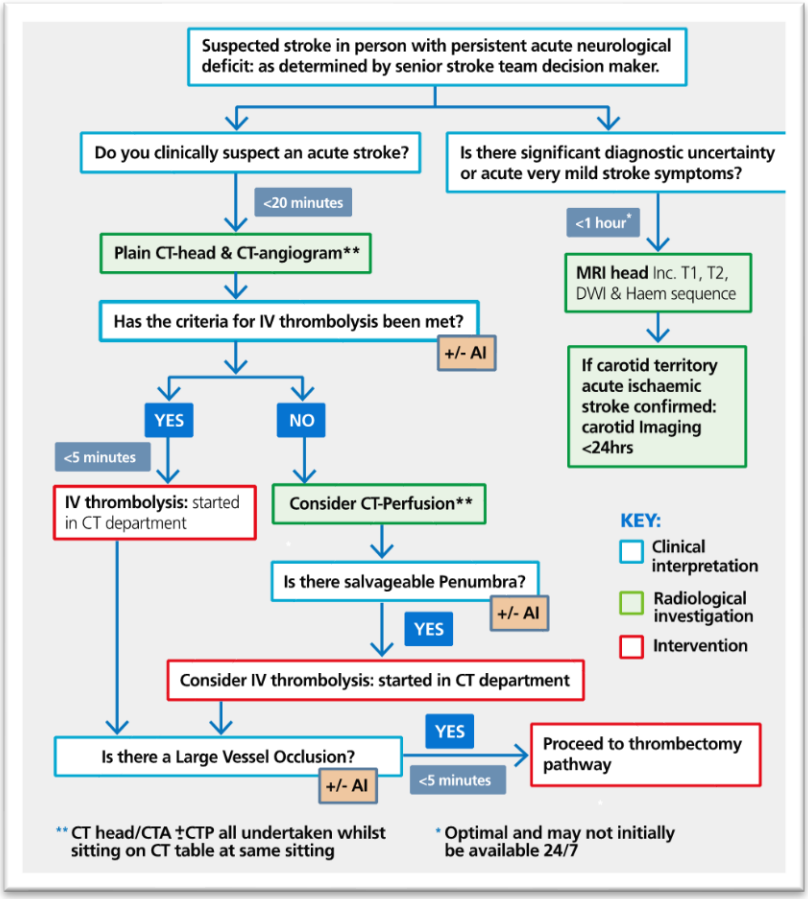
266 Microsoft Word - Annual Report 1718.docx (strokeaudit.org)
267 National Stroke Service Model. May 2021

The image below shows the pathway[268]:



The growth in stroke demand indicates that there will be a growth in the demand for imaging across both Taunton and Yeovil.

Within two of the shortlisted options, this demand would be transferred to Taunton. As such, in all shortlisted options, the number of radiographers required will need to be modelled, and in addition any specific training requirements to support enhanced delivery (such as CT Perfusion scanning, which Taunton is looking to commence as soon as possible) will need to be identified and costed.

In relation to ED, we know that the demand is increasing. This has had a knock-on impact on the amount of urgent and emergency scanning which is required. This has had a direct impact on the capacity of the radiography teams to undertake inpatient scans, which has had a subsequent impact on patient flow within the hospitals as patients care is delayed whilst waiting for imaging.

[268] Source: National Stroke imaging pathway

The pressure on scanner capacity and the drive for point of care CT scanning in ED's[269] has identified a business case for locating a specific CT scanner in the ED at Taunton. If HASU services were centralised at Yeovil, this would be required too.

Similar can be found in the provision of access to MRI scanning for TIA. Within Taunton, there are 4 TIA rapid-access clinic slots, which are provided in addition to the inpatient MRI slots. It should be noted, that as many inpatients will require repeat MRI scans, which means that any additional demand on MRI capacity (from either in patient or outpatient activity) would require an expansion of current resources to accommodate the demand, rather than just a re-shape of the patient pathway.

Rapid interpretation of brain imaging (CT brain, CT angiography, CT perfusion scanning) for stroke is typically undertaken within 30 minutes. This process is supported by Artificial Intelligence (AI) software Brainomix[270] which is available at both SFT and YDH.

The use of AI should receive continued support as a prioritisation tool, as it is well known that Radiology resources continue to be challenged. One way to address reporting delays would be to support the expansion of radiographer reporting.

There is an ambition to have a regional imaging network that would allow cross-site reporting, but this may be some way off. There is of course, the 3D-net cloud server which is used to send CT images to the thrombectomy network. A similar system could be used for MRI as well.

Work is underway to determine the specific impacts and configuration of imaging associated with emergency care and TIA provision in both hospital sites.

Intensive Care Unit (ICU)

Specialist ICU provision will be available to all stroke patients that require it at SFT and YDH.

A very small proportion of stroke patients require ICU, and it is unlikely to have a significant impact ICU capacity.

Neurosurgery

Both SFT and YDH have access to the neurosurgery service at Bristol Southmead Hospital for complications of stroke, such as malignant MCA syndrome[271] and intra-cerebral haemorrhage, which requires urgent neurosurgical intervention, and is usually seen in the early days post-stroke.

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269 Point-of-Care-Testing in Acute Stroke Management: An Unmet Need Ripe for Technological Harvest - PMC (nih.gov)

270 e-Stroke | Automated AI-powered Decision Support for Stroke Assessment (brainomix.com)

271 Malignant MCA infarction' is the term used to describe rapid neurological deterioration due to the effects of space occupying cerebral oedema following middle cerebral artery (MCA) territory stroke, Malignant middle cerebral artery (MCA) infarction: pathophysiology, diagnosis and management | Postgraduate Medical Journal (bmj.com)

Vascular surgery

Regional vascular surgery services are centralised at SFT.

A weekly vascular surgery multidisciplinary team (MDT) clinic is run at SFT. Currently patients in YDH with a significant carotid stenosis wait until a visiting vascular surgeon from SFT attends YDH to review the patient. The patient then needs to be transferred from YDH to SFT for surgery, and then transferred back to YDH once stable post-operatively when ongoing stroke rehabilitation is required.

Centralising hyperacute stroke services at SFT will improve the referral process, allowing more rapid assessment by the vascular surgeon in person while the patient is in the HASU where necessary. It will also minimise the number of hospital transfers that the patient experiences.

It will also support improved referral practices and MDT discussion as stroke physicians will be able to attend the vascular surgery MDT meetings.

Cardiology

SFT provides primary PCI[272] services for the region with dedicated catheter labs. Currently patients requiring this service from Yeovil are transferred using the FAST Ambulance transport service, which provides transport to and from YDH to MPH.

The SFT HASU use ambulatory ECG[273] monitoring from the day of admission, and the cardiology service provide a prompt analysis and reporting service. In selected cases the cardiology department can arrange implantable loop recorders for prolonged cardiac monitoring.

The SFT and YDH cardiology departments are also able to provide transthoracic and transoesophageal echocardiography, as well as bubble-contrast studies. There are excellent links with the tertiary cardiology services for consideration of PFO[274] closure in selected stroke cases. This is underpinned by regular multidisciplinary meetings to facilitate careful case selection.

Thrombectomy

A small number of severe ischaemic strokes can be treated by an emergency procedure called a thrombectomy. This removes blood clots and helps restore blood flow to the brain.

Thrombectomy is only effective at treating ischaemic strokes caused by a blood clot in a large artery in the brain. It is most effective when started as soon as possible after a stroke.

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[272] The combination of coronary angioplasty with stenting is usually referred to as percutaneous coronary intervention (PCI).
[273] An ambulatory ECG (sometimes called a Holter monitor) – the electrodes are connected to a small portable machine worn at your waist so your heart can be monitored at home for 1 or more days, Electrocardiogram (ECG) - NHS (www.nhs.uk)
[274] A PFO is a hole, covered by a flap, between the left and right chambers of the heart. policy_position_pfo_closure.pdf (stroke.org.uk)

Currently stroke thrombectomy is provided on a regional basis by Southmead Hospital in Bristol, in accordance with NHS England's Specialised Commissioning arrangements[275]..

One of the major drawbacks to development of stroke thrombectomy services nationwide has been the lack of neuroradiologists with the requisite training and technical skills to perform the procedure.

To help to bridge this skills gap, the General Medical Council is working with the British Society of Neuroradiology and Royal College of Radiologists to develop a credentialing framework to increase the number of operators contributing to mechanical thrombectomy services[276]. There currently is some disagreement about the recommended scope and duration of training for the credential[277].

In addition, there is a cohort of stroke patients who arrive outside the 6-hour window (including those who wake up with a stroke) who could still benefit from thrombectomy.

CT perfusion (CTP)[278] helps to identify this cohort by demonstrating how much brain could be salvaged by thrombectomy. As the thrombectomy service moves to 24/7, so will the number of patients who may require CTP. Indications from modelling suggest that this intervention may be beneficial for about 2.5% of patients arriving at an acute stroke centre with a stroke[279].

There is also a cohort of patients with a large vessel occlusion who receive intravenous thrombolysis locally and are then transferred to Southmead for thrombectomy. Some of these may recanalise enroute and so CTP can be used to identify whether there remains a significant area of salvageable brain. Modelling suggests this could be indicated in approximately 10% of stroke patients.

Whilst these issues fall outside of the immediate scope of this service reconfiguration - as thrombectomy is not provided locally - the availability of on-site catheter laboratories and interventional radiology facilities could help future-proof Somerset stroke services, should the need for a local thrombectomy service become a requirement in the future.

Repatriation and inter-facility transfers

At present patients who need to receive stroke care and treatment at a different hospital to the one they are admitted to are transferred by SWASFT.

Current transfers include:

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[275] Mechanical-thrombectomy-for-acute-ischaemic-stroke-ERRATA-29-05-19.pdf (england.nhs.uk)

[276] Mechanical thrombectomy for ischaemic stroke. Update September 2020. Royal College of Radiologists

[277] Current status of the credential "mechanical thrombectomy for acute ischaemic stroke sponsored by RCR. Clinical Radiology March 2022

[278] CT perfusion scanning is a non-invasive medical test that helps physicians diagnose and treat medical conditions. CT perfusion (CTP) imaging shows which areas of the brain are adequately supplied or perfused with blood and provides detailed information on delivery of blood or blood flow to the brain. CT Perfusion of the Head (radiologyinfo.org)

[279] Estimating the number of UK stroke patients eligible for endovascular thrombectomy - Peter McMeekin, Philip White, Martin A James, Christopher I Price, Darren Flynn, Gary A Ford, 2017 (sagepub.com)

- Inter-facility transfers from Taunton to Bristol for thrombectomy – Category 2 response
- Re-patriation of stable patients from Bristol to Taunton for acute stroke care
- Inter-facility transfers from Yeovil to Bristol for thrombectomy – category 2 response
- Re-patriation of stable patients from Bristol to Yeovil for acute stroke care

Within some of the proposed options, there would be a requirement for increased transfer and re-patriation between Yeovil and Taunton, Yeovil, and Dorset, and both Somerset providers and out of area providers.

The implications of this will be considered in the detailed options analysis in Chapter 12.

Inequalities

As has previously been described, there are variations in the equity of stroke service provision across the county. One of the aims of this reconfiguration is to minimise inequality.

A key factor within Somerset is its rurality. As such, it is important to acknowledge that the clinical and financial critical mass achievable in urban areas may not always be achievable and as such there is a balance to be struck between volumes of activity, travel times and financial impact.

However, there are key standards that must not be compromised:

- Specialist assessment on admission (24 hours a day) and daily thereafter during hyperacute phase
- Stroke unit staffed and equipped in line with best practice specification
- 24-hour access to scanning
- Access to thrombolysis, but less important than other aspects of care – access to therapy.

Use of digital technology

There are several applications of digital technology currently in use across the stroke service in Somerset, as well as substantial opportunities for greater inclusion to support sustainability and enhance patient outcomes.

Telemedicine and telehealth

Telemedicine and telehealth consist of a network of audio-visual communication and computer systems for delivery of clinical services. They make use of the advances in high-speed data transfer and data security to provide remote centres with the expertise that is usually only available in specialist centres.

Telemedicine has become a way to improve timely clinical decision making and provide a solution to the challenges impacting clinical outcomes relating to both national shortages in the stroke specialist workforce and large geographical areas.

"Getting the stroke team involved with the patient before they even get through the front door of the hospital should also reduce the time it takes for the patient to be seen when they arrive at hospital. Even if it's only a five-minute reduction in time, this could make all the difference to a patient's outcome."

Dr Graham McClelland, a research fellow at NEAS

Currently, we use this in the following ways:

- Stroke consultants from the trust participate in a regional rota to provide senior specialist support to stroke thrombolysis out-of-hours. This involves a telephone discussion using standardised templates and review of brain imaging that is uploaded to a cloud-based imaging repository.
- The Covid-19 pandemic led to the use of telehealth systems, e.g., Attend Anywhere[280] for delivery of stroke follow-up clinics and virtually delivered stroke rehabilitation.

There is potential to use telemedicine in several settings and phases along the stroke pathway, including pre-hospital setting, acute and post-acute phases of stroke care.

- **Pre-admission**: In the pre-hospital setting the use of videoconferencing (Stroke Video Triage) between trained paramedics and the HASU-based stroke team are currently undergoing evaluation. This has the potential to facilitate triage of patients with suspected stroke and decision-making as to the most appropriate setting for them to be assessed.
    - There is the potential to ensure that patients with acute stroke and TIA are managed in the most appropriate setting.
    - It can also reduce the proportion of patients with "stroke mimic" conditions being unnecessarily conveyed to a HASU rather than their local hospital.
    - The technology facilitates app-based videoconferencing across multiple devices (e.g., tablet, laptop, webcam) with 3G, 4G, and 5G connectivity.
    - First Look Service evaluations in North Central London and East Kent[281] have demonstrated that the technology is acceptable, usable, and generally reliable, but did require clinician training[282].

[280] Attend Anywhere - Make travel optional

[281] Service evaluations in North Central London and East Kent

[282] Pre-hospital specialist triage of potential stroke patients using digital technology: a rapid service evaluation to capture learning and impact of innovations prompted by the COVID19 pandemic - NIHR Funding and Awards

- A pilot of stroke video triage in East of England[283] did note several challenges such as lack of paramedic access to telemedicine, and difficulty in matching a small pool of trained paramedics to suspected stroke / mimic patients.
- In the north-east of England, the telestroke service is being expanded to provide an innovative audio-visual calling from the ambulance team to the stroke unit to improve emergency stroke care[284]. The technology will allow clinicians to video call stroke patients directly, which will enable stroke specialists to assess the patient face-to-face before they enter a hospital – thus speeding up an accurate stroke diagnosis and facilitating the most appropriate care as fast as possible.
- In Gloucestershire, the stroke team have moved their HASU from Gloucester Royal Hospital to Cheltenham Hospital. For the past year they have used a system called Cinapsis[285] to enable a telephone dialogue between the GP or paramedic at the scene of a patient with suspected stroke. The Cinapsis platform can be used on smartphones. Using this system, the stroke team can redirect patients with suspected TIA directly to ambulatory or outpatient clinics; they can redirect patients with suspected mimic conditions to the acute medical unit or where possible ambulatory care or outpatient clinic to reduce unnecessary admissions. The conversation is recorded for audit and governance purposes, and at the end a letter is generated which can be stored on the patient record and used for onward referral to outpatient or ambulatory services. The Cinapsis team are in the process of developing videoconferencing as an alternative to telephone triage.
- NHSEI have commissioned Stroke Video Triage across several pilot sites in England to evaluate the wider adoption of this technology.

- **Acute**: There is good evidence for the use of telemedicine networks in the (hyper)acute phase to support the safe delivery of stroke-specific procedures (such as stroke thrombolysis) by less experienced clinicians.
    - The use of video telemedicine between the HASU and non-HASU site could facilitate timely, safe stroke management (including thrombolysis) of patients at the non-HASU site (e.g., for patients self-presenting to the non-HASU site or inpatient strokes at the non-HASU site).

283 Innovative Telemedicine Platform for Paramedics | Visionable
284 Stroke patients set to benefit from expanded telemedicine project | UK Healthcare News (nationalhealthexecutive.com)
285 Cinapsis SmartReferrals | Connecting care for smarter referrals

- The effectiveness and safety of this procedure in non-HASU sites in a telemedicine network has been shown to be comparable with that achieved in dedicated stroke centres.
- There is the opportunity to learn from other regions, such as the East of England Stroke Telemedicine Partnership, who have used video telemedicine with Visionable to deliver thrombolysis across multiple sites. A large, multicentre study was undertaken by the East of England Stroke Telemedicine Partnership between 2014 and 2019. It provided a horizontal 'hubless' model of out-of-hours hyperacute stroke care to a population of 6.2 million people across a 7500 square mile semi-rural geography[286]. The results indicated two important points for clinical practice: Telemedicine via a hubless horizontal model provides a clinically effective and safe method for delivering hyperacute stroke thrombolysis, and improved door-to-needle times were offset by a concerning rise in pre-hospital timings. These findings indicate that although telemedicine may benefit in-hospital hyperacute stroke care, improvements across the whole stroke pathway are essential if optimal outcomes are to be achieved.
- Going a step further, the Covid-19 pandemic led the stroke team at Queen Elizabeth's Hospital, King's Lynn, to use Visionable to deliver virtual ward rounds[287] for patients who have had a stroke but are at low risk and not suitable for stroke thrombolysis. In this setting the telemedicine carts used for thrombolysis delivery were too big to use easily on the ward, as well as presenting infection control challenges. So, the team used iPads and iPhones with the Visionable platform on the web browser to link the remote stroke consultant to the ward team and the patient. IT systems within the Trust had already allowed the patient observations, blood results, patient notes, imaging, and prescription charts to be viewed electronically. The process enabled effective stroke consultant input to patients with stroke. Patients were reportedly not fazed by having to speak to a consultant on an iPad screen rather than in person.

- **Post-acute**: The use of telemedicine in community hospitals can facilitate remote specialist assessment of patients whose care may need to be stepped up to the acute hospital (e.g., deteriorating patient).
  - There may be the option to deliver virtual specialist ward rounds as described above.

[286] Hyperacute stroke thrombolysis via telemedicine: a multicentre study of performance, safety and clinical efficacy | BMJ Open
[287] East of England celebrates 10 years of better stroke care with Visionable (buildingbetterhealthcare.com)

- Telemedicine networks can also be useful in selecting and enrolling patients in acute stroke trials, allowing a more representative sample of the population as well as increasing recruitment to stroke research trials.
- In the post-acute community setting there are several studies evaluating the use of telemedicine for stroke (physical and cognitive) rehabilitation.
- These have failed to show a difference between telerehabilitation and face-to-facet therapy, or have shown greater improvement in the telerehabilitation group[288]

Artificial Intelligence

The application of artificial intelligence in stroke care has been steadily increasing, enabling the timely sharing of images between key health professionals across stroke networks to facilitate prompt decision-making.

Several CE-marked tools for real-time augmented decision support have been developed.

For several months both Somerset NHS Foundation Trust and Yeovil District Hospital have been using the Brainomix e-stroke suite[289]. This incorporates the e-ASPECTS scoring which supports the clinician to identify the location and extent of cerebral infarction. It also includes a CTA module to support the identification of intracranial arterial occlusion where thrombectomy may be indicated. There is also a CT perfusion module which can help to identify patients presenting outside the traditional reperfusion time window who may still benefit from thrombectomy.

The e-stroke suite delivers pseudonymised imaging to a stroke clinician's laptop, iPad, or smartphone, facilitating prompt decision-making wherever the clinician may be situated.

Electronic systems

Both Somerset NHS Foundation Trust and Yeovil District Hospital use electronic systems for prescribing.

The stroke team in Somerset NHS Foundation Trust have developed the use of pre-specified prescription "order sets" for stroke management, with safety alerts and links to the British National Formulary facilitates safer prescribing practices.

The electronic prescribing system also can enable a remote clinician to directly prescribe without having to delegate this to a clinician on the ward.

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288 Telerehabilitation services for stroke | Cochrane

289 e-Stroke | Automated AI-powered Decision Support for Stroke Assessment (brainomix.com)

Electronic systems for physical and neurological observations enable the stroke clinician to monitor patient vital signs remotely.

Videoconferencing and multidisciplinary team (MDT) collaboration

The Covid-19 pandemic caused a shift towards virtual rather than face-to-face meetings. This has lent itself well to MDT meetings involving clinicians from various hospitals without unnecessary travel.

Successes have included multidisciplinary MDT meetings in the community stroke recovery units which have enabled stroke physicians (amongst other MDT members) to remotely participate in MDTs while remaining at the HASU site.

The joint stroke-vascular MDT meeting has enabled stroke consultants and vascular surgeons from various participating hospitals to discuss cases, while also viewing imaging, without the need to travel.

A further success has been the development of weekly neuroradiology meetings whereby a consultant neuroradiologist from Southmead Hospital provides tertiary opinion on stroke and neurology cases with attendance from neurologists and stroke physicians across Somerset.

Patient Choice

The Somerset Hyperacute Stroke Programme recognises the need to consider patient choice and ensuring patients have access to the right treatment, at the right place at the right time.

Patient choice and patient experience have been included in the criteria that the Somerset Stroke Programme used to evaluate the potential options for consultation. These factors will also be explored further through the consultation period which will help to determine the final configuration of services.

However, interventions and admissions for suspected stroke are undertaken on an emergency response, where time is critical to outcomes.

As with all emergency services this means that the NHS is not normally able to offer a choice of which provider will offer care, nor the location of the service that will be used. This is therefore not a service in which patient choice plays a significant role.

Hyperacute stroke care relates to the first 72 hours, after which time people are transferred to an acute stroke unit, where choice is available.

> **There's now a very strong evidence base from a range of reconfigurations that consistently shows that patients are prepared to travel further to receive specialist treatment in emergencies, including thrombectomy, and it mirrors what already happens in heart attack and trauma.**
>
> Professor Martin James, Consultant Stroke Physician Royal Devon and Exeter Hospital and Honorary Clinical Professor University of Exeter

Feedback through extensive engagement and co-design with local communities has reinforced the need for a balance between providing a range of choices and the system's ability to deliver the best possible quality of care, with people generally being prepared to travel a further to access better health outcomes and having a good understanding of the evidence base and logic for this.

Evidence confirms that an increase in travel time to a centralised HASU, is offset by the improved speed of assessment, diagnosis, and determination of appropriate treatment (for both stroke and non-stroke patients), which in turn leads to improved clinical outcomes for patients.

There is potential for increasing patient choice within other parts of the integrated stroke pathway, especially during the sub-acute and rehabilitation phases. Within our engagement, people identified that care closer to home as part of an integrated network of health and social care is a priority for them. However, this falls outside of the scope of this work.

In relation to peoples' choice to refuse treatment, this is a more complex area.

Advance Care Planning (ACP) is a voluntary process of person-centred discussion between an individual and their care providers about their preferences and priorities for their future care.

> **Planning for future care is an empowering act that allows people to feel confident their wishes will be considered if they are ever unable to fully participate in decision making. By having good quality conversations about future treatment, people will have a greater sense of control over their ability to live and die well.**
>
> Maria Caulfield MP, Parliamentary Under-Secretary of State for Primary Care
> Chair of the Patient Safety Ministerial Oversight Group

In 2021, the Care Quality Commission report 'Protect, Connect, Respect – decisions about living and dying well'[290] included recommendations for a consistent national approach to advance care planning. This should enable people, their families and/or representatives, clinicians, professionals, and workers to share the same understanding and expectations of advance care planning.

Clinician-led discussions about treatment preferences, such as 'do not attempt cardiopulmonary resuscitation' (DNACPR), intravenous antibiotics and acute hospital admissions, may be part of these person-led ACP conversations, and may also cover other non-medical issues which matter to the person.

[290] Protect, respect, connect – decisions about living and dying well during COVID-19 - Care Quality Commission (cqc.org.uk)

Tools and processes to support such conversations include Treatment Escalation Plans (TEP), Anticipatory Clinical Management Plans, Recommended Summary Plan for Emergency Care and Treatment (ReSPECT), Deciding Right, Advance Decision to Refuse Treatment (ADRT) and other local tools.

These tools are not legally binding - except where a specific decision is included in a valid and applicable ADRT – and as such it is important that families and carers are involved and aware of the individuals wishes.

There is significant variety in terms of both the ACP documentation itself, as well as the implementation of peoples' wishes. To reduce this variation, a set of guiding principles have been developed[291]:

Universal Principles for Advance Care Planning

1. The person is central to developing and agreeing their advance care plan including deciding who else should be involved in the process.
2. The person has personalised conversations about their future care focused on what matters to them and their needs.
3. The person agrees the outcomes of their advance care planning conversation through a shared decision making process in partnership with relevant professionals.
4. The person has a shareable advance care plan which records what matters to them, and their preferences and decisions about future care and treatment.
5. The person has the opportunity, and is encouraged, to review and revise their advance care plan.
6. Anyone involved in advance care planning is able to speak up if they feel that these universal principles are not being followed.

Within the context of the stroke reconfiguration, the application of ACPs or TEPs would initially be addressed by the attending ambulance crews. The aim in this situation is that the person can be confident that what matters most to them will be considered as part of treatment decisions in the event of an emergency, such as a stroke, should they become unable to fully participate in decision making.

Health and care workers involved in the management of people with stroke must recognise that the person with mental capacity has a right to make decisions to refuse treatment that health and care workers do not agree with or may think unwise. In the same way, a decision specified within a valid

[291] universal-principles-for-advance-care-planning.pdf (england.nhs.uk)

and applicable ADRT (made while the person had capacity and which they have not withdrawn) is legally binding and cannot be overruled, even if the treating professionals disagree with it[292].

SWASFT have clear guidance as to how and when ACPs are to be enacted. Critically, these plans are only applicable at the time a patient loses mental capacity to make those decisions for themselves, and when the original documentation is available[293].

The National Council for Palliative Care and NHS Choices have produced guidance for patients, families, health and social care professionals regarding End-of-Life Care and Advance Care Planning[294].

In Somerset, a project has been set up to support people and their families to discuss ACP[295] and make plans for end-of-life care.

Financial sustainability

The model of care needs to ensure affordability, both in terms of implementation and over the longer term. As identified within the inequalities section, this can be more challenging in rural areas.

We know that the average cost of new-onset stroke is £45,409 in the first year after stroke and £24,778 in subsequent years[296]. The combined societal cost of stroke is £26 billion per year, including £8.6 billion for NHS and social care. However, the largest component of total cost was unpaid care (61%) and, given high survival rates, £20.6 billion related to ongoing care. [297]

We must consider the balance between the costs of interventions in the acute and hyperacute management of stroke and how these can be offset by the longer-term costs associated with poorer outcomes.

Outcome measurement

A key part of developing the model of care for acute stroke in Somerset is being able to demonstrate that it has achieved the intended outcomes. A benefits mapping tool has been developed to ensure that the rationale for change is being positively impacted by the changes being implemented[298].

This will be achieved through analysis of a wide range of data, including:

- SSNAP data

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[292] universal-principles-for-advance-care-planning.pdf (england.nhs.uk)
[293] https://www.swast.nhs.uk/welcome/care-providers/end-of-life-care
[294] End of life care - NHS (www.nhs.uk)
[295] New project launches in Somerset to help families have important end of life conversations - NHS Somerset
[296] costs_of_stroke_in_the_uk_report_-executive_summary_part_2.pdf
[297] Estimated societal costs of stroke in the UK based on a discrete event simulation - PubMed (nih.gov)
[298] See Appendix 16 for Benefits Mapping Tool

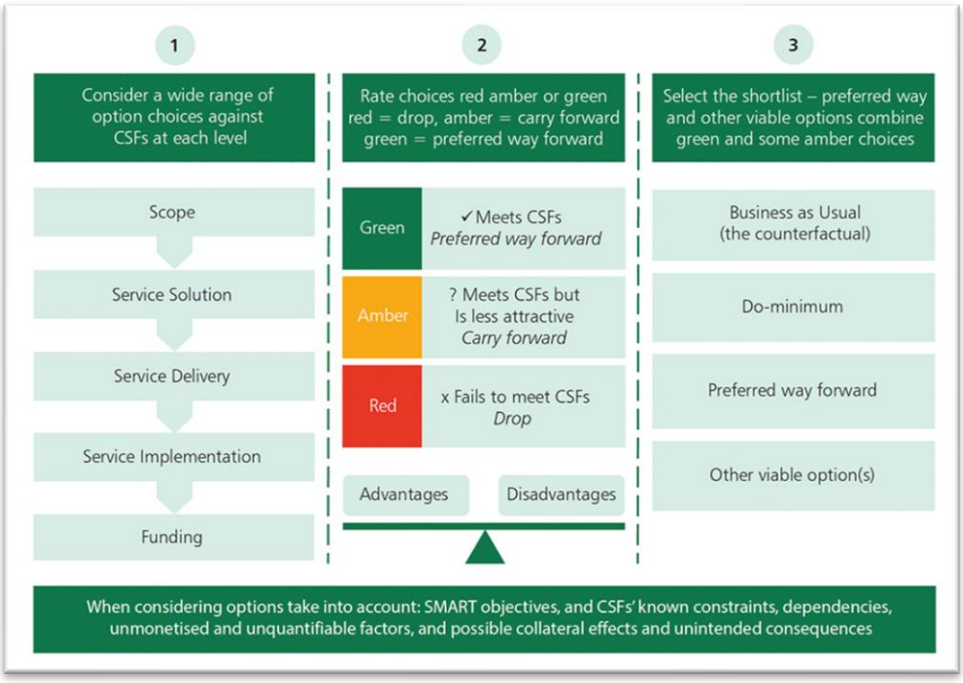
- Right Care Toolkit
- Feedback from staff working within stroke services
- Feedback from people who have had a stroke and their carers/families, including through the Friends and Family Test
- Feedback from staff working within interdependent services, such as ED and diagnostics
- Understanding the impact on the quality of care for those patients relying on non-stroke services that might be impacted by the changes proposed
- Internal audits, including workforce analysis/vacancy rates
- Updated geospatial analysis to demonstrate changes in activity and enable calculations of carbon impact
- CQC inspection findings

12. Developing the options

Process for developing the options

We have been following best practice guidance from The Consultation Institute[299] to ensure we are developing our options in the most transparent, robust, and effective way. We have had regular meetings with them to review our progress and iterate our plans.

The process we have used for this service reconfiguration mirrors that endorsed by NHSEI[300] and the Treasury Green Book[301].



Source: Longlist to shortlist approach - The Green Book (2022) - GOV.UK (www.gov.uk)

299 The Consultation Institute
300 NHSEI Major Service Change Interactive Handbook, Feb 2022
301 The Green Book (2022) - GOV.UK (www.gov.uk)

Developing the longlist

This long-list of options (detailed below) for the review of hyper-acute stroke services has been developed following the 2019 Stroke Strategy in collaboration with the Stroke Transformation Group and 2022 stakeholder workshop.

Stroke Clinical Reference Group workshop – 01/03/22

The long list was tested with a broad group of professional and clinical stakeholders at a facilitated workshop[302]. The list of members of the Stroke Clinical reference Group can be found in Appendix 2.

People were asked to comment on the perceived pros and cons of the presented options (7 at the time) and to identify any missing options. Several additional suggestions were made by the group, which have been incorporated into the long list, which took it up to 9 final options with A & B sub-options added for options 3, 4, 5 and 6.

The final longlist was as follows:

Developing the shortlist

Hurdle criteria

Hurdle criteria were used to turn the initial longlist into a shortlist, through the application of a series of "pass/fail" criteria. The criteria used in Somerset was based on those used by BNSSG in their stroke review. A small number of amendments were made to ensure they reflected the local context, and

[302] See Appendix 09

these were approved by the Stroke Steering Group, on 26th April 2022, as suitable and appropriate for use within Somerset.

A range of expert groups asked to review the long list, as follows

- Experts by Experience
- SFT Stroke Team
- YDH Stroke Team
- Dorset Stroke team
- SWASFT
- SFT Emergency Department
- YDH Emergency Department

The hurdle criteria applied were as follows:

Theme	Category	Specific criteria
Quality of Care - impact on outcomes 	**Clinical Effectiveness**	Will this option lead to people receiving equal or better care/outcomes of care in line with national guidance standards or best practice ?
		Will this option result in more effective prevention to improve life expectancy in the system and reduce health inequalities?
		Will this option account for future changes in population size and demographics?
		Will this option lead to more people being treated by teams with the right skills and experience?
	Patient Safety	Will this option allow for patient transfers/emergency intervention within a clinically safe timeframe? Will travel time impact patient outcome?
		Will this option offer reduced levels of risk (e.g., staffed 24/7 rotas, provide networked care, implement standardisation?
	Patient and carer experience	Will this option improve continuity of care for patients (e.g., reduce number of hand offs across teams/organisations, increase frequency of single clinician/team being responsible for patients?
		Will this option enable greater opportunity to link with voluntary/community sector health and wellbeing services?
		Will this option improve quality of environment in which care is provided?
Deliverability 	**Expected time to deliver**	Is this option deliverable within 2 years?
		Will this option deliver the required benefits?
	Co-dependencies	Does this option enable the system to maximise the role of and adapt to new technologies?
		Will this option rely on other models of care / provision being put in place and if so, are these deliverable within the necessary timeframe?
		Will the wider system be able to deliver on this change including the community and voluntary sector?
		Can the additional capacity requirements be delivered?
		Will it destabilize any other providers in a way that cannot be managed? Yes response is negative here - need to adjust in final scoring
		Does the system have access to the infrastructure, capacity, and capabilities to successfully implement this option in particular, a reduced length of acute stay with sufficient capacity outside of the acute trusts to support it ?
Workforce sustainability 	**Scale of impact: existing staff**	Can the current staffing level cope with the changes across the system?
		Will this option improve the resilience of current staff (e.g., recruitment, retention)?
		Will it support the talent management of existing staff e.g., enable maintenance and /or enhancement of skills, competencies, career pathways, enable them to work at the maximum capability of their role
		Is the staff travel, relocation or retraining required in line with organisational change principles? YES is negative for these questions and need to adjust in final scoring.

	Scale of impact: future workforce	Is it possible to develop the workforce model required to deliver the option e.g., skills base, new competencies, new roles etc against the anticipated timeline for implementation?
		Will it support the financial sustainability of the workforce e.g., reduction in agency spend
		Will this option enable accountability and governance structures to support staff?
		Will this option increase multi-disciplinary/cross-organisational & system working/greater diversity & inclusion?
Travel times 	**Distance, cost, and time to access services**	Will this option increase/reduce travel time and/or cost for patients to access specific services? Question not worded as yes/no. Assume increase. YES is negative for these questions and need to adjust in final scoring.
		Will this option involve patients travelling more frequently?
		Will this option change the number of journeys to access urgent medical intervention?
		Will this option reduce/increase patients' waiting time to access services?
		Will this option increase travel time for carers and family?
		Will this option increase cost for carers and family?
		Will this option support the use of new technology to improve access?
Access to care 	**Service operating hours**	Will this option improve operating hours for the service?
		Does the option reduce the risk of unplanned changes and improve service resilience?
		Does the option maintain the ability of the service to adapt to planned or envisaged future changes
	Impact on patient choice	Does this option increase choice for patients?
		Will this option make it easier for people to understand which services they can access when and where?
Impact on Equalities 	**Equalities**	Does the option prevent worsening health inequalities?
		Does the option ensure those with protected characteristics are not adversely impacted?

The finance criteria were removed from the general longlisting process and will be applied in detail to the shortlisted options.

Options 3, 4, 5 and 6 all have sub-options (A and B). Whilst these have not been split out as part of the hurdle criteria assessment of the longlist, these will need to be modelled separately as part of the shortlisting process.

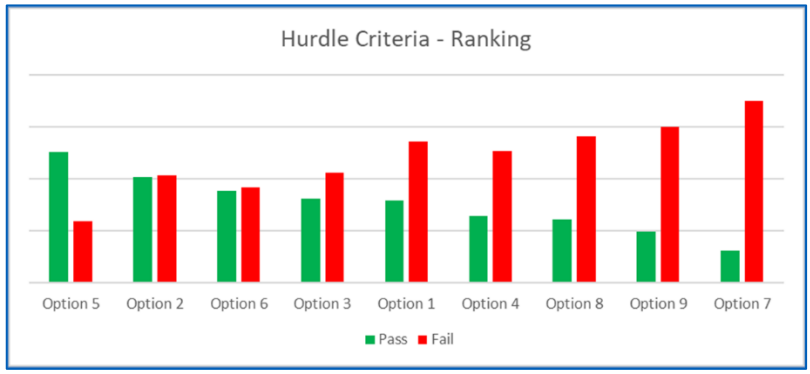
The collated responses can be found in Appendix 10.

Outcome of hurdle criteria process

The responses were all collated and totalled. Several the questions required reversal of the scoring as a “no” response was positive. Once adjusted, the options were ranked by the greatest number of passes and the number of fails.

These were then ranked, as per the table and chart below:

	Pass	Fail
Option 1	79	136
Option 2	102	103
Option 3	81	106
Option 4	64	127
Option 5	126	59
Option 6	88	92
Option 7	31	175
Option 8	61	141
Option 9	49	150



Source: Hurdle criteria ranking, May 2022

The following preliminary shortlist was taken to the Stroke Steering Group for discussion and approval:

Outcome from Steering Group

The Stroke Steering group met on 24th May 2022 to discuss and sign off the preliminary shortlist ahead of its approval by the FFMF Programme Board.

The potential pros and cons of each of the shortlisted options was discussed through the following lenses:

- Patients
- Clinical outcomes
- Workforce
- Inequalities
- Finance
- Family and carers

A robust discussion was undertaken, with views sought from each member of the Steering Group, until a consensus was reached about the final options to shortlist. The summary of the discussions is detailed below:

Option 1: No change to current model

- There would be no change to the current delivery model
- HASU and ASU services would continue to be delivered in both Taunton and Yeovil in the same way

What does this mean for…	
Patients	• Continue to go to the nearest hospital that deals with suspected strokes
Clinical outcomes	• Achieve sub-optimal health outcomes • Failure to consistently meet a number of national targets
Workforce	• Continue to struggle to provide 24/7 consultant cover • Would leave Yeovil at risk due to current workforce challenges • Recruitment issues would remain
Inequalities	• Inequitable provision, especially out of hours • Variation in outcomes based on geography
Finance	• Poorer health outcomes cost more, therefore ongoing financial pressures would continue • Not sustainable
Families and carers	• Would continue to be able to visit relatives in the same way as they do now

Option 2: No change to current model, but a single medical delivery team

- There would be no change to the current delivery model
- HASU and ASU services would continue to be delivered in both Taunton and Yeovil
- There would be a single medical workforce would be shared across both sites

What does this mean for…	
Patients	• Continue to go to the nearest hospital that deals with suspected strokes
Clinical outcomes	• Achieve sub-optimal health outcomes • Failure to consistently meet a number of national targets • Unlikely to change inequalities in models of delivery
Workforce	• Would need to work between both Yeovil and Taunton – this likely to have negative implications • Would require a larger medical workforce to staff equitably 7 days a week across 2 sites. • Potentially more resilience within the stroke workforce, if a larger workforce is recruited, but, recruitment challenges remain. No applicants for previous job adverts for roles split across 2 sites. • May continue to struggle to provide 24/7 consultant cover • May provide more stability for Yeovil, but destabilise Taunton.
Inequalities	• Likely to increase inequalities as medical staff would not be able to work equally across 2 sites. • May not be enough staff across single delivery team to impact current inequitable models of care • Variation in outcomes based on geography may continue
Finance	• Poorer health outcomes cost more, therefore ongoing financial pressures would continue • Increase in staff travel costs
Families and carers	• Would continue to be able to visit relatives in the same way as they do now

Option 5A: HASU in Taunton only - suspected strokes taken to nearest emergency department

Discounted due to negative impact on outcomes, increased conveyances, and workforce.

- SWASFT take all suspected strokes to their nearest emergency department (A&E)
- Yeovil emergency department (A&E) continues to receive all suspected stroke patients and scan, diagnose and start thrombolysis, 7 days a week
- Patients would then be transferred to Taunton for HASU care. Patients would return to Yeovil for their ASU care
- Impact on Dorset in this option

What does this mean for…	
Patients	• More transfers of care for Yeovil patients
Clinical outcomes	• Improved chances of accessing stroke specialist 7 days a week. • Yeovil would need to provide CT angiography 24/7 to make this a viable option • Non-specialist staff assessing and administering thrombolysis • Potential delay in door to needle time and HASU care for Yeovil patients • Impact on those with haemorrhagic stroke, would need IV antihypertensives and a nurse escort during transfer to Taunton
Workforce	• May resolve some of the workforce challenges in Yeovil, but staff risk becoming deskilled which impacts clinical outcomes • Would Yeovil HASU staff transfer to Taunton • Nursing staff may be required to support conveyance • Impact on SWAST increased conveyances would be worse for Option 5A than 5B. There would be the need for more category 2 or 3 conveyances from YDH to SFT with Option 5A
Inequalities	• People in Yeovil catchment area would experience less continuity of care and greater transfers, potentially impacting clinical outcomes, such as slower door to needle times
Finance	• Increased cost of ambulance conveyance from and back to Yeovil • Estate - beds
Families and carers	• Increased travel time / cost for carers from Yeovil catchment area • Potential confusion about where individual is being treated, e.g. ED, HASU, ASU

Option 5B: HASU in Taunton only – suspected strokes taken to nearest HASU

- SWASFT would take all suspected stroke patients to nearest HASU
- Yeovil emergency department would not receive suspected stroke patients at any time
- Most patients who would normally go to Yeovil would go to Taunton for all their hyperacute stroke treatment
- Patients would return to Yeovil for their ASU care
- Impact on Dorset for this option

What does this mean for…	
Patients	• More transfers of care for Yeovil patients • Patients requiring carotid surgery would receive more continuity of care as vascular surgery services are all on the SFT site
Clinical outcomes	• Improved Door-to-Needle times for stroke thrombolysis, and shorter length-of-stay • Rate of admissions would increase in single site - meet national guidance • Increased chance of receiving specialist medical care 7 days a week • Impact on Dorset – what are their clinical outcomes like? • Risks of increased flow through Taunton ED, but likely to be only 10 patients per week
Workforce	• Potentially de-skill Yeovil emergency department staff in managing acute stroke – although currently managed through medical on-call team or stroke team rather than ED • Resolve current workforce challenges in Yeovil • There would be the expectation that the YDH HASU staff (e.g. consultant or specialist nurses) could have the option to rotate to work in SFT to maintain full competencies • Capacity within Taunton MDT, e.g. radiography, SALT, Physio to align with RCP recommendations • Impact on SWAST increased repatriation of stroke mimics to YDH, which would be less urgent
Inequalities	• Potentially longer call-to-door times for YDH patients but this would likely be mitigated by shorter door-to-needle times than Option 5A
Finance	• Estates capacity to manage increased flow – beds, scanners
Families and carers	• Increased travel time / cost for carers from Yeovil catchment area • Potential confusion about where individual is being treated during which phase of their stroke care, e.g. HASU and ASU

Option 6A: All HASU and ASU beds in Taunton – suspected strokes taken to nearest emergency department

Discounted due to negative impact on clinical outcomes, increased conveyances, and workforce.

- SWASFT take all suspected strokes to their nearest emergency department (A&E)
- Yeovil emergency department (A&E) continues to receive suspected stroke patients to scan, diagnose and start thrombolysis, 7 days a week
- Patients would then be transferred to Taunton for both HASU and ASU care. Patients would be discharged closer to Yeovil following their acute care
- Impact on Dorset for this option

What does this mean for…	
Patients	• Increased transfers of care
Clinical outcomes	• Likely to worsen door-to-needle times at Yeovil as will be non-specialist staff assessing and administering thrombolysis most of time • Yeovil would need to routinely provide CT angiography 24/7 to make this a viable option. • Impact on those with haemorrhagic stroke, would need IV antihypertensives and a nurse escort during transfer to Taunton
Workforce	• Difficulty maintaining competencies which would also affect both decision-making ability and door to needle times times • May resolve some of the workforce challenges in Yeovil • Impact on SWASFT increased conveyances from Yeovil ED to Taunton HASU • Would Yeovil HASU / ASU staff transfer to Taunton • Nursing staff may be required to support conveyance
Inequalities	• People in Yeovil catchment area would experience less continuity of care • Yeovil patients would experience more transfers of care (one ambulance to YDH, and then another ambulance to SFT) and slower door-to-needle times for thrombolysis
Finance	• Estates – beds, scanners
Families and carers	• Increased travel time / cost for carers from Yeovil catchment area for duration of hyperacute and acute stroke care • Potential confusion about where individual is being treated, e.g. ED in Yeovil, HASU and ASU in Taunton

Option 6B: All HASU and ASU beds in Taunton – suspected strokes taken to nearest HASU

- SWASFT would take all suspected stroke patients to nearest HASU
- Yeovil emergency department (A&E) would not receive suspected stroke patients at any time
- Patients would go to Taunton for both HASU and ASU care
- Patients would be discharged closer to Yeovil following their acute care
- Impact on Dorset for this option

What does this mean for…	
Patients	• More transfers of care • Patients requiring carotid surgery would receive more continuity of care as vascular surgery services are all on the Taunton site
Clinical outcomes	• Shorter door to needle times that "do nothing" as a result of centralisation • Rate of admissions would increase in single site - meet national guidance • Impact on Dorset – what are their clinical outcomes like? • Risks of increased flow through Taunton ED – but modelling suggests around 10 patients per week
Workforce	• De-skill Yeovil emergency department staff in managing acute stroke • Resolve current workforce challenges in Yeovil • Would Yeovil HASU / ASU staff work in Taunton? • Capacity within Taunton MDT, e.g. radiography, SALT, Physio
Inequalities	• Potentially longer call-to-door times for Yeovil patients but this would likely be mitigated by shorter door-to-needle times
Finance	• Estates capacity to manage increased flow – beds, scanners
Families and carers	• Increased travel time / cost for carers from Yeovil catchment area

The final shortlist proposed by the Stroke Steering Group is as follows:

This shortlist was sent to the FFMF Programme Board for virtual consideration on 27th May 2022 and support for the shortlist confirmed on 9th June 2022 and therefore the shortlist was approved. Subsequently, this was approved at the Somerset ICB Executive Committee on 7 September 2022.

Assessing the shortlist

The final shortlist is as follows:

Option A Previously Option 1	Option B Previously Option 2	Option C Previously Option 5b	Option D Previously Option 6B
Do Nothing No change to current model	**Do Minimum** As for option A, but with shared medical workforce	**1 HASU** Single HASU at Musgrove Park Hospital in Taunton. No HASU in Yeovil. ASU at Taunton and Yeovil.	**1 HASU and ASU** Single HASU and ASU at Musgrove Park Hospital in Taunton. No HASU or ASU at Yeovil
There would be **no change** to the current delivery model	There would be **no change** to the current delivery model	SWASFT would take all suspected stroke patients to **nearest HASU**	SWASFT would take all suspected stroke patients to **nearest HASU**
Yeovil emergency department (A&E) would continue to receive suspected stroke patients	Yeovil emergency department (A&E) would continue to receive suspected stroke patients	Yeovil emergency department (A&E) **would not** receive suspected stroke patients at any time	Yeovil emergency department (A&E) **would not** receive suspected stroke patients at any time
HASU services would continue to be delivered in both Taunton and Yeovil in the same way	HASU services would continue to be delivered in both Taunton and Yeovil in the same way	Most patients who would normally go to Yeovil would go to **Taunton or Dorset for their HASU** care	Most patients who would normally go to Yeovil would go to either **Taunton or Dorset for their HASU** care
Patients would receive their ASU care in the same way they currently do	Patients would receive their ASU care in the same way they currently do	Patients would return to **Yeovil for their ASU** care	Patients would remain in **Taunton or Dorset for their ASU** care
There would be **no change** to the workforce	There would be a **single medical workforce** would be shared across both sites. There would be no change to the nursing, AHP or support staff workforce	There would be **some changes** to the medical, nursing and AHP workforce	There would be **some changes** to the medical, nursing and AHP workforce
Once ready for rehabilitation, patients would ideally be **discharged closer to home** following their acute care – either home or to a community hospital	Once ready for rehabilitation, patients would ideally be **discharged closer to home** following their acute care – either home or to a community hospital	Once ready for rehabilitation, patients would ideally be **discharged closer to home** following their acute care – either home or to a community hospital	Once ready for rehabilitation, patients would ideally be **discharged closer to home** following their acute care – either home or to a community hospital
There will be **no impact** on other health systems in this option	There will be **no impact** on other health systems in this option	There will be **an impact on other health systems** in this option, primarily Dorset	There will be an **impact on other health systems** in this option, primarily Dorset

This shortlist has been assessed using a range of pre-defined criteria[303] to evaluate it against the NHSE 5 Key tests for service change[304], which are:

1. Strong patient and public engagement

[303] In 2019 a set of options appraisal criteria were co-developed as part of the Fit for My Future programme. These were tested through focus groups, two for the general public and one for staff. More than 800 stakeholders (both individuals and organisations) were invited to provide feedback on the options appraisal criteria. "Your views on the criteria to assess the future shape of health and care services in Somerset", Somerset FFMF Programme, April 2019

[304] Effective-Service-Change-Toolkit-2018-FINAL.pdf (secsenate.nhs.uk)

2. Patient choice[305]
3. Clinical evidence base
4. Support from clinical commissioners
5. Bed numbers

The evaluation of the options has included a full exploration of the proposed:

- Model of Care
- Pathway
- Activity
- Beds
- Workforce
- Finance
- Travel
- Equalities
- Impact on other services
- Impact on neighbouring systems
- Impact on carbon footprint

The options assessment criteria were as follows:

- Patient outcomes[306]
- Patient experience
- Deliverability
- Workforce sustainability
- Affordability
- Travel times
- Impact on equalities

In addition, specific questions relating to stroke were included, as follows:

Sub-criteria: Quality of Care	
Evaluation Criteria	Questions to test
Clinical Effectiveness	• Will this option lead to people receiving equal or better-quality care/ outcomes of care in line with national guidance standards or best practice?

[305] The provision of emergency hyper acute stroke and TIA treatment is not subject to the NHS Choice Framework as confirmed through legal advice sought and confirmed by the ICB Solicitors Bevan Brittan.
[306] 69% of participants ranking patient outcomes as the most important criteria

	• Will this option result in more effective prevention to improve life expectancy in the system and reduce health inequalities? • Will this option account for future changes in the population size and demographics? • Will this option lead to more people being treated by teams with the right skills and experience?
Patient and carer experience	• Will this option improve continuity of care for patients? (e.g., reduce number of hand offs across teams/ organisations, increase frequency of single clinician/ team being responsible for a patient)? • Will this option enable greater opportunity to link with voluntary/ community sector health and wellbeing services? • Will this option improve quality of environment in which care is provided?
Patient safety	• Will this option allow for patient transfers/ emergency intervention within a clinically safe timeframe? Will travel time impact on patient outcome? • Will this option offer reduced levels of risk (e.g., staffed 24/7 rotas, provide networked care, implement standardisation)
Sub-criteria: Access to Care	
Evaluation Criteria	**Questions to test**
Impact on patient choice	• Does this option increase or decrease choice for patients? • Will this option make it easier for people to understand which services they can access when and where?
Distance, cost, and time to access services	• Will this option increase/ reduce travel time and/ or cost for patients to access specific services? • Will this option involve patients travelling more/ less frequently, change the number of journeys to access urgent medical intervention? • Will this option reduce/ increase patients' waiting time to access services? • Will this option increase/ reduce travel time and/ or cost for carers and family? • Will this option support the use of new technology to improve access?
Service operating hours	• Will this option improve operating hours for the service? • Does the option reduce the risk of unplanned changes and improve service resilience? • Does the option maintain or enhance the ability of the service to adapt to planned or envisaged future changes?

Pros and Cons of the final shortlist

These pros and cons have been developed from the engagement activity with staff and experts by experience.

Some options have contradictory pros and cons, depending on where staff are based and where patients/carers live.

Option A – No change to current model

	Pros	Cons
Patients	• You would continue to go to the nearest hospital that deals with suspected strokes	
Clinical outcomes		• We would not be able to make the changes needed to improve our clinical targets, such as how quickly you are admitted to a Hyper Acute Stroke Unit (HASU) and how quickly you are seen by different specialists, such as the consultants and therapists
Workforce		• Running 2 units as we do now means we would not be able to tackle the staffing challenges we have, such as having 24/7 consultant cover on both sites • We do not think we would be able to recruit into the services easily if we stay the same
Inequalities		• We would continue to see differences in how the hospitals perform against national standards. This is because each hospital runs in a different way, with different hours and staffing.
Finance		• We know our services are not as good as they could be at either site. When people do not recover as well as they could after a stroke it requires more resource to provide more inpatient care and rehabilitation
Families and carers	• Your relatives would continue to visit you in the same way as they do now	

Option B – No change to clinical model, but shared medical delivery team

	Pros	Cons
Patients	• You would continue to go to the nearest hospital that deals with suspected strokes	• Medical input could be provided virtually rather than face to face
Clinical outcomes	• Possible improved continuity of care	• We would not be able to make the changes needed to improve our clinical targets, such as how quickly you are admitted to a Hyper Acute Stroke Unit and how quickly you are seen by different specialists, such as the consultant and therapists. • There could be delays in how quickly people have access to medical input
Workforce	• This might provide better 24/7 cover across the 2 sites, but it may require more consultants to make sure it is equitable • It might help to make the stroke workforce more resilient if there are more staff • Yeovil may benefit from increased consultant cover	• Medical staff would need to work between both Yeovil and Taunton, the specific ways of working still need to be worked out. • Might not be able to recruit medical staff to work across 2 sites - there were no applicants for previous job adverts for roles split across the 2 sites • There is a risk it could take cover away from Taunton • Hard to bulid trusting working relationships
Inequalities		• There may not be enough staff in the single delivery team to make a real difference, and this could mean that the variation in treatment continues • Continue to be differences in how the hospitals perform against national standards. This is because each hospital runs in a different way, with different hours and staffing.
Finance		• We know our services are not as good as they could be at either site. When people do not recover as well as they could after a stroke this requires more care and rehabilitation within inpatient settings • Cost of staff travel
Families and carers	• Your relatives would continue to visit you in the same way as they do now	• Medical input could be provided virtually rather than face to face

Option C – Hyperacute stroke unit in Taunton only; Acute stroke unit in Taunton and Yeovil

	Pros	Cons
Patients	• People who need specialised carotid surgery would receive better continuity of care as the vascular surgery services are all in Taunton	• People from Yeovil would have to be moved more times; once to Taunton/Dorset for their Hyper Acute Stroke Unit care, then back again to Yeovil for acute care.
Clinical outcomes	• Hospitals who are used to treating lots of stroke patients tend to provide urgent care (such as thrombolysis) more quickly – which leads to better outcomes • Consolidating hyperacute beds on one site means that specialist medical care would be available 24/7	• There would be about 10 more patients a week going into Taunton Emergency Department • Impact on Dorset • Impact on Yeovil walk-ins and inpatient stroke outcomes
Workforce	• It would solve the current acute staffing challenges in Yeovil	• Maintaining the competency of the Yeovil emergency department to deliver stroke care may become difficult • There might not be enough radiographers to do the scans • There might not be enough staff in Taunton to meet the national guidelines, such as speech therapists and physios • There will be an impact on South Western Ambulance Service Foundation Trust (SWASFT) having to take more people from Yeovil to Taunton and then back to Yeovil • Yeovil staff might leave
Inequalities	• It might take longer for patients in Yeovil to get to hospital, but the time of getting their thrombolysis should be quicker – improving equity and outcomes	
Finance		• There would need to be more beds and equipment, such as scanners, in Taunton • Cost of repatriation
Families and carers		• Yeovil residents relatives would need to travel to Taunton or Dorset for the first 72 hours of care. This might be difficult and more costly for people in the Yeovil area. • It might be confusing for your relatives to know where you are being treated • Cost of travel and parking

Option D – Both hyperacute and acute stroke units in Taunton only

	Pros	Cons
Patients	• People who need specialised carotid surgery would receive better continuity of care as the vascular surgery services are all in Taunton • Better continuity of care throughout hyperacute and acute phase of care as all services on single site	
Clinical outcomes	• Hospitals who are used to treating lots of stroke patients tend to provide urgent care (such as thrombolysis) more quickly – which leads to better outcomes • Consolidating hyperacute beds on one site means that specialist medical care would be available 24/7	• There would be about 10 more patients a week going into Taunton Emergency Department • Impact on Dorset • Impact on Yeovil walk-ins and inpatient stroke outcomes
Workforce	• It would solve the current staffing challenges in Yeovil • Improved team work and more resilience in team if staff transfer across to Taunton	• Maintaining the competency of the Yeovil emergency department to deliver stroke care may become difficult • There might not be enough radiographers to do the scans • There might not be enough staff in Taunton to meet the national guidelines, such as speech therapists and physios • There will be an impact on South Western Ambulance Service Foundation Trust (SWASFT) having to take more people from Yeovil to Taunton and then back to Yeovil • Yeovil staff might leave • May need increased recruitment if Yeovil staff do not transfer
Inequalities	• It might take longer for patients in Yeovil to get to hospital, but the time of getting their thrombolysis should be quicker – improving equity and outcomes	
Finance		• There would need to be more beds and equipment, such as scanners, in Taunton • Cost of repatriation
Families and carers	• Clarity of pathway • All services on single site	• Your relatives would need to travel to Taunton for the first 72 hours of care. This might be difficult and more costly for people in the Yeovil area • Cost of travel and parking

13. TIA options development and shortlist

We have also been looking at our Transient Ischemic Attack (TIA) services to see how we can offer a better service than is currently provided.

Currently, Musgrove Park Hospital offers a 7-day TIA service. Yeovil District Hospital offers a 5-day service. We're looking at how we could offer a service across more days at both hospitals.

The outcome of this will be determined once a decision has been made on the future of hyper acute and acute stroke services.

Developing the longlist

The Stroke Steering Group helped to create the TIA Options longlist, as follows:

Developing the shortlist

Hurdle criteria

Hurdle criteria were used to turn the initial longlist into a shortlist, through the application of a series of "pass/fail" criteria. The criteria used in Somerset was based on those used by BNSSG in their stroke review and are the same as those applied for assessing the Somerset stroke longlist.

A range of expert groups asked to review the long list, as follows

- Experts by Experience
- SFT Stroke Team
- YDH Stroke Team
- Dorset Stroke team
- SWASFT
- SFT Emergency Department
- YDH Emergency Department

The hurdle criteria applied were as follows:

Theme	Category	Specific criteria
Quality of Care - impact on outcomes	**Clinical Effectiveness**	Will this option lead to people receiving equal or better care/outcomes of care in line with national guidance standards or best practice ?
		Will this option result in more effective prevention to improve life expectancy in the system and reduce health inequalities?
		Will this option account for future changes in population size and demographics?
		Will this option lead to more people being treated by teams with the right skills and experience?
	Patient Safety	Will this option allow for patient transfers/emergency intervention within a clinically safe timeframe? Will travel time impact patient outcome?
		Will this option offer reduced levels of risk (e.g., staffed 24/7 rotas, provide networked care, implement standardisation?
	Patient and carer experience	Will this option improve continuity of care for patients (e.g., reduce number of hand offs across teams/organisations, increase frequency of single clinician/team being responsible for patients?
		Will this option enable greater opportunity to link with voluntary/community sector health and wellbeing services?
		Will this option improve quality of environment in which care is provided?
Deliverability	**Expected time to deliver**	Is this option deliverable within 2 years?
		Will this option deliver the required benefits?
	Co-dependencies	Does this option enable the system to maximise the role of and adapt to new technologies?

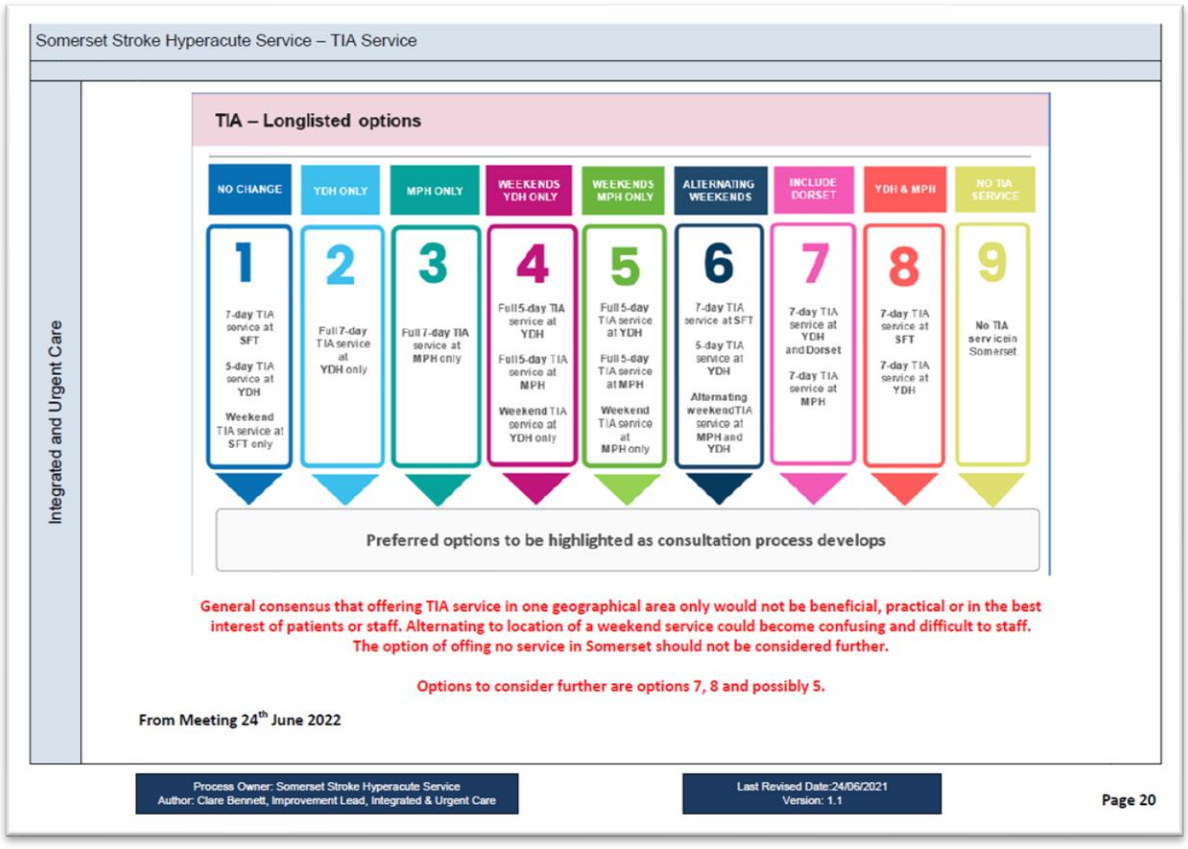
		Will this option rely on other models of care / provision being put in place and if so, are these deliverable within the necessary timeframe?
		Will the wider system be able to deliver on this change including the community and voluntary sector?
		Can the additional capacity requirements be delivered?
		Will it destabilize any other providers in a way that cannot be managed? Yes response is negative here - need to adjust in final scoring
		Does the system have access to the infrastructure, capacity, and capabilities to successfully implement this option in particular, a reduced length of acute stay with sufficient capacity outside of the acute trusts to support it ?
Workforce sustainability	**Scale of impact: existing staff**	Can the current staffing level cope with the changes across the system?
		Will this option improve the resilience of current staff (e.g., recruitment, retention)?
		Will it support the talent management of existing staff e.g., enable maintenance and /or enhancement of skills, competencies, career pathways, enable them to work at the maximum capability of their role
		Is the staff travel, relocation or retraining required in line with organisational change principles? YES is negative for these questions and need to adjust in final scoring.
	Scale of impact: future workforce	Is it possible to develop the workforce model required to deliver the option e.g., skills base, new competencies, new roles etc against the anticipated timeline for implementation?
		Will it support the financial sustainability of the workforce e.g., reduction in agency spend
		Will this option enable accountability and governance structures to support staff?
		Will this option increase multi-disciplinary/cross-organisational & system working/greater diversity & inclusion?
Travel times	**Distance, cost, and time to access services**	Will this option increase/reduce travel time and/or cost for patients to access specific services? Question not worded as yes/no. Assume increase. YES is negative for these questions and need to adjust in final scoring.
		Will this option involve patients travelling more frequently?
		Will this option change the number of journeys to access urgent medical intervention?
		Will this option reduce/increase patients' waiting time to access services?
		Will this option increase travel time for carers and family?
		Will this option increase cost for carers and family?
		Will this option support the use of new technology to improve access?
Access to care	**Service operating hours**	Will this option improve operating hours for the service?
		Does the option reduce the risk of unplanned changes and improve service resilience?
		Does the option maintain the ability of the service to adapt to planned or envisaged future changes
		Does this option increase choice for patients?

	Impact on patient choice	Will this option make it easier for people to understand which services they can access when and where?
Impact on Equalities	**Equalities**	Does the option prevent worsening health inequalities?
		Does the option ensure those with protected characteristics are not adversely impacted?

The finance criteria were removed from the general longlisting process and will be applied in detail to the shortlisted options.

Outcome of the hurdle criteria assessment

The stroke Hurdle criteria did not translate well for TIA. Therefore, an expert review was undertaken by the Clinical Reference Group and Steering Group using a simplified hurdle criteria process.



SWASFT Feedback

- Options 1 / 3 / 5 / 7 are feasible, dependent upon staffing.
- Option 2 / 4 - Given the size of hospitals and populations MPH would need to be the main site.
- Option 6 – Potentially viable, similar service runs in Dorset with alternating out of hours weekend access at different sites.

- Option 7 – People within Dorset, but YDH catchment, could be referred to Dorset system. This may help with capacity and staffing, assuming Dorset have capacity.
- Option 8 – Not feasible due to staffing levels and the need to be seen by a specialist.
- Option 9 - Not feasible as a TIA service is needed.
- From a SWASFT perspective we would want a simple referral process and since we should not convey TIA's without red flags.
- Preferred options 1 / 3 / 5 / 7

TIA shortlisted options

Following the application of the hurdle criteria, the following shortlist was developed:

The TIA options were discussed with the Stakeholder Reference Group on 12 October 2022. This was a postponed date due to the death of the Queen.

The group received a presentation of the TIA options and how this related to the stroke options, followed by a question and answer session for clarity and challenge.

The session provided:

- Awareness that there are implications for TIA in the shortlisted options for stroke
- Clarity as to why the options had any implication for TIA
- Education and information what a TIA is and how would be responded to by paramedics and emergency department staff under the different options

- An opportunity to refine how the shortlisted options and relationship between stroke and TIA is communicated to the public in a Plain English way to ensure understanding
- Content for the development of the consultation FAQs

The final TIA shortlist is as follows:

OPTION A (PREVIOUSLY OPTION 1) NO CHANGE	OPTION B (PREVIOUSLY OPTION 8) 7 DAY SERVICE YEOVIL AND TAUNTON
7-day TIA service at **SFT**	**7-day** TIA service at **SFT**
5-day TIA service at **YDH**	**7-day** TIA service at **YDH**

If option A was the future model, offering a 7-day service across both sites would be more difficult as there would not be the workforce in place at Yeovil District Hospital to deliver this extended service. However, if option B was the future model, we could look to offer a 7-day TIA service at both Musgrove Park Hospital and Yeovil District Hospital.

The TIA shortlist will be considered alongside the stroke preferred options as part of the public consultation. Further analysis of the implications will be undertaken as part of the development of the decision-making business case, including implications for staffing, patient choice, clinical outcomes and travel.

14. Detailed assessment of the shortlisted options

Shortlisted stroke options

The four shortlisted options are summarised in the table below.

Option A	Option B	Option C	Option D
Do Nothing No change to current model	**Do Minimum** As for option A, but with shared medical workforce	**1 HASU** Single HASU at Musgrove Park Hospital in Taunton. No HASU in Yeovil. ASU at Taunton and Yeovil.	**1 HASU and ASU** Single HASU and ASU at Musgrove Park Hospital in Taunton. No HASU or ASU at Yeovil
There would be **no change** to the current delivery model	There would be **no change** to the current delivery model	SWASFT would take all suspected stroke patients to **nearest HASU**	SWASFT would take all suspected stroke patients to **nearest HASU**
Yeovil emergency department (A&E) would continue to receive suspected stroke patients	Yeovil emergency department (A&E) would continue to receive suspected stroke patients	Yeovil emergency department (A&E) **would not** receive suspected stroke patients at any time	Yeovil emergency department (A&E) **would not** receive suspected stroke patients at any time
HASU services would continue to be delivered in both Taunton and Yeovil in the same way	HASU services would continue to be delivered in both Taunton and Yeovil in the same way	Most patients who would normally go to Yeovil would go to **Taunton or Dorset for their HASU** care	Most patients who would normally go to Yeovil would go to either **Taunton or Dorset for their HASU** care
Patients would receive their ASU care in the same way they currently do	Patients would receive their ASU care in the same way they currently do	Patients would return to **Yeovil for their ASU** care	Patients would remain in **Taunton or Dorset for their ASU** care
There would be **no change** to the workforce	There would be a **single medical workforce** would be shared across both sites. There would be no change to the nursing, AHP or support staff workforce	There would be **some changes** to the medical, nursing and AHP workforce	There would be **some changes** to the medical, nursing and AHP workforce
Once ready for rehabilitation, patients would ideally be **discharged closer to home** following their acute care – either home or to a community hospital	Once ready for rehabilitation, patients would ideally be **discharged closer to home** following their acute care – either home or to a community hospital	Once ready for rehabilitation, patients would ideally be **discharged closer to home** following their acute care – either home or to a community hospital	Once ready for rehabilitation, patients would ideally be **discharged closer to home** following their acute care – either home or to a community hospital
There will be **no impact** on other health systems in this option	There will be **no impact** on other health systems in this option	There will be **an impact on other health systems** in this option, primarily Dorset	There will be an **impact on other health systems** in this option, primarily Dorset

Option A – Do Nothing: Continue with business as usual

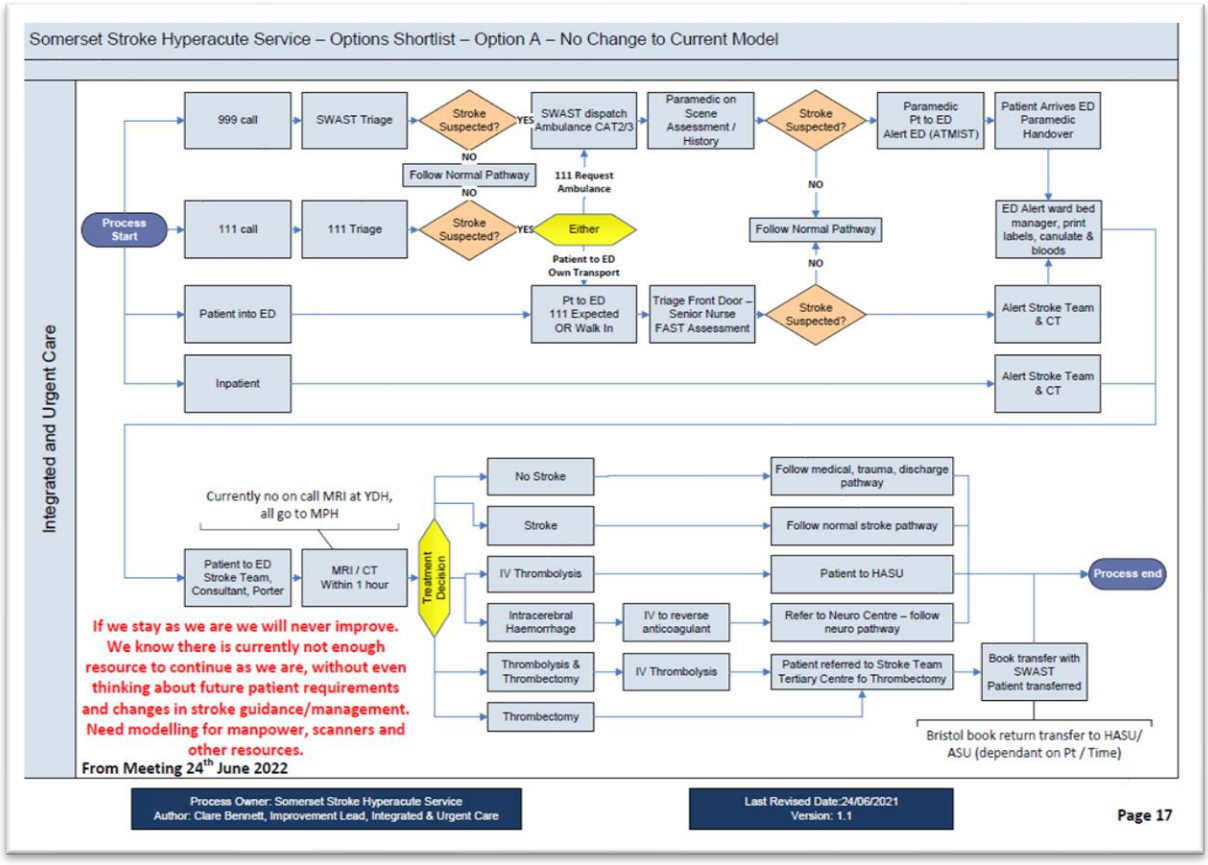
- All people with suspected strokes are conveyed to the nearest site with a HASU.
- In Somerset, this could be at either Yeovil or Taunton.
- HASU care will continue to be provided in both Taunton and Yeovil.
- ASU care will continue to be provided in both Taunton and Yeovil
- The stroke workforces across both Taunton and Yeovil would continue to deliver stroke care as they currently do.
- People would be transferred into the community following their acute stroke care.

Model of Care

- There would continue to be hyperacute and acute stroke care provided across 2 hospital sites within Somerset.
- This would enable care to be provided closer to home for people in Somerset but would not optimise clinical outcomes associated with the centralisation of hyperacute stroke services.
- Stroke beds within Yeovil would continue to be mixed with general medical beds.
- Stroke beds within Taunton would continue to be provided within a dedicated stroke unit.
- There would be a separate medical workforce with no cross-site working.
- There would not be 24/7 consultant cover as per national guidelines, and out of hours stroke care would continue to be delivered by non-stroke teams supported by remote solutions, such as a continuation of current regional stroke thrombolysis network or implementation of telemedicine solutions, such as Visionable.
- Stroke consultant cover in Yeovil is vulnerable. This option potentially leaves Yeovil without stroke consultant if the current situation changed, which would immediately destabilise both the HASU and ASU provision at Yeovil as the minimum specifications would not be met.
- Yeovil would not have the dedicated therapy staff for stroke and would continue to work with other specialities mainly general medicine which takes priority therefore stroke patients may not get the full 60 minutes rehab daily.

Pathway

The image below describes the pathway under Option A – Do Nothing. It was produced with clinical stakeholders at a workshop on 23rd June 2022.



The following table shows the locations of care and transfer points for patients with a stroke in each of the four main catchment areas of the county:

999 / Ambulance

		Taunton resident at home	Yeovil Resident at home	North-east Somerset resident at home	North Somerset resident at home
999 Ambulance call		Transfer 1	Transfer 1	Transfer 1	Transfer 1
	ED	MPH	YDH	RUH	WGH
	HASU	MPH	YDH	RUH	WGH
	Thrombectomy	Southmead	Southmead	Southmead	Southmead
	ASU	MPH	YDH	RUH	WGH
		Transfer 2	Transfer 2	Transfer 2	Transfer 2
	Rehab	Williton	South Petherton	St Martins, Bath South Petherton	WGH Williton
		Transfer 3	Transfer 3	Transfer 3	Transfer 3
	Discharge	ESD / Home	ESD / Home	ESD / Home	ESD / Home

Walk-in

		Taunton resident at MPH	Yeovil Resident at YDH	North-east Somerset resident at RUH	North Somerset resident at WGH
Walk-in					
	ED	MPH	YDH	RUH	WGH
	HASU	MPH	YDH	RUH	WGH
	Thrombectomy	Southmead	Southmead	Southmead	Southmead
	ASU	MPH	YDH	RUH	WGH
		Transfer 1	Transfer 1	Transfer 1	Transfer 1
	Rehab	Williton	South Petherton	St Martins, Bath South Petherton	WGH Williton
		Transfer 2	Transfer 2	Transfer 2	Transfer 2
	Discharge	ESD / Home	ESD / Home	ESD / Home	ESD / Home

Inpatient

		Taunton resident in MPH	Yeovil resident in YDH	North-east Somerset resident in YDH	North Somerset resident in MPH
Inpatient admission					
	ED	? Straight to HASU	? Straight to HASU	? Straight to HASU	? Straight to HASU
	HASU	MPH	YDH	YDH	MPH
	Thrombectomy	Southmead	Southmead	Southmead	Southmead
	ASU	MPH	YDH	YDH	
	Rehab	Williton	South Petherton	South Petherton	Williton
	Discharge	ESD / Home	ESD / Home	ESD / Home	ESD / Home

Activity[307]

The figures in the tables below relate to activity which currently takes place at Musgrove Park Hospital and Yeovil District Hospital, and where the activity is modelled to take place under this option.

The table below shows the predicted stroke unit activity modelling for the do-nothing option:

[307] See Appendix 13 for details of the modelling assumptions and data caveats.

	Hospital Site	Number of stroke attendances – not including mimics	Number of attendances – including mimics
Stroke unit activity	Musgrove Park Hospital	691	1,026
	Yeovil District Hospital	454	647
	Dorset County Hospital	0	0
	Weston General Hospital	0	0
	RUH Bath	0	0
	Salisbury Hospital	0	0
	Southmead Hospital	0	0
	Royal Devon & Exeter	0	0
	All Sites	**1,145**	**1,673**

The table below shows the predicted Emergency Department activity for the do-nothing option:

	Hospital site	Number of stroke attendances – not including mimics	Number of attendances – including mimics
ED Attendances	Musgrove Park Hospital	684	1,522
	Yeovil District Hospital	444	961
	Dorset County Hospital	0	0
	Weston General Hospital	0	0
	RUH Bath	0	0
	Salisbury Hospital	0	0
	Southmead Hospital	0	0
	Royal Devon & Exeter	0	0
	All Sites	**1,129**	**2,483**

The table below shows the predicted diagnostic activity for the do-nothing option:

	Hospital Site	Number of stroke attendances – not including mimics	Number of attendances – including mimics
Diagnostics	Musgrove Park Hospital	754	2,094
	Yeovil District Hospital	480	1,306
	Dorset County Hospital	0	0
	Weston General Hospital	0	0
	RUH Bath	0	0
	Salisbury Hospital	0	0
	Southmead Hospital	0	0
	Royal Devon & Exeter	0	0
	All Sites	**1,234**	**3,400**

Beds

The table below shows the number of beds required under the do-nothing option; this is largely based on the types of beds used by stroke patients in the baseline data used for the modelling and therefore does not necessarily reflect the optimal bed types – in particular where patients occupied non-stroke beds it is likely that some of this bed demand will encompass demand for stroke unit beds (as the patients may not have been able to access a stroke bed and hence occupied a bed in another ward).

Bed type	Hospital site	Number of stroke beds – not including mimics	Number of beds – including mimics
HASU beds	Musgrove Park Hospital	6	9
	Yeovil District Hospital	4	5
	All Sites	**8**	**14**
ASU beds	Musgrove Park Hospital	13	13
	Yeovil District Hospital	8	8
	All Sites	**21**	**21**
Non-stroke beds	Musgrove Park Hospital	2	2
	Yeovil District Hospital	4	4
	All Sites	**8**	**6**
Total beds	Musgrove Park Hospital	22	24
	Yeovil District Hospital	16	17
	All Sites	**38**	**41**

The table below shows the projected bed numbers over the next 10 years. These figures include mimics for both MPH and YDH and are based on actual length of stay.

Note: The figures in brackets are the rounded-up bed numbers to accommodate that staffing ratio of 1 registered nurse to 2 beds.

	Year 0	Year 5	Year 10
HASU beds			
Taunton	9 (10)	10	11 (12)
Yeovil	5 (6)	6	7 (8)
ASU beds			
Taunton	13 (14)	15 (16)	17 (18)
Yeovil	8	9 (10)	10
Non-stroke unit beds			
Taunton	2	3 (4)	3 (4)
Yeovil	4	4	5 (6)

Workforce

The current workforce model would not change and the recruitment difficulties for Yeovil remain with the use of locums to fill gaps and one part time substantive stroke consultant and nurse consultant two days a week.

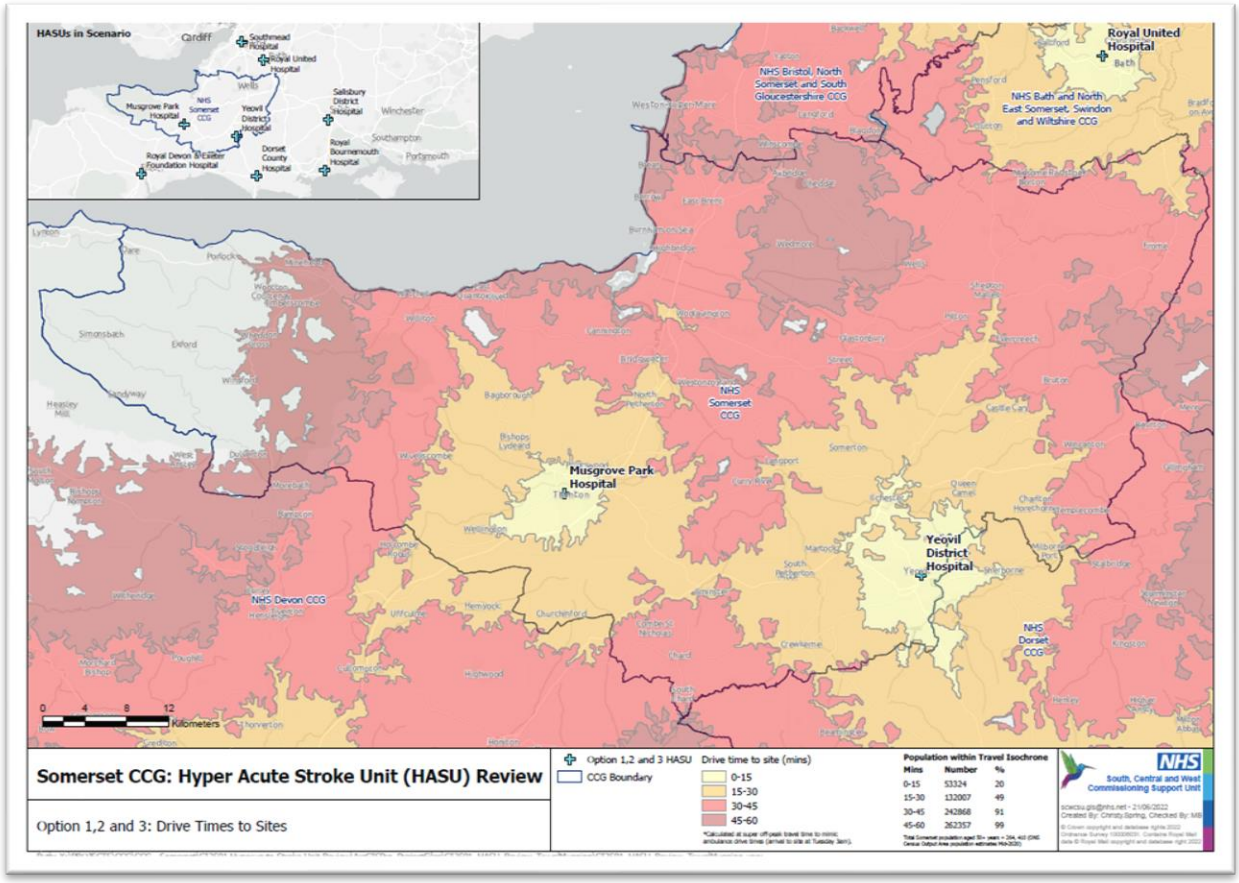
A minimum of two consultants are required on the Yeovil site and potentially if the Yeovil consultant staffing arrangement were to change and the part time consultant was unavailable due to sickness or other reasons then the service would need to be maintained by locum staff or patients may have to be taken to Taunton or Dorset which may destabilise those services. This may happen at short notice and therefore Yeovil's hyperacute unit would need to shut under safety grounds. Even though Yeovil has specialist nurses there would be no senior clinician to provide clinical supervision.

Taunton does not have enough consultant cover for a presence on two sites but could provide remote advice and mutual aid may have to be provided by neighbouring systems.

Yeovil Emergency Department would possibly need to access remote advice from Taunton.

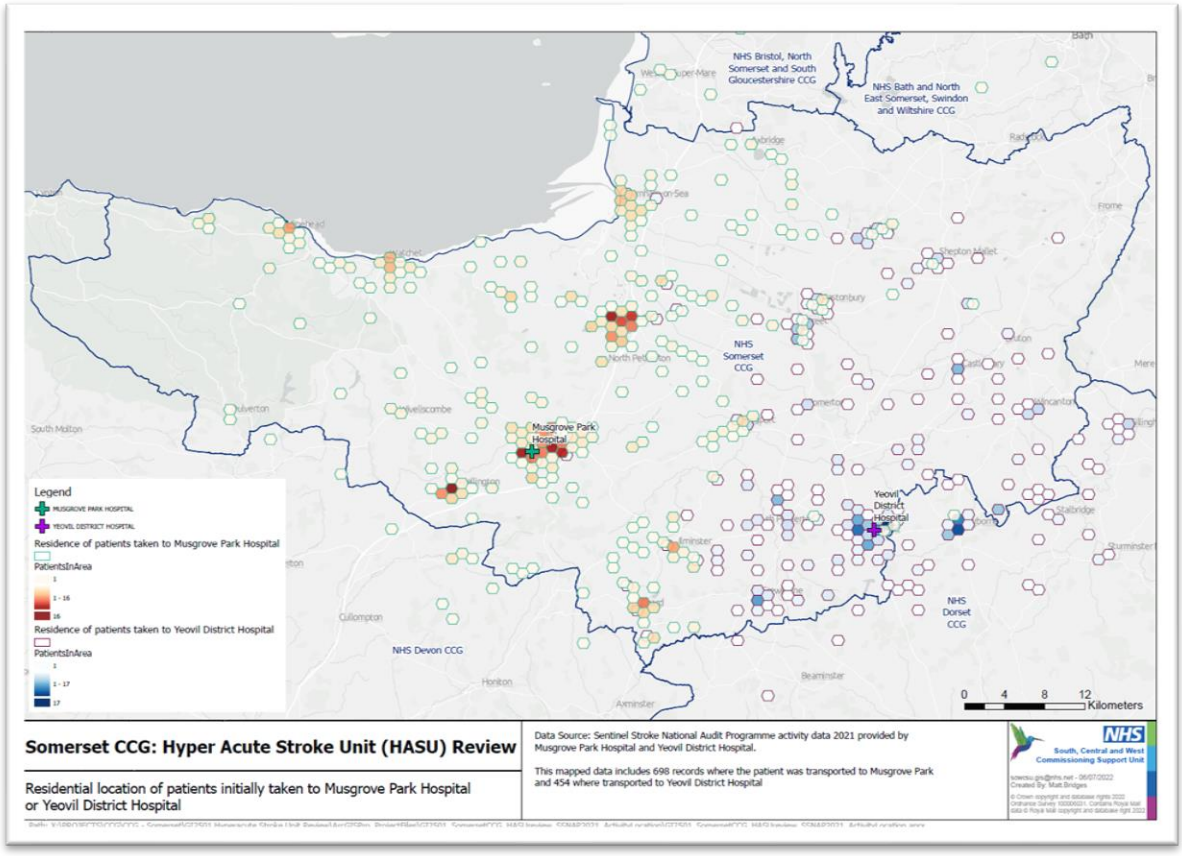
Travel

The travel times below are calculated based on road travel at 03:00am on a Tuesday morning. This is a standard proxy measure for "blue light" ambulance travel times.



91% of the population can reach a HASU within 45 minutes.

The map below shows the residential location of people who had strokes in Somerset and where they received their hyperacute stroke care.



Equalities

Under Option A, the current inequities in provision that exist, based on where you live and which service you can access, would continue to exist.

Impact on other services

TIA

The table below describes the implications for the TIA shortlist if “Option A – Do nothing” was implemented for stroke:

	TIA Option A 7-day service at MPH 5-day service at YDH	TIA Option B 7-day service at MPH 7-day service at YDH
Workforce	• No change – would continue to be implemented in the same way	• This would not be achievable as no out of hours consultant presence at YDH
Clinical outcomes	• No change	• Improved outcomes with 7/7 service

Inequalities	• No change • Inequities would continue to exist	• Would reduce inequalities
Finance	• No change	• Would cost more to provide staffing cover

SWASFT

There would be no impact on SWASFT.

People with suspected stroke would continue to be managed through 999 calls as an Emergency Category 2 call. They would be taken to their nearest hospital with and emergency department.

Eligible patients may be transferred by SWASFT to Southmead Hospital in Bristol for thrombectomy intervention, again as a Category 2 response. They would then be re-patriated to either Taunton or Yeovil for their ongoing acute stroke care.

Once their acute stroke care has ended, patients would be either discharged home or transferred to a community hospital for their ongoing stroke rehabilitation.

For those requiring ongoing inpatient rehabilitation, they would be transferred by the current patient transport provider - E-Zek - to their nearest community stroke bed. This would primarily be at either South Petherton for people in the south and east of the county, or Williton for those in the north or east of the county – however, that may not always be the case.

Impact on neighbouring systems

Dorset County Hospital, Dorset

There would be no difference in impact on DCH under this option.

Royal United Hospitals, Bath

There would be no difference in impact on RUH under this option.

Weston General Hospital, Weston-Super-Mare

There would be no difference in impact on WGH under this option.

Southmead Hospital, Bristol

There would be no difference in impact on Southmead under this option.

Salisbury District Hospital

There would be no difference in impact on SDH under this option.

Impact on carbon footprint

Travel

There will be no increased impact on carbon footprint because of travel changes within this option.

Staff, ambulance transfers, patients and relatives will continue to access services in the same way they currently do.

Estates

In the short-term there would be no estates impact. However, with the predicted growth in demand from stroke it is likely that additional beds would be required at both sites, which would require capital investment and building work to be undertaken.

Digitisation

There would be potential to increase the use of digital technology to support the delivery of this option, primarily in relation to access to specialist assessment and diagnosis during the hyperacute phase.

Risks with this option

Criteria	Detail	Level of risk
Workforce	The current workforce in YDH is fragile, with the stroke consultant planning retirement and additional consultant cove being provided by locum staff. Significant investment would be required to increase the whole stroke workforce across two sites delivering both HASU and ASU care to ensure that minimum standards are able to be met. This is both unaffordable and unrealistic, based on current recruitment challenges.	High
Clinical Outcomes	There would be no improvement in clinical outcomes. Clinical outcomes may worsen if the YDH stroke consultant was to retire sooner than expected. There would be no increase in the >600 admissions per year for YDH.	High
Inequalities	The current inequitable provision of services for stroke and TIA would persist.	Medium
Finance	There would be no financial improvement with this option. There would be significant cost implications of increasing staffing to comply with the minimum standards of care.	Medium

Option B – Same model, single medical delivery team

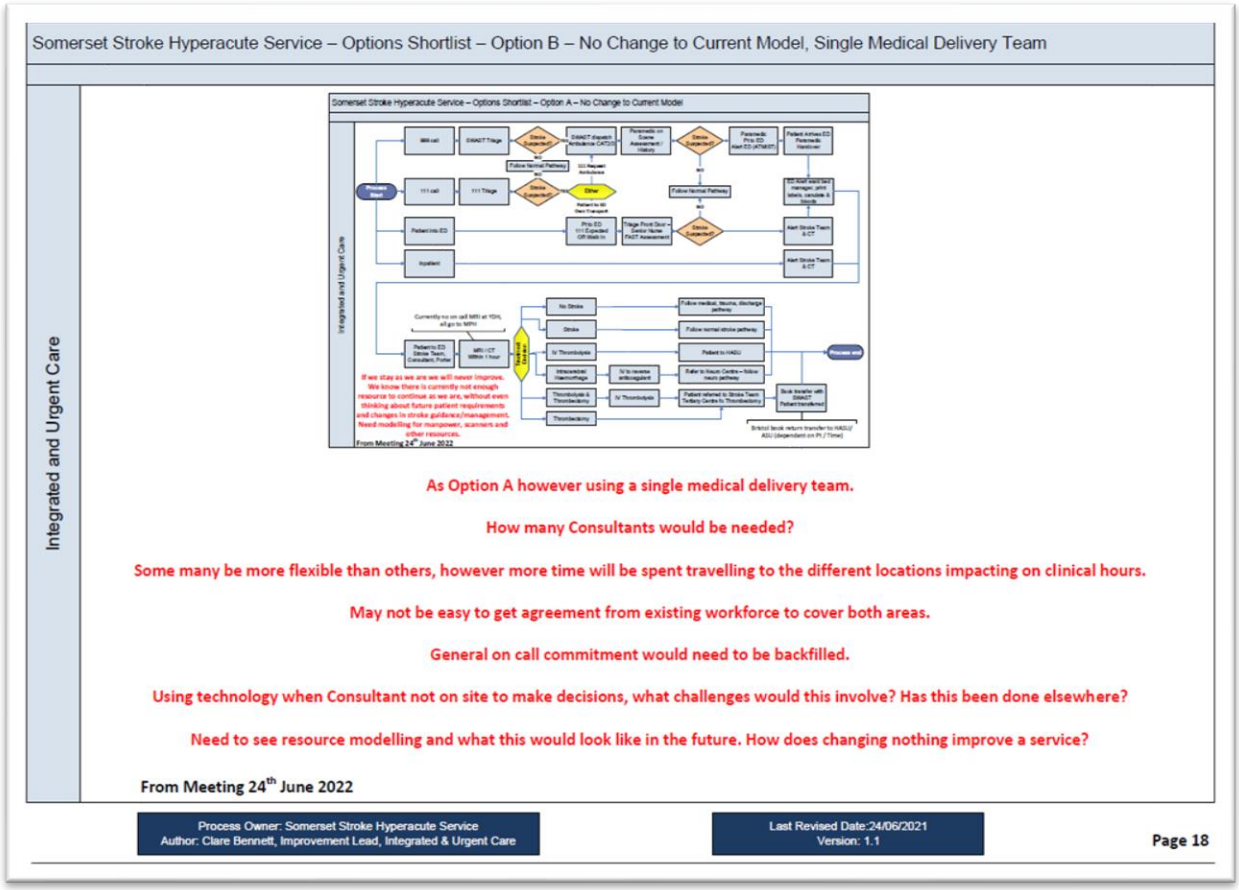
- All people with suspected strokes are conveyed to the nearest site with a HASU.
- In Somerset, this could be at either Yeovil or Taunton.
- ASU care will continue to be provided in both Taunton and Yeovil.
- The medical stroke workforce across Taunton and Yeovil would combine to create a single team.
- The stroke-specialist nursing and allied professional teams would continue to deliver stroke care as they currently do.
- People would be transferred into the community following their acute stroke care.

Model of care

- There would be hyperacute and acute stroke care provided across 2 hospital sites within Somerset.
- This would enable care to be provided closer to home for people in Somerset but would not optimise clinical outcomes associated with the centralisation of hyperacute stroke services.
- Stroke beds within Yeovil would continue to be mixed with general medical beds.
- Stroke beds within Taunton would continue to be provided within a dedicated stroke unit.
- There would be a single medical workforce which would see stroke consultants providing hyperacute and acute stroke care between Taunton and Yeovil, 24/7, supported by the regional network.
- The stroke consultants would not be physically present at each site 24/7, the assessments and treatment would be supported by remote solutions out-of-hours (e.g., video telemedicine using Visionable).
- It is likely that this option would require a larger stroke consultant workforce (10 – 11 consultants) than Options C or D where there is only one HASU site to cover
- The consultants would sign up to a network model agreement to share responsibility for providing cover for the service across the two HASU sites.
- Options for virtual ward rounds and virtual TIA clinics using video telemedicine would be explored
- There is a risk that this model could destabilise the medical workforce in Taunton unless there is additional consultant recruitment.
- There is a significant risk that this model could affect retention of current stroke consultant workforce who may be reluctant to sign up to work across two hospital sites
- There would need to be some presence of a consultant on site to foster relationships across the team however it could create fragmentation of care if the consultant was changing on a regular basis.

Pathway

The image below describes the pathway under Option A – Do Nothing. It was produced with clinical stakeholders at a workshop on 23rd June 2022. This will be the same pathway for Option B.



The following table shows the locations of care and transfer points for patients with a stroke in each of the four main catchment areas of the county:

999 / Ambulance

		Taunton resident at home	Yeovil Resident at home	North-east Somerset resident at home	North Somerset resident at home
999 Ambulance call		Transfer 1	Transfer 1	Transfer 1	Transfer 1
	ED	MPH	YDH	RUH	WGH
	HASU	MPH	YDH	RUH	WGH
	Thrombectomy	Southmead	Southmead	Southmead	Southmead
	ASU	MPH	YDH	RUH	WGH
		Transfer 2	Transfer 2	Transfer 2	Transfer 2

	Rehab	Williton	South Petherton	St Martins, Bath South Petherton	WGH Williton
		Transfer 3	Transfer 3	Transfer 3	Transfer 3
	Discharge	ESD / Home	ESD / Home	ESD / Home	ESD / Home

Walk-in

		Taunton resident at MPH	**Yeovil Resident at YDH**	**North-east Somerset resident at RUH**	**North Somerset resident at WGH**
Walk-in					
	ED	MPH	YDH	RUH	WGH
	HASU	MPH	YDH	RUH	WGH
	Thrombectomy	Southmead	Southmead	Southmead	Southmead
	ASU	MPH	YDH	RUH	WGH
		Transfer 1	Transfer 1	Transfer 1	Transfer 1
	Rehab	Williton	South Petherton	St Martins, Bath South Petherton	WGH Williton
		Transfer 2	Transfer 2	Transfer 2	Transfer 2
	Discharge	ESD / Home	ESD / Home	ESD / Home	ESD / Home

Inpatient

		Taunton resident in MPH	**Yeovil resident in YDH**	**North-east Somerset resident in YDH**	**North Somerset resident in MPH**
Inpatient admission					
	ED	? Straight to HASU	? Straight to HASU	? Straight to HASU	? Straight to HASU
	HASU	MPH	YDH	YDH	MPH
	Thrombectomy	Southmead	Southmead	Southmead	Southmead
	ASU	MPH	YDH	YDH	
	Rehab	Williton	South Petherton	South Petherton	Williton
	Discharge	ESD / Home	ESD / Home	ESD / Home	ESD / Home

Activity[308]

The figures in the tables below relate to activity which currently takes place at Musgrove Park Hospital and Yeovil District Hospital, and where the activity is modelled to take place under this option.

The table below shows the predicted stroke unit activity modelling for Option A, do-nothing. This is the same for Option B:

	Hospital Site	Number of stroke attendances – not including mimics	Number of attendances – including mimics
Stroke unit activity	Musgrove Park Hospital	691	1,026
	Yeovil District Hospital	454	647
	Dorset County Hospital	0	0
	Weston General Hospital	0	0
	RUH Bath	0	0
	Salisbury Hospital	0	0
	Southmead Hospital	0	0
	Royal Devon & Exeter	0	0
	All Sites	**1,145**	**1,673**

The table below shows the predicted Emergency Department activity for Option A, do-nothing. This is the same for Option B:

	Hospital site	Number of stroke attendances – not including mimics	Number of attendances – including mimics
ED Attendances	Musgrove Park Hospital	684	1,522
	Yeovil District Hospital	444	961
	Dorset County Hospital	0	0
	Weston General Hospital	0	0
	RUH Bath	0	0
	Salisbury Hospital	0	0
	Southmead Hospital	0	0
	Royal Devon & Exeter	0	0
	All Sites	**1,129**	**2,483**

The table below shows the predicted diagnostic activity for Option A, do-nothing. This is the same for Option B:

[308] See Appendix 13 for details of the modelling assumptions and data caveats.

	Hospital Site	Number of stroke attendances – not including mimics	Number of attendances – including mimics
Diagnostics	Musgrove Park Hospital	754	2,094
	Yeovil District Hospital	480	1,306
	Dorset County Hospital	0	0
	Weston General Hospital	0	0
	RUH Bath	0	0
	Salisbury Hospital	0	0
	Southmead Hospital	0	0
	Royal Devon & Exeter	0	0
	All Sites	**1,234**	**3,400**

Beds

The table below shows the number of beds required for Option A, do-nothing. This is the same for Option B; this is largely based on the types of beds used by stroke patients in the baseline data used for the modelling and therefore does not necessarily reflect the optimal bed types – in particular where patients occupied non-stroke beds it is likely that some of this bed demand will encompass demand for stroke unit beds (as the patients may not have been able to access a stroke bed and hence occupied a bed in another ward).

Bed type	Hospital site	Number of stroke beds – not including mimics	Number of beds – including mimics
HASU beds	Musgrove Park Hospital	6	9
	Yeovil District Hospital	4	5
	All Sites	**8**	**14**
ASU beds	Musgrove Park Hospital	13	13
	Yeovil District Hospital	8	8
	All Sites	**21**	**21**
Non-stroke beds	Musgrove Park Hospital	2	2
	Yeovil District Hospital	4	4
	All Sites	**8**	**6**
Total beds	Musgrove Park Hospital	22	24
	Yeovil District Hospital	16	17
	All Sites	**38**	**41**

The table below shows the projected bed numbers over the next 10 years. These figures include mimics for both MPH and YDH and are based on actual length of stay.

Note: The figures in brackets are the rounded-up bed numbers to accommodate that staffing ratio of 1 registered nurse to 2 beds.

	Year 0	Year 5	Year 10
HASU beds			
Taunton	9 (10)	10	11 (12)
Yeovil	5 (6)	6	7 (8)
ASU beds			
Taunton	13 (14)	15 (16)	17 (18)
Yeovil	8	9 (10)	10
Non-stroke unit beds			
Taunton	2	3 (4)	3 (4)
Yeovil	4	4	5 (6)

Workforce

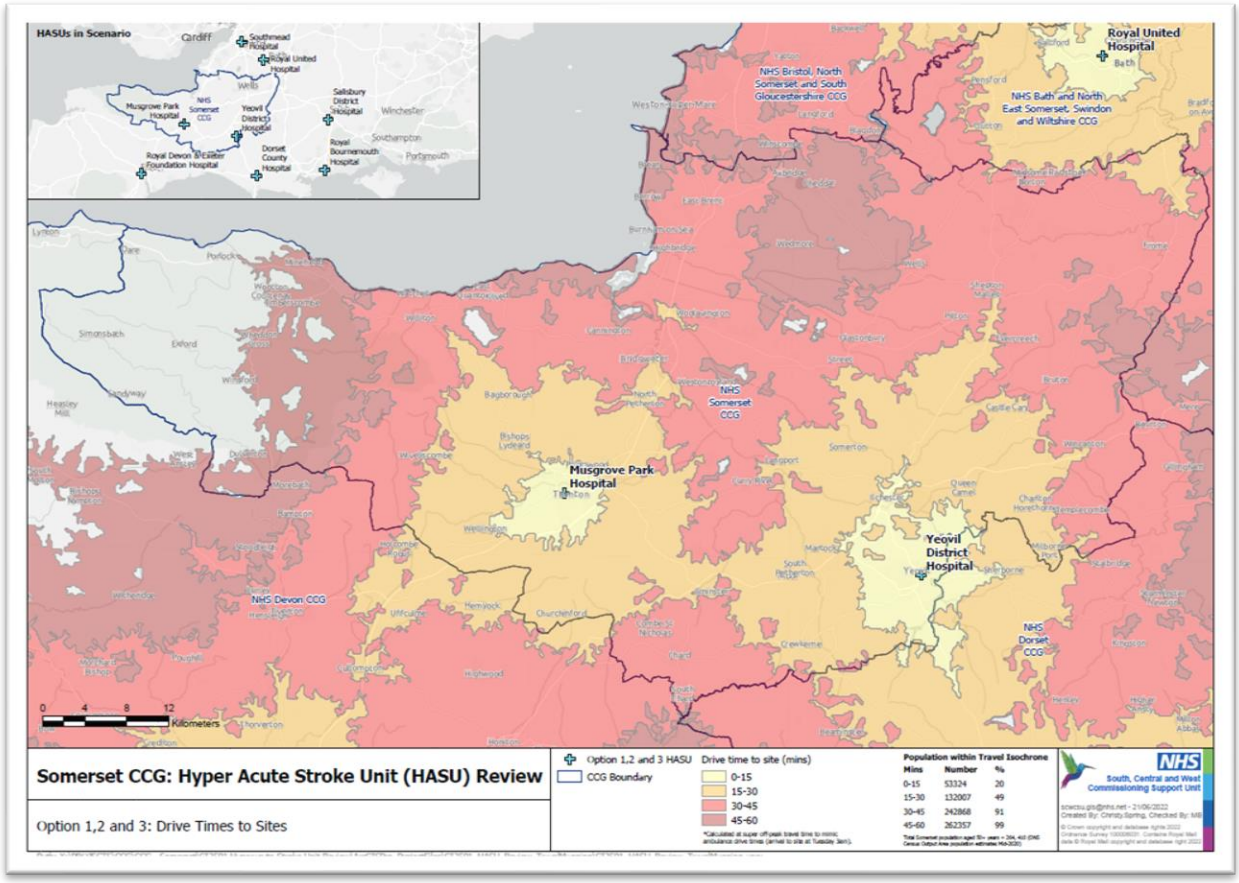
Delivering a single hyperacute workforce across Somerset has several benefits in that it fosters a one team approach.

- The consultant workforce would be combined across both sites with job plans that provide as much cover as possible on both sites within the existing workforce.
- PA allocations assume that HASU / post-72 hours (incorporating in-patient rehabilitation) is all co-located at the same hospital. If parts of the stroke pathway are across split sites, PA allocations will need adjustments to reflect diversification of the provision of stroke care[309].
- It is important that the workforce works in the most efficient way to enable good use of their time and skills, reducing time that specialists may spend on completing tasks that may be more appropriate to be delivered by other members of the team.
- There is the opportunity to use Advanced practice roles to support the consultant cover and other roles that will take away tasks that clinicians do not need to do.
- The existing workforce would need to work across both sites and there need to be a process for consulting on a change in workplace.
- There is the potential that staff may choose to go elsewhere is they feel that they are being stretched or do not want to work across two sites.
- The use of digital solutions may also support improved processes and the delivery of specialist input across Somerset and lessen the need for travel.
- Joint Consultant posts will need to be considered although recent recruitment has not been successful so far.

[309] BASP-Stroke-Medicine-Workforce-Requirements-Report-FINAL.pdf.pagespeed.ce.K6If1Ae4ai.pdf (biasp.org)

Travel

The travel times below are calculated based on road travel at 03:00am on a Tuesday morning. This is a standard proxy measure for “blue light” ambulance travel times.



91% of the population can reach a HASU within 45 minutes.

Equalities

This model might help to address the inequities in current provision for patients in Yeovil. However, there is a risk of unintended consequence of worsening clinical outcomes for patients in MPH, as the consultants would be providing a service into YDH.

Impact on other services

TIA

The table below describes the implications for the TIA shortlist if “Option B – Single Medical Delivery Team” was implemented for stroke:

Stroke Option B Shared medical workforce	**TIA Option A** **7-day service at MPH** **5-day service at YDH**	**TIA Option B** **7-day service at MPH** **7-day service at YDH**
Workforce	• There would be no change	• This would potentially be deliverable, but would require additional recruitment to be deliverable
Clinical outcomes	• There would be no change	• There would be improvements in outcomes at YDH, but a risk of worsening outcomes at MPH unless adequate staffing in place
Inequalities	• There would be no change, inequity would persist	• This would create a more equitable service, but risks making both services sub-optimal unless adequate staffing in place
Finance	• There would be no change	• There would be additional costs in terms of staffing cover 7/7 plus staff travel between MPH an YDH

SWASFT

There would be no impact on SWASFT.

People with suspected stroke would continue to be managed through 999 calls as an Emergency Category 2 call. They would be taken to their nearest hospital with and emergency department.

Eligible patients may be transferred by SWASFT to Southmead Hospital in Bristol for thrombectomy intervention, again as a Category 2 response. They would then be re-patriated to either Taunton or Yeovil for their ongoing acute stroke care.

Once their acute stroke care has ended, patients would be either discharged home or transferred to a community hospital for their ongoing stroke rehabilitation.

For those requiring ongoing inpatient rehabilitation, they would be transferred by the current patient transport provider – E-Zek - to their nearest community stroke bed. This would primarily be at either South Petherton for people in the south and east of the county, or Williton for those in the north or east of the county – however, that may not always be the case.

Impact on neighbouring systems

Dorset County Hospital, Dorset

There would be no change in impact on DCH from this option.

Royal United Hospitals, Bath

There would be no change in impact on RUH from this option.

Weston General Hospital, Weston-Super-Mare

There would be no change in impact on WGH from this option.

Southmead Hospital, Bristol

There would be no change in impact on Southmead from this option.

Salisbury District Hospital

There would be no change in impact on SDH from this option.

Impact on carbon footprint

Travel

There will be an impact on carbon footprint because of travel changes within this option. There will be an increase in medical staff travel from Taunton to Yeovil, and back to cover the service 7/7. This may be possible to mitigate using digital technology enabled assessments and consultations.

Non-medical staff, ambulance transfers, patients and relatives will continue to access services in the same way they currently do.

Estates

In the short-term there would be no estates impact. However, with the predicted growth in demand from stroke it is likely that additional beds would be required at both sites, which would require capital investment and building work to be undertaken.

Digitisation

There would be potential to increase the use of digital technology to support the delivery of this option, primarily in relation to access to specialist assessment and diagnosis during the hyperacute phase.

There would also be potential to undertake remove ward rounds, to minimise travel. However, this may not be perceived as equitable.

Risks with this option

Criteria	Detail	Level of risk
Workforce	The current workforce in YDH is fragile, with the stroke consultant planning retirement and additional consultant cove being provided by locum staff. Additional staff would need to be recruited to ensure equitable provision across both YDH and MPH, would compromising the service currently provided at MPH.	High
Clinical Outcomes	There may be an improvement in clinical outcomes at YDH, but there is a risk of worsening clinical outcomes at MPH. Clinical outcomes may worsen if the YDH stroke consultant was to retire sooner than expected.	High
Inequalities	There would be an improvement in equitable provision, but there may be an unintended consequence in reducing the quality of provision in MPH.	Medium
Finance	This option is likely to be more expensive as there are costs associated with additional recruitment, staff travel, provision of digital technology to support remote interventions.	Medium

Option C – Single HASU at Taunton

- All people with suspected strokes are conveyed to the nearest site with a HASU.
- In Somerset, there will be a single county-wide HASU based in Taunton.
- People would be repatriated from Taunton to Yeovil following their HASU care.
- ASU care will continue to be provided in both Taunton and Yeovil.
- People would be transferred into the community following their acute stroke care.

Model of care

Not all hospitals in Somerset have the latest specialised equipment or resources to provide the best initial, emergency care for people who have had a suspected stroke.

Option C would ensure that everyone was taken to the nearest hospital with a hyperacute stroke unit to ensure they had access to the best care and treatment immediately. This may be Musgrove Park Hospital in Taunton, or an out of county provider (primarily Dorset County Hospital in Dorchester).

- A single, centralised hyperacute stroke unit would be developed in Musgrove Park Hospital in Taunton.
- This unit would provide all the hyperacute care following stroke and refer appropriate patients onward to Bristol Southmead Hospital for mechanical thrombectomy or neurosurgical management.
- This would provide a larger and more sustainable specialist stroke workforce, which would enable faster decision making and improved continuity of care 24/7, leading to improved equity of service and improved outcomes.
- There would be a consultant stroke physician present on the HASU site from 8am – 8pm, 7 days per week, and available on-call outside these times to offer senior specialist input for stroke cases via telemedicine.
- Initially, out of hours support would be via the Network, as it currently the case, but longer term following additional recruitment this would be staffed through an internal rota.
- There would be stroke advanced clinical practitioners present on the HASU site from 8am – 10pm, 7 days per week to provide specialist input to stroke patients and support the patient pathway.
- Acute stroke care would be provided by dedicated stroke teams in Taunton and at Yeovil, with dedicated acute stroke beds at each site.
- Stroke patients would spend up to 72 hours in the HASU before being transferred to the acute stroke unit in Musgrove Park Hospital or repatriated to their local acute stroke unit in Yeovil District Hospital.

- Clinically stable patients who do not require acute stroke unit care would be transferred to the stroke recovery unit in either Williton community hospital or South Petherton community hospital or discharged home with early supported discharge or community rehabilitation follow-up.
- This would ensure that expertise in acute stroke care is retained across both sites and that patients can be repatriated closer to home for their acute care, which will ensure that families and carers can be involved in supporting recovery and decision making.

Minimum requirements to support this option:

General

- Ward 8B is the right location for the ASU in YDH, but a significant number of estates improvements would be required, including reconfiguration of the floor plan to provide a rehabilitation gym, MDT room and reinstating of the wet room
- Robust repatriation policy from HASU to ASU
- Daily call between SFT/DCH and YDH to identify transfers.
- No duplication of assessments on transfer
- Equitable access to community Stroke Rehabilitation Units in both Somerset and Dorset.
- 5-day TIA clinics with option for Taunton at weekends.
- Development of all staff using stroke competency framework

Beds

- Ringfence beds overnight to allow for next day repatriation – 1-2 beds with organisational support
- Minimum of 16 beds to be able to provide the required ratio of nursing staff per bed and maintain flow.
- Dedicated ward, which is not shared with another speciality, unless co-located with neurology
- Service manages its own flow with support from site team

Medical cover

- Minimum of 5 days a week cover by stroke consultant.
- Development of ACP's/Consultant posts to cover ward at weekends
- Dedicated virtual ward round at weekend with stroke physician at Taunton
- Retain the stroke registrar post at Yeovil
- Physician Associate dedicated to ASU to provide continuity.

Nursing

- 65:35 nursing ratio

Therapies

- 7-day therapy cover to maintain 45 minutes of therapy at weekends.
- Dedicated stroke therapists
- Development of extended roles for therapists.
- Development of band 3 reablement assistants

Pathways

The following table shows the locations of care and transfer points for patients with a stroke in each of the four main catchment areas of the county:

999 Ambulance

		Taunton resident at home	Yeovil resident at home	North-east Somerset resident at home	North Somerset resident at home
999 Ambulance call		Transfer 1	Transfer 1	Transfer 1	Transfer 1
	ED	MPH	MPH DCH	RUH	WGH MPH
	HASU	MPH	MPH DCH	RUH	WGH MPH
	Thrombectomy	Southmead	Southmead	Southmead	Southmead
	ASU	MPH	YDH DCH	RUH	WGH MPH
	Rehab	Williton	South Petherton Yeatman	St Martins, Bath South Petherton	WGH Williton
	Discharge	ESD / Home	ESD / Home	ESD / Home	ESD / Home

Pathway for emergency assessment & management of suspected stroke patients

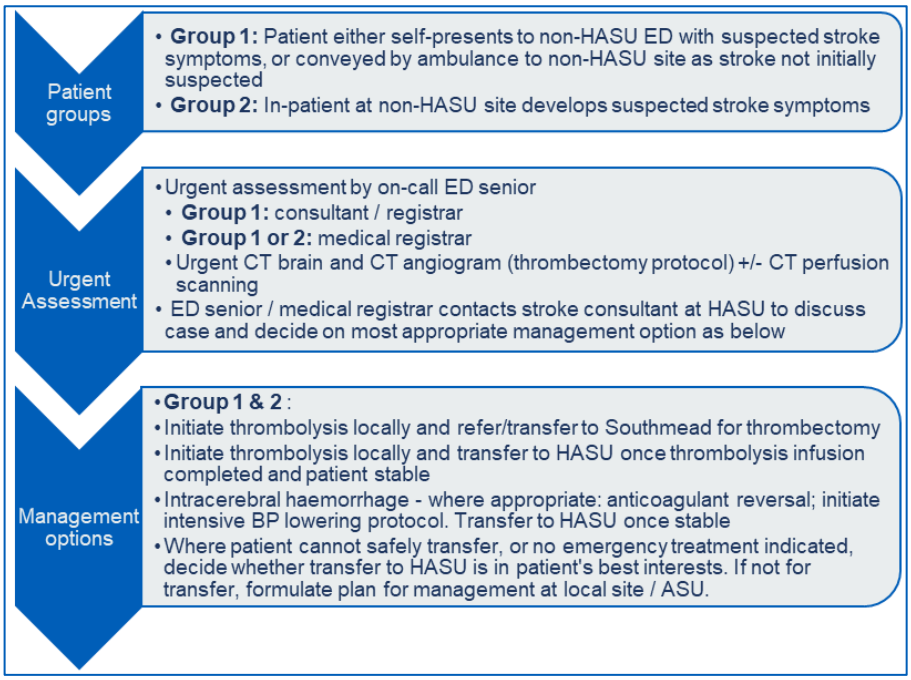
It is anticipated that most patients with suspected stroke will phone 999 and be conveyed to the closest hospital with a hyperacute stroke unit (HASU). Nevertheless, there will be a cohort of stroke patients (Group 1) who arrive in the emergency department at the non-HASU site because either:

- they self-present to the non-HASU site; or
- they are conveyed by ambulance to the non-HASU site because stroke was not initially suspected pre-hospital

There will also be a cohort of patients (Group 2) who are already in-patient at the non-HASU site who develop an acute stroke.

The pathway for the management of these is as follows:

- The Recognition of Stroke in the Emergency Room (ROSIER) tool would be used in the emergency department to screen suspected stroke patients
- The priority will be a rapid assessment by a consultant or middle-grade doctor in emergency medicine (Group 1), or medical registrar (Group 1 or 2).
- Following diagnosis of suspected stroke an urgent CT brain and CT angiogram (thrombectomy protocol) should be performed, as well as baseline blood tests, ECG, and cannulation.
- The on-call stroke physician at the HASU should then be contacted to establish:
- Whether the patient is appropriate for IV thrombolysis and transfer to the HASU
- Whether the patient is for direct transfer to the comprehensive stroke centre for thrombectomy
- Optimal management of intracerebral haemorrhage (e.g., anticoagulant reversal, intensive blood pressure lowering protocol) and transfer to HASU
- Where transfer to the HASU is deemed not in the patient's interests, the HASU consultant can assist in formulating a management plan involving local ASU



Walk-in

		Taunton resident at MPH	Yeovil Resident at YDH	North-east Somerset resident at RUH	North Somerset resident at WGH
Walk-in					
	ED	MPH	YDH DCH	RUH	WGH MPH
			Transfer 1		Transfer 1
	HASU	MPH	MPH DCH	RUH	WGH MPH
	Thrombectomy	Southmead	Southmead	Southmead	Southmead
			Transfer 2		
	ASU	MPH	YDH DCH	RUH	WGH MPH
		Transfer 1	Transfer 3	Transfer 1	Transfer 2
	Rehab	Williton	South Petherton Yeatman	St Martins, Bath South Petherton	WGH Williton
	Discharge	ESD / Home	ESD / Home	ESD / Home	ESD / Home

Inpatient

		Taunton resident in MPH	Yeovil Resident in YDH	North-east Somerset resident in YDH	North Somerset resident in MPH
Inpatient admission			Transfer 1		
	ED	Straight to HASU @ MPH	YDH	YDH	Straight to HASU @ MPH
			Transfer 1	Transfer 1	
	HASU*	MPH	MPH DCH	RUH MPH	MPH
	Thrombectomy	Southmead	Southmead	Southmead	Southmead
			Transfer 2	Transfer 2	
	ASU*	MPH	YDH DCH	RUH YDH	MPH
		Transfer 1	Transfer 3	Transfer 3	Transfer 1
	Rehab	Williton	South Petherton Yeatman	South Petherton	Williton
	Discharge	ESD / Home	ESD / Home	ESD / Home	ESD / Home

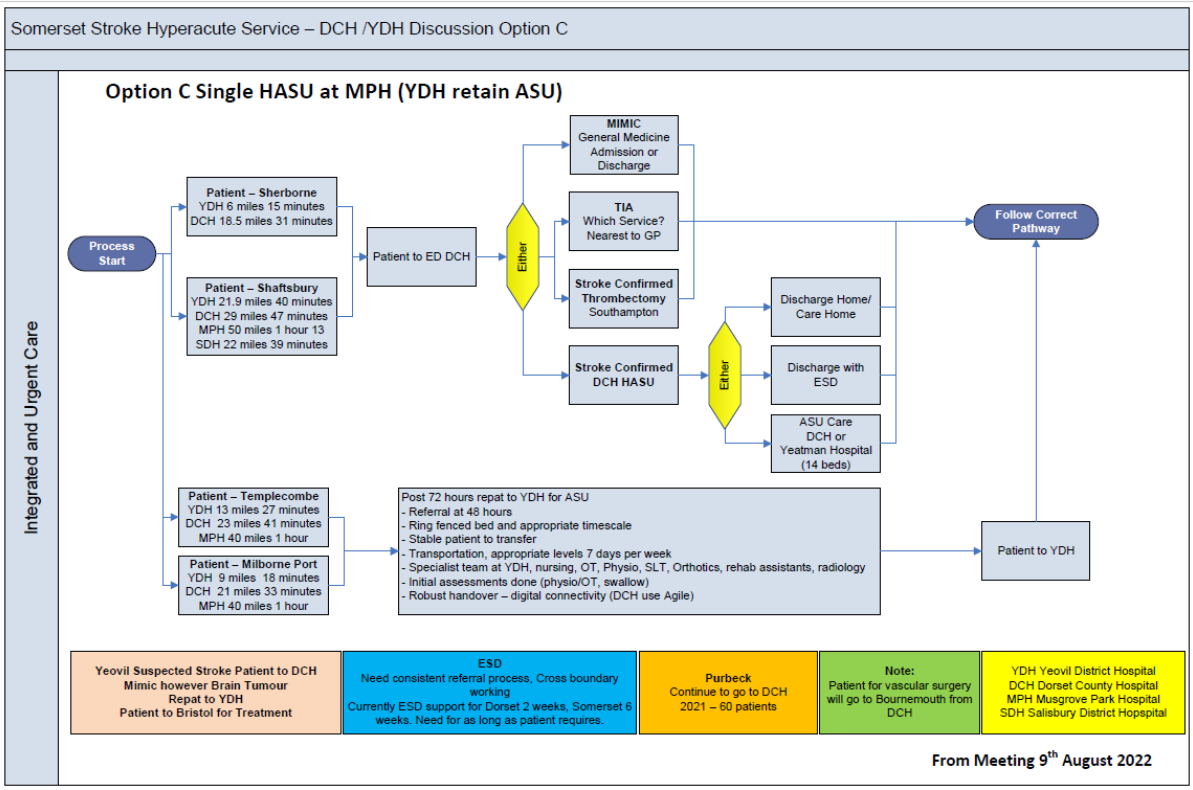
* May not be transferred for HASU or ASU care, depending on primary clinical need

Patient choice

Unless a patient has an Advance Care Plan (ACP) or and Advanced Decision to Refuse Treatment (ADTR), the ambulance service will convey the patient to the nearest HASU.

Pathway

For people living in border areas, the pathway would be as follows:



Minimum specification for hospital without a HASU

For this option to be safely and effectively delivered, a minimum specification is required at Yeovil District Hospital, as follows:

Area	Requirement
ED	• Standardised hyperacute stroke care training and education programme, including administration of thrombolysis • Suspected walk-in strokes assessed by mid-level ED consultant, or medical registrar, supported remotely by stroke consultant
In-patients	• Suspected in-patient strokes assessed by medical registrar, supported remotely by stroke consultant
Diagnostics	• 24/7 access to CT head • 24/7 access to CT Angio • 24/7 access to CT perfusion • 24/7 access to Brainomix

ASU	• Stroke physician 5/7 • Consultant stroke nurse 5/7 • Specialist stroke therapies team 5/7 • Ringfenced stroke beds
Repatriation to HASU	• Transfer by SWASFT to nearest HASU (or straight to Thrombectomy) under escalation of care principles

Activity[310]

The table below shows the predicted stroke unit activity modelling for Option C:

	Hospital Site	Number of stroke attendances – not including mimics				Number of attendances – including mimics			
		WGH Open		WGH Closed		WGH Open		WGH Closed	
			Change from do nothing		Change from do nothing		Change from do nothing		Change from do nothing
Stroke unit activity	Musgrove Park Hospital	769	78	815	124	1,136	109	1,198	172
	Yeovil District Hospital	0	-454	0	-454	0	-647	0	-647
	Dorset County Hospital	255	255	259	259	365	365	370	370
	Weston General Hospital	55	55	0	0	76	76	0	0
	RUH Bath	46	46	51	51	67	67	75	75
	Salisbury Hospital	17	17	17	17	25	25	25	25
	Southmead Hospital	2	2	2	2	3	3	3	3
	Royal Devon & Exeter	1	1	1	1	1	1	1	1
	All Sites	**1,145**	**0**	**1,145**	**0**	**1,673**	**0**	**1,673**	**0**

The table below shows the predicted Emergency Department activity for Option C:

	Hospital Site	Number of stroke attendances – not including mimics				Number of attendances – including mimics			
		WGH Open		WGH Closed		WGH Open		WGH Closed	
			Change from do nothing		Change from do nothing		Change from do nothing		Change from do nothing
ED activity	Musgrove Park Hospital	760	76	805	120	1,684	163	1,777	255
	Yeovil District Hospital	0	-444	0	-444	0	-961	0	-961
	Dorset County Hospital	250	250	254	254	543	543	550	550
	Weston General Hospital	53	53	0	0	112	112	0	0
	RUH Bath	45	45	50	50	99	99	110	110
	Salisbury Hospital	17	17	17	17	39	39	39	39
	Southmead Hospital	2	2	2	2	5	5	5	5

[310] See Appendix 13 for details of the modelling assumptions and data caveats.

	Hospital Site	Number of stroke attendances – not including mimics				Number of attendances – including mimics			
		WGH Open		WGH Closed		WGH Open		WGH Closed	
			Change from do nothing		Change from do nothing		Change from do nothing		Change from do nothing
	Royal Devon & Exeter	1	1	1	1	2	2	2	2
	All Sites	**1,129**	**0**	**1,129**	**0**	**2,483**	**0**	**2,483**	**0**

The table below shows the predicted diagnostic activity for Option C:

	Hospital Site	Number of stroke attendances – not including mimics				Number of attendances – including mimics			
		WGH Open		WGH Closed		WGH Open		WGH Closed	
			Change from do nothing		Change from do nothing		Change from do nothing		Change from do nothing
Diagnostic activity	Musgrove Park Hospital	760	76	805	120	1,684	163	1,777	255
	Yeovil District Hospital	0	-444	0	-444	0	-961	0	-961
	Dorset County Hospital	250	250	254	254	543	543	550	550
	Weston General Hospital	53	53	0	0	112	112	0	0
	RUH Bath	45	45	50	50	99	99	110	110
	Salisbury Hospital	17	17	17	17	39	39	39	39
	Southmead Hospital	2	2	2	2	5	5	5	5
	Royal Devon & Exeter	1	1	1	1	2	2	2	2
	All Sites	**1,129**	**0**	**1,129**	**0**	**2,483**	**0**	**2,483**	**0**

In summary, the table below shows the numbers we would expect to attend another provider for their HASU care under Option C and would need repatriation back to YDH for their ASU care:

Dorset County Hospital	259
Musgrove Park Hospital	124
Royal Devon & Exeter	1
RUH Bath	51
Salisbury Hospital	17
Southmead Hospital	2
Grand Total	**454**

Beds

Under Option C there would be a requirement to ringfence ASU beds at YDH to ensure timely repatriation following HASU care and ensure that acute stroke care is provided within a clinically optimal setting, supported by a skilled stroke workforce.

The table below shows the number of beds required for Option C; this is largely based on the types of beds used by stroke patients in the baseline data used for the modelling and therefore does not necessarily reflect the optimal bed types – in particular where patients occupied non-stroke beds it is likely that some of this bed demand will encompass demand for stroke unit beds (as the patients may not have been able to access a stroke bed and hence occupied a bed in another ward).

Metric	Hospital Site	No HASU YDH - Weston open		No HASU YDH - Weston closed		Change from do nothing - Weston open		Change from do nothing - Weston closed	
		No mimics	Including mimics	No mimics	Including mimics	No mimics	Including mimics	No mimics	Including mimics
Beds HASU	Musgrove Park Hospital	7	9	7	10	+1	+1	+1	+1
	Yeovil District Hospital	0	0	0	0	-3	-5	-3	-5
	Dorset County Hospital	2	3	2	3	+2	+3	+2	+3
	Weston General Hospital	0	1	0	0	+0	+1	+0	+0
	RUH Bath	0	1	0	1	+0	+1	+0	+1
	Salisbury Hospital	0	0	0	0	+0	+0	+0	+0
	Southmead Hospital	0	0	0	0	+0	+0	+0	+0
	Royal Devon & Exeter	0	0	0	0	+0	+0	+0	+0
	All Sites	**10**	**13**	**10**	**13**	**+0**	**+0**	**+0**	**+0**
Beds ASU	Musgrove Park Hospital	13	13	13	13	+0	+0	+0	+0
	Yeovil District Hospital	8	8	8	8	-0	-0	-0	-0
	Dorset County Hospital	0	0	0	0	+0	+0	+0	+0
	Weston General Hospital	0	0	0	0	+0	+0	+0	+0
	RUH Bath	0	0	0	0	+0	+0	+0	+0
	Salisbury Hospital	0	0	0	0	+0	+0	+0	+0
	Southmead Hospital	0	0	0	0	+0	+0	+0	+0
	Royal Devon & Exeter	0	0	0	0	+0	+0	+0	+0
	All Sites	**21**	**21**	**21**	**21**	**+0**	**+0**	**+0**	**+0**
Beds Non-stroke Unit	Musgrove Park Hospital	3	3	4	4	+1	+1	+1	+1
	Yeovil District Hospital	0	0	0	0	-4	-4	-4	-4
	Dorset County Hospital	2	2	2	2	+2	+2	+2	+2
	Weston General Hospital	1	1	0	0	+1	+1	+0	+0
	RUH Bath	0	0	1	1	+0	+0	+1	+1

Metric	Hospital Site	No HASU YDH - Weston open		No HASU YDH - Weston closed		Change from do nothing - Weston open		Change from do nothing - Weston closed	
		No mimics	Including mimics	No mimics	Including mimics	No mimics	Including mimics	No mimics	Including mimics
	Salisbury Hospital	0	0	0	0	+0	+0	+0	+0
	Southmead Hospital	0	0	0	0	+0	+0	+0	+0
	Royal Devon & Exeter	0	0	0	0	+0	+0	+0	+0
	All Sites	**7**	**7**	**6**	**6**	**-0**	**-0**	**-0**	**-0**
Beds Total	Musgrove Park Hospital	23	26	24	27	+1	+2	+2	+3
	Yeovil District Hospital	8	8	8	8	-8	-9	-8	-9
	Dorset County Hospital	4	5	4	5	+4	+5	+4	+5
	Weston General Hospital	1	1	0	0	+1	+1	+0	+0
	RUH Bath	1	1	1	1	+1	+1	+1	+1
	Salisbury Hospital	0	0	0	0	+0	+0	+0	+0
	Southmead Hospital	0	0	0	0	+0	+0	+0	+0
	Royal Devon & Exeter	0	0	0	0	+0	+0	+0	+0
	All Sites	**38**	**41**	**38**	**41**	**+0**	**+0**	**+0**	**+0**

The table below shows the projected bed numbers over the next 10 years. These figures include mimics for both MPH and YDH and are based on actual length of stay.

Note: The figures in brackets are the rounded-up bed numbers to accommodate that staffing ratio of 1 registered nurse to 2 beds.

	Year 0	Year 5	Year 10
HASU beds			
Taunton	10	11 (12)	12
Yeovil	0	0	0
ASU beds			
Taunton	13 (14)	15 (16)	17 (18)
Yeovil	8	9 (10)	10
Non-stroke unit beds			
Taunton	4	4	5 (6)
Yeovil	0	0	0

Workforce

Individual staff scenarios will vary considerably across the stroke service and the Stroke Steering Group will, through the health system management teams and workforce leads, work to support all staff through the change process.

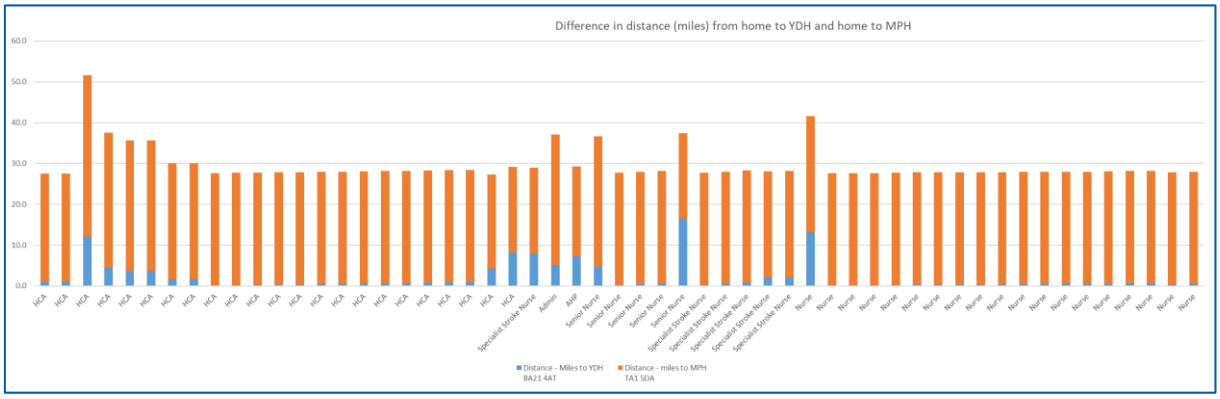
Retaining existing staff is a key objective of the reconfiguration programme and success in this area will lead to a successful implementation programme across Somerset.

Staff development opportunities

- Rotations can work well in some roles where staff may work between the HASU and ASU supporting career development, education and training and provides succession planning.
- It is possible that a formal medical rotational programme could be implemented, to include 3 months cover at YDH as well as non-acute elements of the stroke pathway.
- Greater development of the ACP role to support TIA clinics
- A competencies and CPD framework could be developed to support medical, nursing and therapy staff to access education and training to progress into advanced practice roles to support the consultant workforce and develop their career progression opportunities.
- Under Option C it will be important that there is a governance structure that aligns to the speciality of stroke and that the hyperacute phase of the stroke pathway is not seen in isolation of the ongoing rehabilitation pathway.
- The impact on staff because of the changes will vary depending on their current place of work and interest. For example, a therapist that specialises in acute stroke care in YDH may wish to consider moving to work within MPH in Option C And D if they want to continue to deliver acute care. If that individual wanted to continue to work in stroke at Yeovil but was able to shift their specialism towards rehabilitation, opportunity would exist for that person to move to one of the Community Stroke Units.

Staff travel:

- Doctor travel has been excluded from this graph, as the numbers are small and therefore identifiable, also several doctors are working as locums.
- Staff travel calculations are shown in the graph below. The graph highlights the current staff mileage from home address to YDH in blue and the mileage from home to MPH in orange.
- For most staff, there is a significant increase in travel to MPH, with over 90% of current staff living within 5 miles of YDH.



- The total home to YDH mileage for staff is 116.5 miles (single journey)
- The total home to MPH mileage for staff is 1516.5 miles (single journey)
- If staff were to be transferred from a base at YDH to MPH, there is likely to be a package of financial compensation to cover the excess mileage, albeit for a defined period.
- Any proposed change in base will be discussed with staff as part of the ongoing engagement. Formal staff consultations will be required as part of organisational changes at the point the programme moves into implementation.

Predicted workforce requirements

The predicted staffing numbers are dependent on the number of HASU and ASU beds.

Consultant staffing[311]

To deliver Option C, the following staffing levels would be required[312], equating to 8 – 9 WTE consultants:

Number of admissions	Hyperacute	ASU	Inpatient Rehab	TIA Clinic	Stroke FU clinic	Additional activities (e.g. MDT meeting/ case conference/ family meetings, teaching)	Thrombolysis / front door assessment including stroke mimic	Total
1200 (Total beds = 52) HASU = 15 ASU/in-pt rehab = 37	23 (8am-8pm, 7 days a week)	7 (daily ward round, 7 days)	5 (includes MDT meetings/family meetings and 2 WR's per week)	12 OPD (2xclinics per day M-F, 1 per day w/e) Triage: **2**	3	MDT meetings: **2.5** Neurorad MDT meetings: **1.5** ESD/Community: **2**	7	**65 DCC's** **8-9 WTE at 10 PA Job Plan**

311 BASP-Stroke-Medicine-Workforce-Requirements-Report-FINAL.pdf.pagespeed.ce.K6If1Ae4ai.pdf (biasp.org)
312 BASP-Stroke-Medicine-Workforce-Requirements-Report-FINAL.pdf.pagespeed.ce.K6If1Ae4ai.pdf (biasp.org)

Once a unit accepts more than 900 stroke patients a year, two consultants will be required at weekends to ensure the service is safely delivered and a true '7-day service' is sustainable.[313]

Nursing and therapy staffing

Nursing staff levels are calculated using the national stroke minimum staffing guidance. In Somerset, the level of Band 6 nursing aligns with the requirements for High Dependency units (HDU) of 1:2 WTE nurses to beds.

Travel

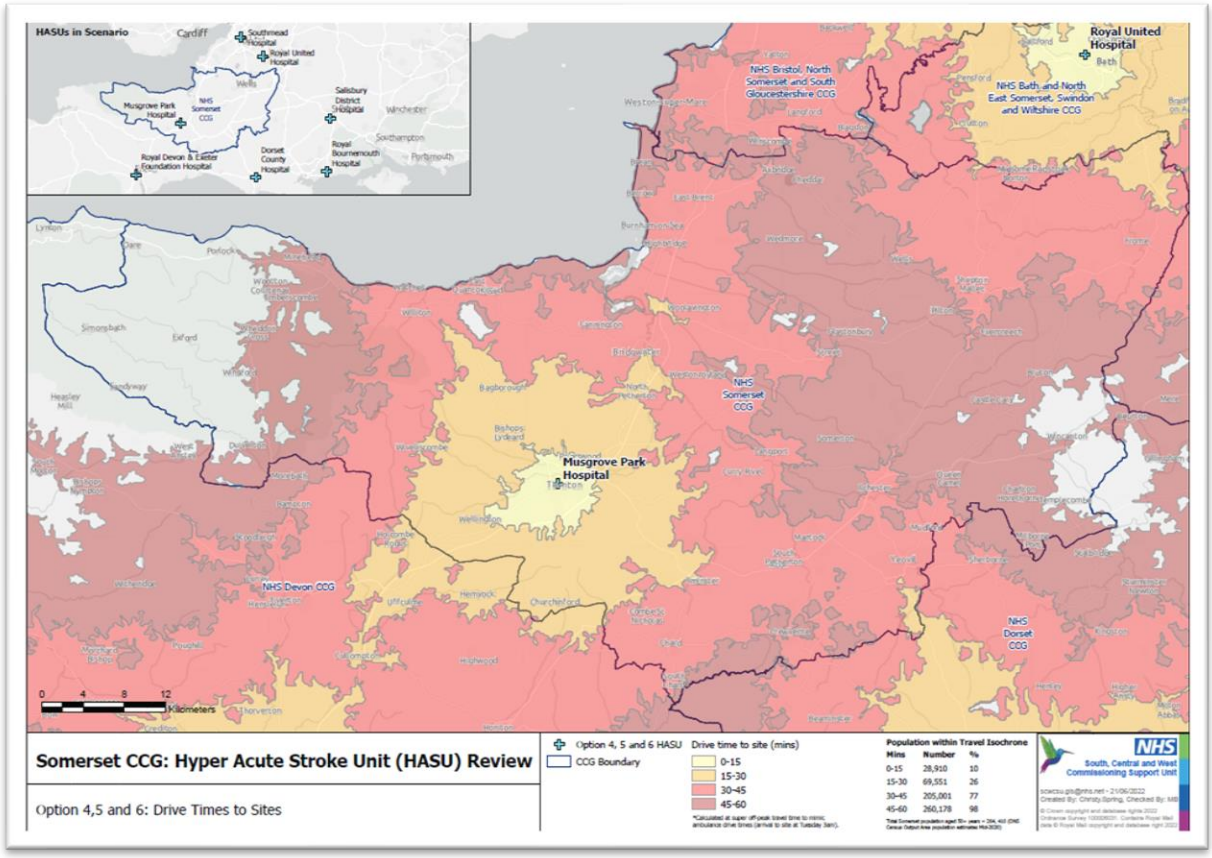
The travel times below are calculated based on road travel at 03:00am on a Tuesday morning. This is a standard proxy measure for "blue light" ambulance travel times.

In this option, people would be transferred to the nearest HASU. For many Somerset residents, this would be Taunton.

It shows that:

- 77% of the population can reach a HASU within 45 minutes.
- 98% can reach a HASU within 60 minutes.

[313] BASP-Stroke-Medicine-Workforce-Requirements-Report-FINAL.pdf.pagespeed.ce.K6If1Ae4ai.pdf (biasp.org)



Impact on journey times: No HASU in Yeovil

The map below shows the impact of not having a HASU in Yeovil on blue-light ambulance journey times, in comparison to current ambulance journey times[314].

This analysis was undertaken using 2021 SSNAP data (excluding stroke mimics).

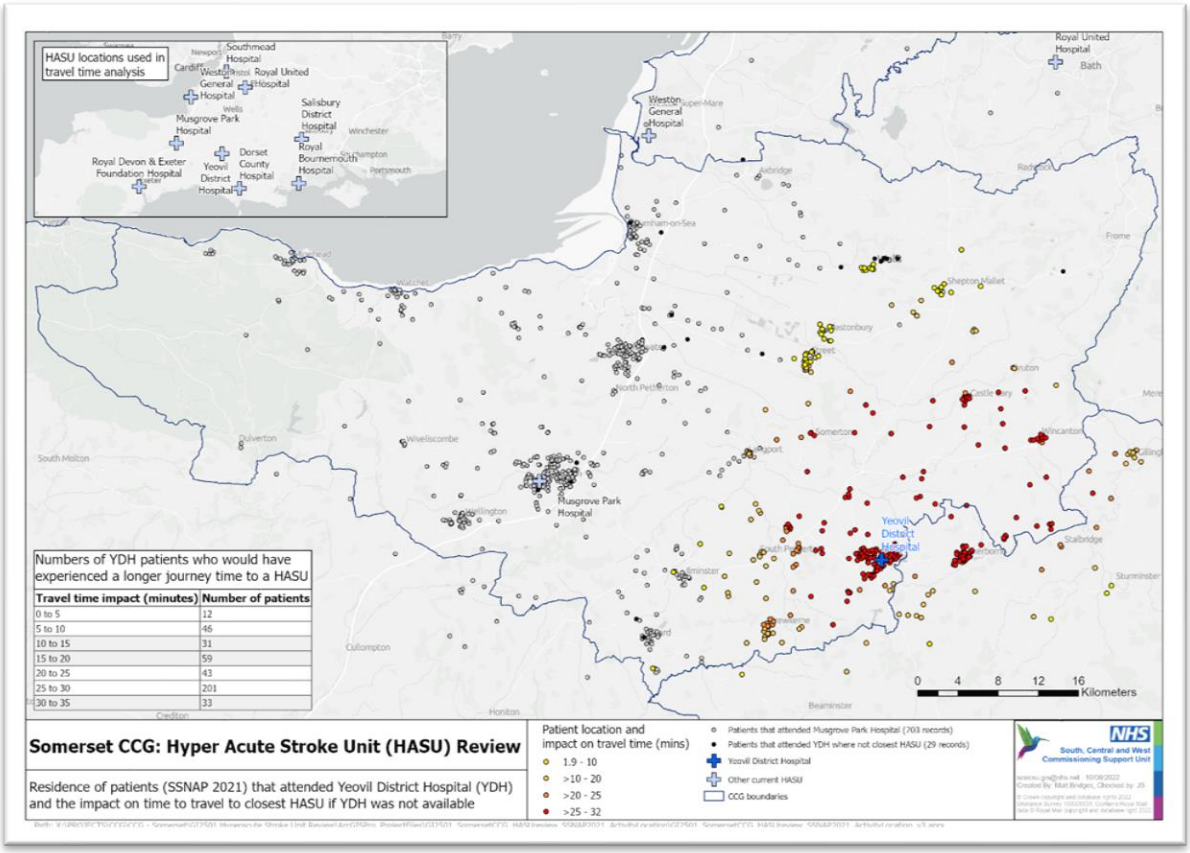
It shows the hypothetical difference in journey times that people would have experienced under this option.

It shows that:

- 12 people would experience less than 5 minutes increase in travel time
- 77 would experience an increase of up to 15 minutes
- 102 would experience an increase of between 15 and 25 minutes
- 201 would experience an increase of 25 – 30 minutes

[314] Journey times are modelled based on a car travelling at 03.00 hours on a Tuesday, which is used a proxy measure for ambulance "blue light" times.

- 33 people would experience an increase of between 30 - 35 minutes



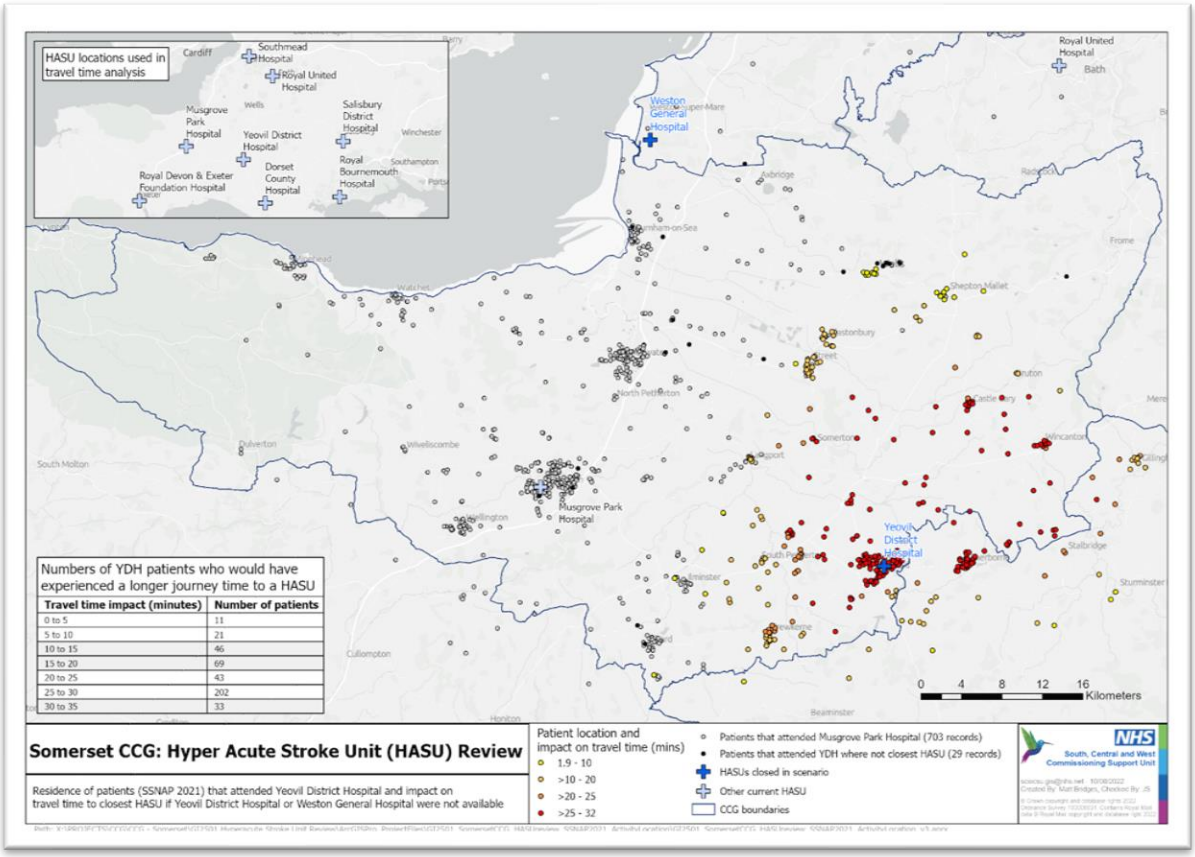
Impact on journey times: No HASU in Yeovil or Weston

The map below shows the impact of not having a HASU in Yeovil or Weston (as per the BNSSG proposals) on ambulance journey times, in comparison to current ambulance journey times[315].

This analysis was undertaken using 2021 SSNAP data (excluding stroke mimics). It shows the hypothetical difference in journey times that people would have experienced under this option.

It shows that:

- 11 people would experience less than 5 minutes increase in travel time
- 67 would experience an increase of up to 15 minutes
- 112 would experience an increase of between 15 and 25 minutes
- 202 would experience an increase of 25 – 30 minutes
- 33 people would experience an increase of between 30 - 35 minutes

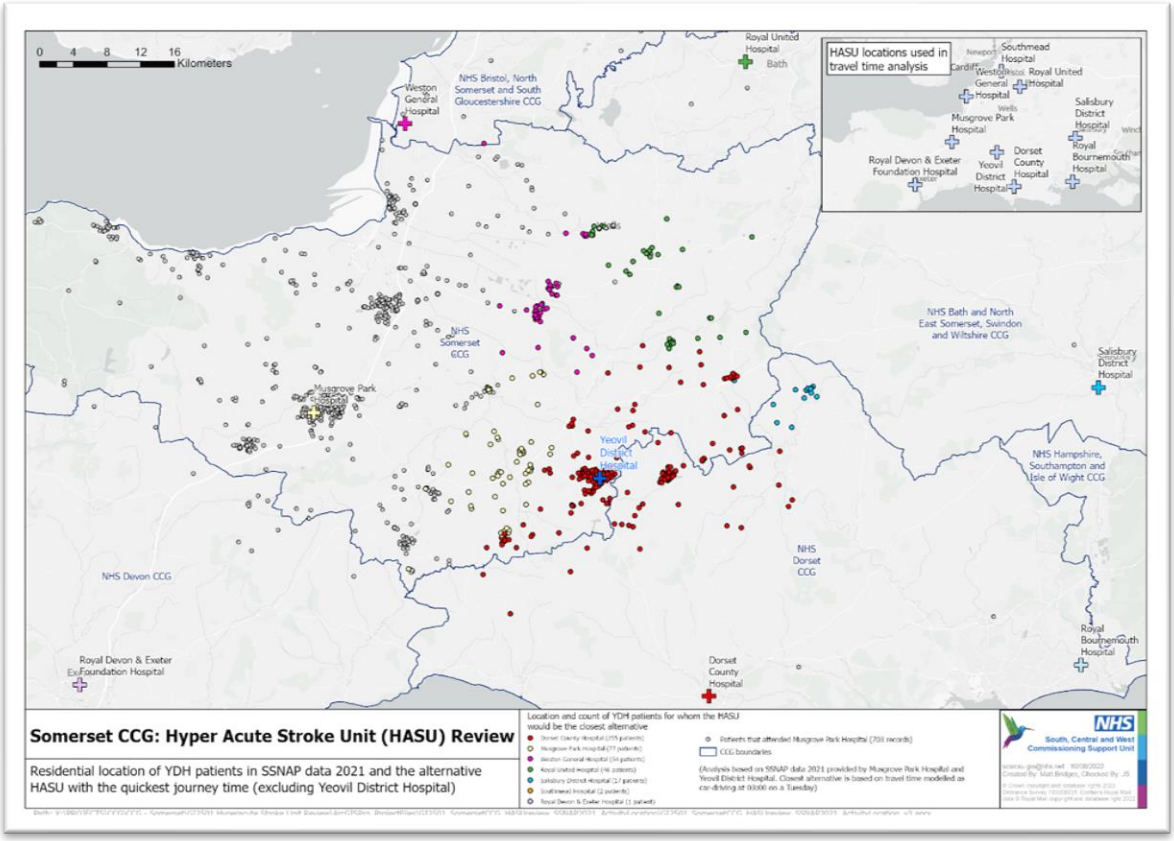


[315] Journey times are modelled based on a car travelling at 03.00 hours on a Tuesday, which is used a proxy measure for ambulance "blue light" times

Impact on closest HASU: No HASU in Yeovil

The map below shows the closest alternative HASU if there was no HASU in Yeovil.

Most of the people for whom Salisbury becomes their nearest HASU are Dorset residents.

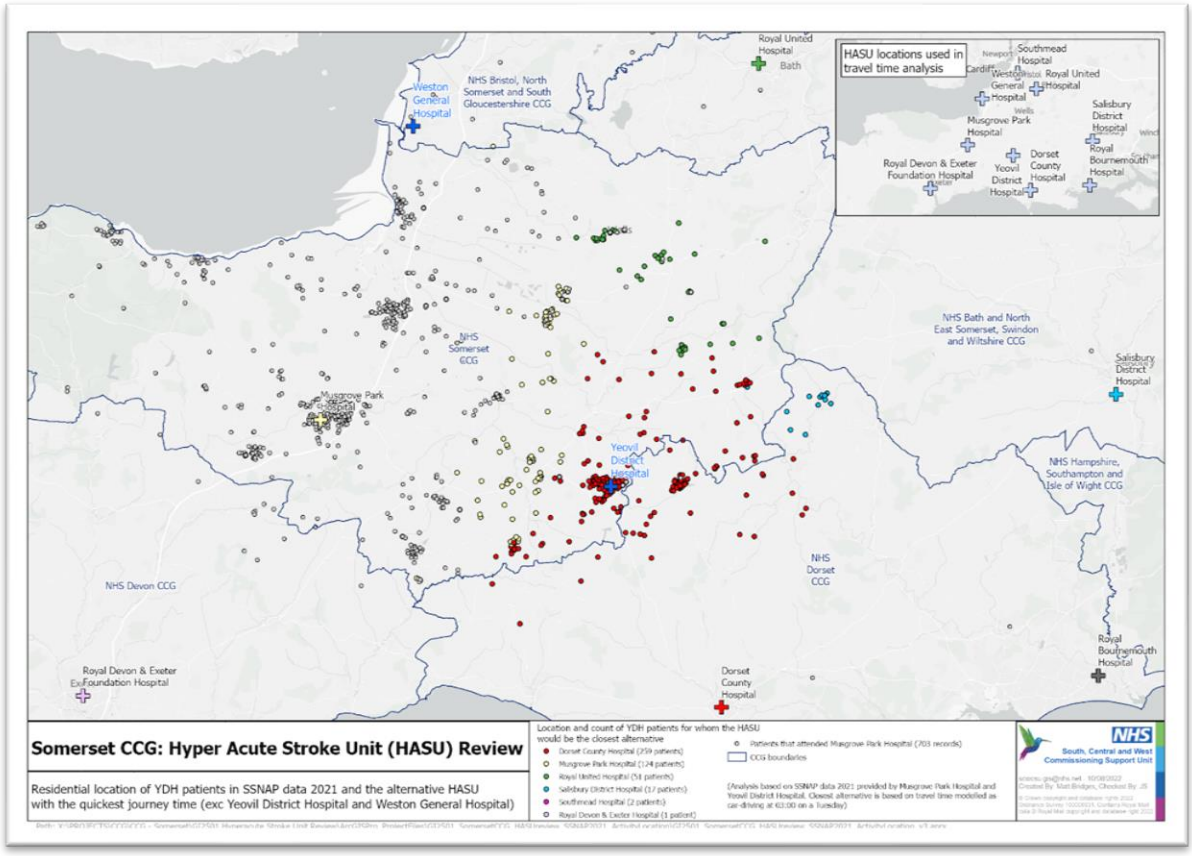


Impact on closest HASU: No HASU in Yeovil or Weston

The map below shows the closest alternative HASU if there was no HASU in Yeovil or Weston (as per BNSSG proposals).

The closure of Weston HASU has most impact on Musgrove Park, with negligible impact on Dorset. There is a slight increase in impact on RUH in Bath, and minimal impact on Southmead in Bristol.

Most of the people for whom Salisbury becomes their nearest HASU are Dorset residents



Equalities

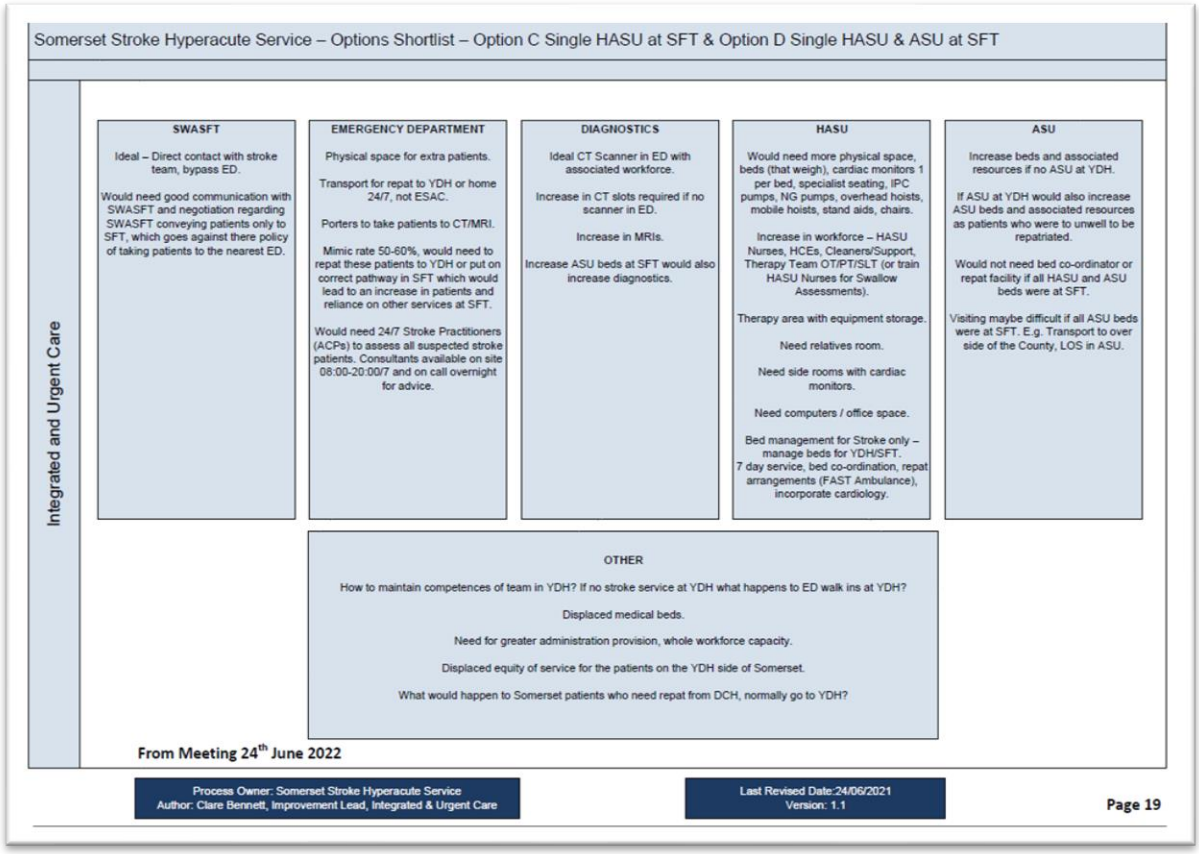
This option would improve equity for patients receiving hyperacute stroke care, as they would all be transported to a single centralised unit where outcomes are likely to be improved.

There would be a negative impact on those carers/relatives who are older people, or in rural areas and more deprived areas in the south of the county (who would normally travel to YDH for their stroke care) as there would be increased travel during the first 72 hours. Access to public transport between Yeovil and Taunton is challenging, especially at weekends and the cost of traveling to Taunton and parking at MPH may be prohibitive for some.

Impact on other services

Interdependencies

The following image detailing the interdependencies and implications of Option C and D was developed with clinical stakeholders in a workshop on 23rd June 2022.



The modelling shows that 172 patients who would normally be conveyed to the HASU at Yeovil District Hospital would instead be conveyed to Musgrove Park Hospital. This equates to an additional 3.3 patients per week (2.4 of whom would be confirmed strokes).

In part, this increased workload will be mitigated through increased specialist stroke staffing cover and through the continued use of direct admission pathways to the stroke unit, for specialist intervention and treatment. The on-site stroke team will ensure that there is opportunity to assess, treat and admit patients rapidly to the HASU from A&E.

Of these 3.3 additional patients with suspected stroke symptoms each week, it is likely that 2.4 patients will have a confirmed stroke and 1 patient will have a stroke-like symptoms that, after assessment turn out to be another “stroke mimic” condition that needs further assessment and treatment.

There would be an additional 370 patients conveyed to Dorset County Hospital instead of Yeovil District Hospital. This equates to an additional 7.1 patients per week (5 of whom would be confirmed strokes). Of these 370 patients, 94 would be Dorset residents, and 276 would be Somerset residents. Somerset residents who required ongoing inpatient stroke care after the initial 72 hours in Dorset

County Hospital HASU would be repatriated to the acute stroke unit in Yeovil District Hospital, or the community stroke recovery unit in South Petherton hospital.

Centralisation of the hyperacute stroke service would enable more rapid assessment, diagnosis, and determination of non-stroke care pathways (such as a Stroke Mimic pathway).

The National Optimal Stroke imaging pathway (see Diagnostics section) helps to facilitate this rapid assessment. Some stroke mimic conditions (e.g., migraine) will have a short length of stay and can be rapidly discharged home. Other patients will need to be admitted to the acute medical unit.

Some patients will need to be repatriated to Yeovil District Hospital following diagnosis.

TIA

The table below describes the implications for the TIA shortlist if "Option C – Single HASU in MPH" was implemented for stroke:

Stroke Option C Single HASU at MPH	**TIA Option A** **7-day service at MPH** **5-day service at YDH**	**TIA Option B** **7-day service at MPH** **7-day service at YDH**
Workforce	• There would be no impact	• There would need to be additional consultant staffing in place to support a 7/7 service. • If this were to be provided from MPH, there would be implications as described in Option B.
Clinical outcomes	• There would be no impact	
Inequalities	• There would be no impact	
Finance	• There would be no impact	

SWASFT

SWASFT is only used is the transport of patients requiring urgent or emergency care, all other transportation and repatriation will be provided by non-emergency patient transport services, such as FAST Ambulance[316]. This reduces pressure on SWASFT and minimises impact on availability and response times. It also ensures there is a dedicated resource available to support timely inter-facility transfers.

People with suspected stroke would continue to be managed through 999 calls as an Emergency Category 2 call. They would be taken to their nearest hospital with a HASU.

In this option, the only hospital in Somerset with a HASU would be Taunton.

[316] F.A.S.T Ambulance Services - Events Medical Services (fast-services.co.uk)

For patients in south Somerset, their nearest HASU may be in Dorset and for patients in northeast Somerset, their nearest HASU may be in Bristol, Bath, or Salisbury.

Patients would remain in Taunton or neighbouring hospital for their hyperacute care and would then be repatriated to YDH for their acute care. Whilst a patient may be able to express a preference about where they receive their acute care (for example remain in the same hospital or return to Yeovil), this will depend on bed availability.

Once acute care has been completed, the patient would be discharged home or transferred to a community hospital (ideally closer to home, although this may not always be possible) for their ongoing rehabilitation. This transfer would be done using patient transport services, not SWASFT as the patients would be medically stable.

Patients receiving hyperacute and acute care in an out of county hospital would be able to express a preference about where they would receive their rehabilitation - based on bed availability and clinical requirements. This transfer would be undertaken through patient transport services, not SWASFT.

For thrombectomy, eligible patients would continue to be transferred by SWASFT from Taunton or Yeovil to Southmead Hospital in Bristol for intervention, as a Category 2 response. This would be conducted under the escalation of care principle. Following thrombectomy, they would then be re-patriated by Retrieve Ambulance[317] to either Taunton or Dorset for their ongoing acute stroke care once a stroke bed is available.

Repatriation and transfers

- Taunton HASU to Yeovil ASU
    - It would be possible to commission an alternative ambulance provider to undertake the repatriation from Taunton to Yeovil for acute care.
    - This is already in place for urgent PPCI management following a heart attack[318] in which patients are transferred from Yeovil to Taunton, and repatriated back again, using the FAST Ambulance Service[319].
    - The cost of a FAST Ambulance transfer is approximately £300[320] and this is charged on a demand-led “pay as you go” basis, rather than a specified daily or weekly volume of activity.

[317] Retrieve is the dedicated Adult Critical Care Transfer Service for South West England. Hosted by University Hospitals Bristol and Weston NHS Foundation Trust and commissioned by NHS England / Improvement South West

[318] An ST segment elevation myocardial infarction (STEMI) is the most serious form of heart attack and requires emergency assessment and treatment. Primary percutaneous coronary intervention (PPCI) is the term for emergency treatment of an STEMI. treatments for heart attack - NHS (www.nhs.uk)

[319] F.A.S.T Ambulance Services - Events Medical Services (fast-services.co.uk)

[320] Awaiting formal costings from FAST

- Requirements are that patients are stable[321] and 24 hours' notice is provided.
- This service would be provided 7 days a week, 08.00 – 20.00 hours.

- RUH or Bristol HASU to Yeovil ASU
  - It would be possible to commission an alternative ambulance provider to undertake the repatriation from RUH or Bristol to Yeovil for acute care.
  - FAST Ambulance Services already provide patient transfers for Bristol and RUH.
  - The cost of a FAST Ambulance transfer is approximately £300[322] and this is charged on a demand-led "pay as you go" basis, rather than a specified daily or weekly volume of activity.
  - Requirements are that patients are stable[323] and 24 hours' notice is provided.
  - This service would be provided 7 days a week, 08.00 – 20.00 hours.
- Post-acute rehabilitation
  - For those requiring ongoing inpatient rehabilitation, they would be transferred by the current patient transport provider – E-Zec - to their nearest community bed.
  - This would primarily be at either South Petherton for people in the south and east of the county, or Williton for those in the north or east of the county – however, that may not always be the case.
- Discharge
  - Once their acute stroke care has ended and patients do not require ongoing hospital-based rehabilitation, for example they will be supported through the Early Supported Discharge Team – they will be discharged to their usual place of residence.
  - This transfer will be provided by carers/relatives, a community car scheme, or the patient transport service - E-Zek – if they are eligible[324].

Musgrove Park Hospital

It is anticipated that MPH would see an increase in activity of between 78 and 124 stroke admissions per year if YDH was to no longer have a HASU on site.

The table below shows how much of the current YDH activity (454 people) would be transferred to MPH if there was no HASU at YDH. It also shows the place of residence (by CCG area) for each of these people (excluding stroke mimics):

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[321] To be defined by FAST and Steering Group
[322] Awaiting formal costings from FAST
[323] To be defined by FAST and Steering Group
[324] Patient transport - Yeovil District Hospital NHS Foundation Trust : Yeovil District Hospital NHS Foundation Trust (yeovilhospital.co.uk)

Activity volumes by site for each modelled option, by geographical area of residence						
		Scenario			Activity change from 'Do nothing'	
Hospital Site	Place of residence	**Option A** Do nothing	**Option C (1)** No HASU YDH WGH open	**Option C (2)** No HASU YDH WGH closed	**Option C (1)** No HASU YDH WGH open	**Option C (2)** No HASU YDH WGH closed
Musgrove Park Hospital	Somerset	645	723	767	+78	+122
	Dorset	3	3	3	0	0
	Other CCG	43	43	45	0	2
	Total	**691**	**769**	**815**	**+78**	**+124**

The table below shows the percentage of current YDH activity (454 admissions) that would be transferred to MPH and their place of residence (based on CCG area):

Proportion (%) of YDH activity (total 454 admissions) that would attend each modelled site based on patients' geographical area (CCG) of residence			
CCG	**Hospital Site**	**Option C (1)** No HASU YDH WGH open	**Option C (2)** No HASU YDH WGH closed
Total	Musgrove Park Hospital	17.2%	27.3%
Somerset CCG residents	Musgrove Park Hospital	21.3%	33.2%
Dorset CCG residents	Musgrove Park Hospital	0.0%	0.0%
Other CCG residents	Musgrove Park Hospital	0.0%	28.6%

Impact on neighbouring systems

Under this option, there will be an impact on the neighbouring health systems, with the greatest impact on Dorset County Hospital.

In summary,

- Over 56% of the current YDH activity (454 people) would be transferred to DCH - around 255 people a year – this is made up of both Dorset and Somerset residents

- RUH would take around 10%, approximately 50 people per year
- With Salisbury picking up less than 4%, around 17 people per year
- There would be negligible impact on Southmead and RD&E.

Full details of the modelling can be found in Appendix 13.

Dorset County Hospital, Dorset

It is anticipated that DCH would see an increase in activity of around 250 – 260 admissions for stroke each year, if YDH was to no longer have a HASU on site.

The table below shows how much of the current YDH activity (454 people) would be transferred to DCH if there was no HASU at YDH. It also shows the place of residence (by CCG area) for each of these people:

		Activity change from 'do nothing'	
Hospital Site	Place of residence	**Option C (1)** No HASU YDH WGH open	**Option C (2)** No HASU YDH WGH closed
Dorset County Hospital	Somerset	+189	+193
	Dorset	+66	+66
	Other CCG	0	0
	Total	**+255**	**+259**

The table below shows the percentage of current YDH activity (454 admissions) that would be transferred to DHC and their place of residence (based on CCG area):

Proportion (%) of YDH activity (total 454 admissions) that would attend each modelled site based on patients' geographical area (CCG) of residence

CCG	**Hospital Site**	**Option C (1)** No HASU YDH WGH open	**Option C (2)** No HASU YDH WGH closed
Total	Dorset County Hospital	56.2%	57.0%
Somerset CCG residents	Dorset County Hospital	51.5%	52.6%
Dorset CCG residents	Dorset County Hospital	82.5%	82.5%

Other CCG residents	Dorset County Hospital	0.0%	0.0%

Dorset are currently developing a business case to support additional funding for their HASU, ASU and rehabilitation beds within the west of the county, at DCH. Whilst this business case was already underway, it is now being developed with the Somerset reconfiguration in mind to ensure their services have adequate capacity to support future growth. It is anticipated that these changes would be operational ahead of any decision being made within Somerset.

Areas for further consideration in relation to impact on Dorset:

- When to repatriate or not for ASU care – consideration of patient choice. Should be having a repatriation conversation at 48 hours into HASU care and patient should be transferred timely after HASU finished.
- There needs to be a pathway for stroke mimics who may be admitted particularly those who may live in Yeovil and have had a SAH, or brain tumour diagnosed as they may not want to be having treatment at Bournemouth.
- Would need to think about whether Yeovil do provide thrombolysis for walk-ins and inpatients, but this should be picked up when the steering group meet with a recommendation on what is best both clinically and for safety.
- If no thrombolysis on Yeovil site, then there would need to be a quick process for referral and a timely transfer ambulance available - Basingstoke and Winchester have done this piece of work so may be good to see what their pathways are.
- Need to consider medical cover on an ASU at Yeovil and this should be picked up at steering group.
- Need to ensure that an ASU at Yeovil remains viable from a staffing point of few and has the right number of beds to continue stroke care at YDH.
- Bristol has a transfer policy around timely transfer which has an escalation process in for any delays and beds would need to be ringfenced for stroke and not used for general medicine.
- Need to consider those patients who may need vascular surgery (carotid endartectomy) as Dorchester do not have a service so patient would go to Bournemouth.

Royal United Hospitals, Bath

It is anticipated that RUH would take around 10% of the current YDH activity and would see an increase in activity of approximately 50 admissions per year if YDH was to no longer have a HASU on site.

The table below shows how much of the current YDH activity (454 people) would be transferred to RUH if there was no HASU at YDH. It also shows the place of residence (by CCG area) for each of these people:

		Activity change from 'do nothing'	
Hospital Site	Place of residence	**Option C (1)** No HASU YDH WGH open	**Option C (2)** No HASU YDH WGH closed
RUH Bath	Somerset	+46	+51
	Dorset	0	0
	Other CCG	0	0
	Total	**+46**	**+51**

The table below shows the percentage of current YDH activity (454 admissions) that would be transferred to RUH and their place of residence (based on CCG area):

Proportion (%) of YDH activity (total 454 admissions) that would attend each modelled site based on patients' geographical area (CCG) of residence			
CCG	**Hospital Site**	**Option C (1)** No HASU YDH WGH open	**Option C (2)** No HASU YDH WGH closed
Total	RUH Bath	10.1%	11.2%
Somerset CCG residents	RUH Bath	12.5%	13.9%
Dorset CCG residents	RUH Bath	0.0%	0.0%
Other CCG residents	RUH Bath	0.0%	0.0%

Weston General Hospital, Weston-Super-Mare

BNSSG are planning to close the HASU at WGH and transfer hyperacute stroke care to Southmead by the end of 2022. However, for completeness, we have modelled the impact of this option on WGH.

It is anticipated that WGH would see an increase in activity of around 55 admissions for stroke each year, if YDH was to no longer have a HASU on site.

The table below shows how much of the current YDH activity (454 people) would be transferred to WGH if there was no HASU at YDH. It also shows the place of residence (by CCG area) for each of these people:

		Activity change from 'do nothing'	
Hospital Site	Place of residence	**Option C (1)** No HASU YDH WGH open	**Option C (2)** No HASU YDH WGH closed
Weston General Hospital	Somerset	+53	0
	Dorset	0	0
	Other CCG	+2	0
	Total	**+55**	**0**

The table below shows the percentage of current YDH activity (454 admissions) that would be transferred to WGH and their place of residence (based on CCG area):

Proportion (%) of YDH activity (total 454 admissions) that would attend each modelled site based on patients' geographical area (CCG) of residence			
CCG	**Hospital Site**	**Option C (1)** No HASU YDH WGH open	**Option C (2)** No HASU YDH WGH closed
Total	Weston General Hospital	12.1%	0.0%
Somerset CCG residents	Weston General Hospital	14.4%	0.0%
Dorset CCG residents	Weston General Hospital	0.0%	0.0%
Other CCG residents	Weston General Hospital	28.6%	0.0%

Southmead Hospital, Bristol

BNSSG are planning to close the HASU at WGH and transfer all their hyperacute stroke care to Southmead by the end of 2022. As such, they have undertaken their own modelling to understand the impact on Somerset services. However, for completeness, we have modelled the impact of this option on Southmead.

It is anticipated that Southmead would see an increase in activity of around 2 admissions for stroke each year, if YDH was to no longer have a HASU on site.

The table below shows how much of the current YDH activity (454 people) would be transferred to Southmead if there was no HASU at YDH. It also shows the place of residence (by CCG area) for each of these people:

Activity change from 'do nothing'			
Hospital Site	Place of residence	**Option C (1)** No HASU YDH WGH open	**Option C (2)** No HASU YDH WGH closed
Southmead Hospital	Somerset	0	0
	Dorset	0	0
	Other CCG	+2	+2
	Total	**+2**	**+2**

The table below shows the percentage of current YDH activity (454 admissions) that would be transferred to Southmead and their place of residence (based on CCG area):

Proportion (%) of YDH activity (total 454 admissions) that would attend each modelled site based on patients' geographical area (CCG) of residence			
CCG	**Hospital Site**	**Option C (1)** No HASU YDH WGH open	**Option C (2)** No HASU YDH WGH closed
Total	Southmead Hospital	0.4%	0.4%
Somerset CCG residents	Southmead Hospital	0.0%	0.0%
Dorset CCG residents	Southmead Hospital	0.0%	0.0%
Other CCG residents	Southmead Hospital	28.6%	28.6%

Salisbury District Hospital

It is anticipated that Salisbury would see an increase in activity of around 17 admissions for stroke each year, if YDH was to no longer have a HASU on site.

The table below shows how much of the current YDH activity (454 people) would be transferred to Salisbury if there was no HASU at YDH. It also shows the place of residence (by CCG area) for each of these people:

Activity change from 'do nothing'			
Hospital Site	Place of residence	**Option C (1)** No HASU YDH WGH open	**Option C (2)** No HASU YDH WGH closed
Salisbury Hospital	Somerset	+1	+1
	Dorset	+14	+14
	Other CCG	+2	+2
	Total	**+17**	**+17**

The table below shows the percentage of current YDH activity (454 admissions) that would be transferred to Southmead and their place of residence (based on CCG area):

Proportion (%) of YDH activity (total 454 admissions) that would attend each modelled site based on patients' geographical area (CCG) of residence			
CCG	**Hospital Site**	**Option C (1)** No HASU YDH WGH open	**Option C (2)** No HASU YDH WGH closed
Total	Salisbury Hospital	3.7%	3.7%
Somerset CCG residents	Salisbury Hospital	0.3%	0.3%
Dorset CCG residents	Salisbury Hospital	17.5%	17.5%
Other CCG residents	Salisbury Hospital	28.6%	28.6%

Impact on carbon footprint

Travel

There will be an impact on carbon footprint because of travel changes within this option. There will be changes in travel in the following groups:

- Ambulance conveyance to nearest HASU (instead of nearest ED) - An average of 31.3 kg of carbon dioxide (CO2) is produced per ambulance response[325]
- Repatriation back from HASU location to YDH
- Increased number of journeys to and from Bristol for thrombectomy
- Staff journeys - HASU staff from YDH potentially working in Taunton
- Staff journeys – increased volume of staff travelling 7 days a week to support minimum staffing levels associated with increased HASU bed numbers
- Family and friends travel to visit relatives in HASU
- Family and friends travel to visit relatives in ASU

The table below shows the difference in number of ambulance journeys and associated mileage under this option, based on travel from the place of residence to the closest HASU (for people who previously attended YDH for their stroke care):

			Number of ambulance journeys	Carbon calculation (Number of journeys x 31.3 kg CO2)	Home to YDH Miles	Closest Alternative Hospital Miles	Journey Change Miles
Current	Initial 999 conveyance to HASU		454	14,210.20	4796.74	n/a	n/a
	Thrombectomy x2 journeys		22	688.60	n/a	n/a	n/a
	Total		**476**	**14,898.80**	**4796.74**	**-**	**-**
Option C	Initial 999 conveyance to HASU		454	14,210.20	n/a	8550.30	+ 3753.61
	Repatriation back to YDH	DCH	250	7,825.00	1153.57	4249.51	+ 3095.94
		MPH	129	4,037.70	1482.25	2161.05	+ 678.85
		RUH	55	1,721.50	1014.54	1222.36	+ 207.81
		SDH	16	500.80	725.43	650.73	- 74.68
		Southmead	3	93.90	306.38	199.55	- 106.84
	Thrombectomy x2 journeys		22	688.60	n/a	n/a	n/a
	Total		**929**	**29,077.70**	**-**	**-**	**7554.69**

[325] The figure of 31.3 kg of CO_2 per response represents the average of all data available from articles included in this study. It is recognised that this figure is an approximation, although it is still a useful estimate of CO_2 produced per ambulance response until further evidence becomes available. Scoping ambulance emissions: recommendations for reducing engine idling time | Journal Of Paramedic Practice

The number of ambulance journeys, carbon calculation and total mileage have almost doubled. This would need to be offset through a range of mitigations, such as a moving towards electric ambulances or increased digitisation elsewhere in the pathway or supporting staff and visitor sustainable travel.

Estates

The impact on carbon footprint from an estate's perspective would be the additional beds and equipment required at MPH. It may be that these are able to be accommodated within the existing footprint, however, to future proof provision, it is likely that capital development will be necessary.

This would need to be offset and mitigated through responsible construction practices, such as developing energy efficient buildings and installation of renewable energy sources on site.

Digitisation

Within this option there may be opportunities for increased use of digital technology to support remote consultations between MPH and YDH, to reduce the impact on staff travel.

However, there may be an increase in staff who transfer to work in the HASU in MPH from YDH, and this would have implications.

Risks with this option

Criteria	Detail	Level of risk
Clinical Outcomes	There would be a significant improvement in clinical outcomes for hyperacute care due to centralisation and timely access to specialists	Low
Workforce	Additional consultant workforce will be required at MPH. A business case is being developed for this (separate to this work). There is a risk that the staff in YDH HASU will not want to transfer to MPH, which leads to increased recruitment needs at MPH. There is a risk that staff in YDH HASU will transfer to MPH or leave, which could destabilise the ASU workforce at MPH.	Medium
Inequalities	This would improve equity for those receiving care. This would have negative impact on carers that are older, in rural or deprived areas due to increase travel costs and accessibility, but it would only be for 72 hours.	Low
Finance	There are capital costs required to establish additional beds. There is loss of income of HASU activity from Somerset into Dorset and other health systems.	Medium

Option D – Single HASU and ASU at Taunton

- All people with suspected strokes are conveyed to the nearest site with a HASU.
- In Somerset, there will be a single county-wide HASU based in Taunton.
- ASU care will be provided at a county-wide site in Taunton.
- People would be repatriated into the community following their acute stroke care.

Model of care

Not all hospitals in Somerset have the latest specialised equipment or resources to provide the best initial, emergency care for people who have had a suspected stroke. This option would ensure that everyone was taken to the nearest hospital with a hyperacute stroke unit to ensure they had access to the best care and treatment immediately.

- This model proposes that there would be a single, centralised hyperacute stroke and acute stroke unit located at Musgrove Park Hospital in Taunton.
- This unit would provide all the hyperacute and acute care in Somerset for people who have had a stroke.
- This would provide a larger and more sustainable specialist stroke workforce, which would enable faster decision making and improved continuity of care 24/7, leading to improved equity of service and improved outcomes.
- 24/7 care is defined as 08:00 – 20:00 in person cover 7-days per week, with on call provision provided overnight. In the short term on-call cover would be provided by the regional network, in the longer term the on-call cover would be provided by a local on call rota (once consultant staffing numbers are stabilised).
- It is possible that this option could include the introduction of a Stroke Recovery Unit (SRU) at YDH. An SRU would provide step-down stroke care for those who do not require the full intervention from the ASU but have a higher level of acuity than could be supported via a community stroke rehabilitation unit.

Minimum requirements to support this option

- ASU beds at Taunton would need to be relocated possibly into Triscombe and medical beds would need to be replaced elsewhere.
- Space for rapid access clinics on the stroke unit would facilitate efficient working to meet the 24 hour standard to be seen with direct access to imaging.
- Dorset would need to have the capacity and workforce to deliver the demand on the stroke service.
- Pathways would need to be in place for those stroke mimics who are not a stroke that meets the best pathway for the patient as close to home as possible particularly for Dorset.
- There will need to be thoughts around transport for relatives and carers.

Somerset Stroke Hyperacute Service – DCH /YDH Discussion Option D

Integrated and Urgent Care

Option D Single HASU & ASU at MPH

- Pathways the same as Option C without repat to YDH.
- Dorset County Hospital would need equal admitting rights to South Petherton.
- Dorset County Hospital would need more rehab beds and additional workforce, including at Yeatman Hospital.
- Yeovil District Hospital would need FAST call number to MPH stroke consultant.
- Medical consultant at YDH for Stroke needed?
- Challenges with family & friends visiting patient visiting if not repat and staying at MPH / DCH. Affect on patient mood, added stress to patients and friends & family.
- Inpatient Strokes & Walk Ins at YDH:
  - What is safe? Move patient to MPH? How if unstable?
  - Who could provide Thrombolysis if required? ED?
  - What patient numbers does this involve?

From Meeting 9th August 2022

Pathways

The following table shows the locations of care and transfer points for patients with a stroke in each of the four main catchment areas of the county:

999 / Ambulance

		Taunton resident at home	Yeovil Resident at home	North-east Somerset resident at home	North Somerset resident at home
999 Ambulance call		Transfer 1	Transfer 1	Transfer 1	Transfer 1
	ED	MPH	MPH DCH	RUH Salisbury	WGH MPH
	HASU	MPH	MPH DCH	RUH Salisbury	WGH MPH
	Thrombectomy	Southmead	Southmead	Southmead	Southmead
	ASU	MPH	MPH DCH	RUH Salisbury	WGH MPH
		Transfer 2	Transfer 2	Transfer 2	Transfer 2
	Rehab	Williton	South Petherton Yeatman	St Martins, Bath South Petherton	WGH Williton
	Discharge	ESD / Home	ESD / Home	ESD / Home	ESD / Home

Walk-in

		Taunton resident in MPH	Yeovil Resident in YDH	North-east Somerset resident in RUH	North Somerset resident in WGH
Walk-in					
	ED	MPH	YDH	RUH Salisbury	WGH MPH
			Transfer 1		Transfer 1
	HASU	MPH	MPH DCH	RUH Salisbury	WGH MPH
	Thrombectomy	Southmead	Southmead	Southmead	Southmead
	ASU	MPH	MPH DCH	RUH Salisbury	WGH MPH
		Transfer 1	Transfer 2	Transfer 1	Transfer 2
	Rehab	Williton	South Petherton Yeatman	St Martins, Bath South Petherton	WGH Williton
	Discharge	ESD / Home	ESD / Home	ESD / Home	ESD / Home

Inpatient

		Taunton resident in MPH	Yeovil Resident in YDH	North-east Somerset resident in YDH	North Somerset resident in MPH
Inpatient admission					
	ED	Assessed by medical registrar supported by stroke consultant remotely			

			Transfer 1	Transfer 1	
	HASU*	MPH	MPH DCH	MPH RUH	MPH
	Thrombectomy	Southmead	Southmead	Southmead	Southmead
	ASU*	MPH	MPH DCH	MPH RUH	MPH
		Transfer 1	Transfer 2	Transfer 2	Transfer 1
	Rehab	Williton	South Petherton Yeatman	South Petherton	Williton
	Discharge	ESD / Home	ESD / Home	ESD / Home	ED / Home

* May not be transferred for HASU or ASU care, depending on primary clinical need

Patient choice

Unless a patient has an Advance Care Plan (ACP) or and Advanced Decision to Refuse Treatment (ADTR), the ambulance service will convey the patient to the nearest HASU.

Minimum specification for hospital without HASU or ASU

For this option to be safely and effectively delivered, a minimum specification is required at Yeovil District Hospital, as follows:

Area	Requirement
ED	• Standardised hyperacute stroke care training and education programme, including administration of thrombolysis • Suspected walk-in strokes assessed by mid-level ED consultant, supported remotely by stroke consultant
In-patients	• Suspected in-patient strokes assessed by medical registrar, supported remotely by stroke consultant
Diagnostics	• 24/7 access to CT head • 24/7 access to CT Angio • 24/7 access to CT perfusion • 24/7 access to Brainomix
Repatriation to HASU	• Transfer by SWASFT to nearest HASU (or straight to Thrombectomy) under escalation of care principles

Activity[326]

The table below shows the predicted stroke unit activity modelling for Option D:

	Hospital Site	Number of stroke attendances – not including mimics				Number of attendances – including mimics			
		WGH Open		WGH Closed		WGH Open		WGH Closed	
			Change from do nothing		Change from do nothing		Change from do nothing		Change from do nothing
Stroke unit activity	Musgrove Park Hospital	769	78	815	124	1,136	109	1,198	172
	Yeovil District Hospital	0	-454	0	-454	0	-647	0	-647
	Dorset County Hospital	255	255	259	259	365	365	370	370
	Weston General Hospital	55	55	0	0	76	76	0	0
	RUH Bath	46	46	51	51	67	67	75	75
	Salisbury Hospital	17	17	17	17	25	25	25	25
	Southmead Hospital	2	2	2	2	3	3	3	3
	Royal Devon & Exeter	1	1	1	1	1	1	1	1
	All Sites	**1,145**	**0**	**1,145**	**0**	**1,673**	**0**	**1,673**	**0**

The table below shows the predicted Emergency Department activity for Option D:

	Hospital Site	Number of stroke attendances – not including mimics				Number of attendances – including mimics			
		WGH Open		WGH Closed		WGH Open		WGH Closed	
			Change from do nothing		Change from do nothing		Change from do nothing		Change from do nothing
ED activity	Musgrove Park Hospital	760	76	805	120	1,684	163	1,777	255
	Yeovil District Hospital	0	-444	0	-444	0	-961	0	-961
	Dorset County Hospital	250	250	254	254	543	543	550	550
	Weston General Hospital	53	53	0	0	112	112	0	0
	RUH Bath	45	45	50	50	99	99	110	110
	Salisbury Hospital	17	17	17	17	39	39	39	39
	Southmead Hospital	2	2	2	2	5	5	5	5
	Royal Devon & Exeter	1	1	1	1	2	2	2	2
	All Sites	**1,129**	**0**	**1,129**	**0**	**2,483**	**0**	**2,483**	**0**

The table below shows the predicted diagnostic activity for Option D:

	Hospital Site	Number of stroke attendances – not including mimics		Number of attendances – including mimics	
		WGH Open	WGH Closed	WGH Open	WGH Closed

[326] See Appendix 13 for details of the modelling assumptions and data caveats.

			Change from do nothing		Change from do nothing		Change from do nothing		Change from do nothing
Diagnostic activity	Musgrove Park Hospital	835	81	882	128	2,314	220	2,438	344
	Yeovil District Hospital	0	-480	0	-480	0	-1,306	0	-1,306
	Dorset County Hospital	271	271	274	274	739	739	749	749
	Weston General Hospital	56	56	0	0	150	150	0	0
	RUH Bath	49	49	55	55	135	135	150	150
	Salisbury Hospital	19	19	19	19	54	54	54	54
	Southmead Hospital	2	2	2	2	6	6	6	6
	Royal Devon & Exeter	1	1	1	1	3	3	3	3
	All Sites	**1,234**	**0**	**1,234**	**0**	**3,400**	**0**	**3,400**	**0**

Beds

There is a requirement for beds to be ringfenced within MPH ASU to ensure that patient flows are not compromised following HASU care. ASU beds should not be occupied by non-stroke patients, and stroke patients should not be stepped down into non-ASU beds to be cared for as outliers. This is to ensure that all stroke patients are managed within clinically optimal settings, supported by a highly skilled workforce throughout their stroke journey.

The table below shows the number of beds required for Option D; this is largely based on the types of beds used by stroke patients in the baseline data used for the modelling and therefore does not necessarily reflect the optimal bed types – in particular where patients occupied non-stroke beds it is likely that some of this bed demand will encompass demand for stroke unit beds (as the patients may not have been able to access a stroke bed and hence occupied a bed in another ward).

Metric	Hospital Site	No HASU/ASU YDH - Weston open		No HASU/ASU YDH - Weston closed		Change from do nothing - Weston open		Change from do nothing - Weston closed	
		No mimics	Including mimics	No mimics	Including mimics	No mimics	Including mimics	No mimics	Including mimics
Beds HASU	Musgrove Park Hospital	7	9	7	10	+1	+1	+1	+1
	Yeovil District Hospital	0	0	0	0	-3	-5	-3	-5
	Dorset County Hospital	2	3	2	3	+2	+3	+2	+3
	Weston General Hospital	0	1	0	0	+0	+1	+0	+0
	RUH Bath	0	1	0	1	+0	+1	+0	+1
	Salisbury Hospital	0	0	0	0	+0	+0	+0	+0
	Southmead Hospital	0	0	0	0	+0	+0	+0	+0
	Royal Devon & Exeter	0	0	0	0	+0	+0	+0	+0
	All Sites	**10**	**13**	**10**	**13**	**+0**	**+0**	**+0**	**+0**

Metric	Hospital Site	No HASU/ASU YDH - Weston open		No HASU/ASU YDH - Weston closed		Change from do nothing - Weston open		Change from do nothing - Weston closed	
		No mimics	Including mimics	No mimics	Including mimics	No mimics	Including mimics	No mimics	Including mimics
Beds ASU	Musgrove Park Hospital	15	15	16	16	+2	+2	+2	+2
	Yeovil District Hospital	0	0	0	0	-8	-8	-8	-8
	Dorset County Hospital	4	4	4	4	+4	+4	+4	+4
	Weston General Hospital	1	1	0	0	+1	+1	+0	+0
	RUH Bath	1	1	1	1	+1	+1	+1	+1
	Salisbury Hospital	0	0	0	0	+0	+0	+0	+0
	Southmead Hospital	0	0	0	0	+0	+0	+0	+0
	Royal Devon & Exeter	0	0	0	0	+0	+0	+0	+0
	All Sites	**21**	**21**	**21**	**21**	**+0**	**+0**	**+0**	**+0**
Beds Non-stroke Unit	Musgrove Park Hospital	3	3	4	4	+1	+1	+1	+1
	Yeovil District Hospital	0	0	0	0	-4	-4	-4	-4
	Dorset County Hospital	2	2	2	2	+2	+2	+2	+2
	Weston General Hospital	1	1	0	0	+1	+1	+0	+0
	RUH Bath	0	0	1	1	+0	+0	+1	+1
	Salisbury Hospital	0	0	0	0	+0	+0	+0	+0
	Southmead Hospital	0	0	0	0	+0	+0	+0	+0
	Royal Devon & Exeter	0	0	0	0	+0	+0	+0	+0
	All Sites	**7**	**7**	**6**	**6**	**-0**	**-0**	**-0**	**-0**
Beds Total	Musgrove Park Hospital	25	27	27	29	+3	+3	+5	+5
	Yeovil District Hospital	0	0	0	0	-16	-17	-16	-17
	Dorset County Hospital	8	9	9	9	+8	+9	+9	+9
	Weston General Hospital	2	2	0	0	+2	+2	+0	+0
	RUH Bath	2	2	2	2	+2	+2	+2	+2
	Salisbury Hospital	1	1	1	1	+1	+1	+1	+1
	Southmead Hospital	0	0	0	0	+0	+0	+0	+0
	Royal Devon & Exeter	0	0	0	0	+0	+0	+0	+0
	All Sites	**38**	**41**	**38**	**41**	**+0**	**+0**	**+0**	**+0**

The table below shows the predicted growth required for beds. These figures include mimics include for both MPH and YDH and are based on actual length of stay.

Note: The figures in brackets are the rounded-up bed numbers to accommodate that staffing ratio of 1 registered nurse to 2 beds.

	Year 0	Year 5	Year 10
HASU beds			
Taunton	10	11 (12)	12
Yeovil	0	0	0
ASU beds			
Taunton	16	18	20
Yeovil	0	0	0
Non-stroke unit beds			
Taunton	4	4	5 (6)
Yeovil	0	0	0

Workforce

Individual staff scenarios will vary considerably across the stroke service and the Stroke Steering Group will, through the health system management teams and workforce leads, work to support all staff through the change process.

Retaining existing staff is a key objective of the reconfiguration programme and success in this area will lead to a successful implementation programme across Somerset.

A separate business case is being developed by SFT to increase their levels of medical staffing. This is to address the existing staffing challenges, but if successful would create greater resilience within the workforce and support the objective of a local 24/7 stroke service.

Impact of Option D on workforce:

- For Option D there may be the option to transfer staff from Yeovil (for example under a TUPE transfer[327]) to the single stroke unit at Taunton. However, staff engagement that has been done to date indicates that staff would not want to transfer from Yeovil to Taunton. Travel analysis indicates most stroke staff from Yeovil live within 10 miles of YDH.
- It may be possible to support staff to transition to Taunton by paying excess mileage and or travel time. However, this would need to be negotiated with HR through a formal staff consultation process.
- A potential mitigation for this would be to explore the development of a stroke recovery unit (SRU) on site at Yeovil. This model would not have the minimum specification standards that

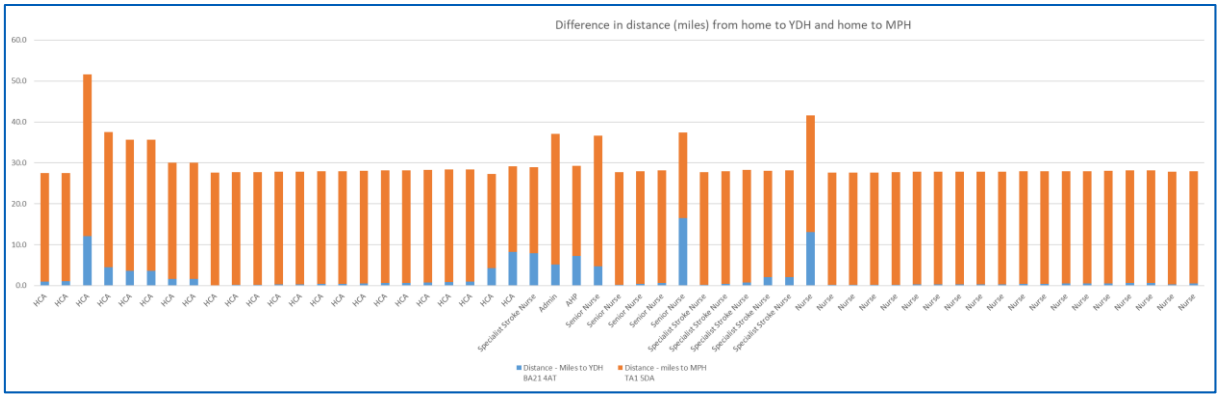
[327] What a TUPE transfer is: Your TUPE rights – employee advice - Acas

are required for an ASU, such as medical staffing cover, and would enable the nursing and therapies skill set to be retained.

- The impact on staff because of the changes will vary depending on their current place of work and interest. For example, a therapist that specialises in acute stroke care in YDH may wish to consider moving to work within MPH in Option C And D if they want to continue to deliver acute care.
- There would be an impact on the YDH therapies workforce, who currently work across both stroke and neurorehabilitation services.
- If staff wanted to continue to work in stroke, but there was no acute or sub-acute stroke service in YDH, there may be an opportunity to transfer to the Community Stroke Unit at South Petherton.

Staff travel:

- Doctor travel has been excluded from this graph, as the numbers are small and therefore identifiable, also several doctors are working as locums.
- Staff travel calculations are shown in the graph below. The graph highlights the current staff mileage from home address to YDH in blue and the mileage from home to MPH in orange.
- For most staff, there is a significant increase in travel to MPH, with over 90% of current staff living within 5 miles of YDH.



- The total home to YDH mileage for staff is 116.5 miles (single journey)
- The total home to MPH mileage for staff is 1516.5 miles (single journey)
- If staff were to be transferred from a base at YDH to MPH, there is likely to be a package of financial compensation to cover the excess mileage, albeit for a defined period.
- Any proposed change in base will be discussed with staff as part of the ongoing engagement. Formal staff consultations will be required as part of organisational changes at the point the programme moves into implementation.

Predicted workforce requirements

The predicted staffing numbers are dependent on the number of HASU and ASU beds.

Consultant staffing[328]

To deliver Option D, the following staffing levels would be required[329], equating to 8 – 9 WTE consultants:

Number of admissions	Hyperacute	ASU	Inpatient Rehab	TIA Clinic	Stroke FU clinic	Additional activities (e.g. MDT meeting/ case conference/ family meetings, teaching)	Thrombolysis / front door assessment including stroke mimic	Total
1200 (Total beds = 52) HASU = 15 ASU/in-pt rehab = 37	23 (8am-8pm, 7 days a week)	7 (daily ward round, 7 days)	5 (includes MDT meetings/family meetings and 2 WR's per week)	12 OPD (2xclinics per day M-F, 1 per day w/e) Triage: 2	3	MDT meetings: 2.5 Neurorad MDT meetings: 1.5 ESD/Community: 2	7	65 DCC's 8-9 WTE at 10 PA Job Plan

Nursing and therapy staffing

Nursing staff levels are calculated using the national stroke minimum staffing guidance. In Somerset, the level of Band 6 nursing aligns with the requirements for High Dependency units (HDU) of 1:2 WTE nurses to beds.

Travel

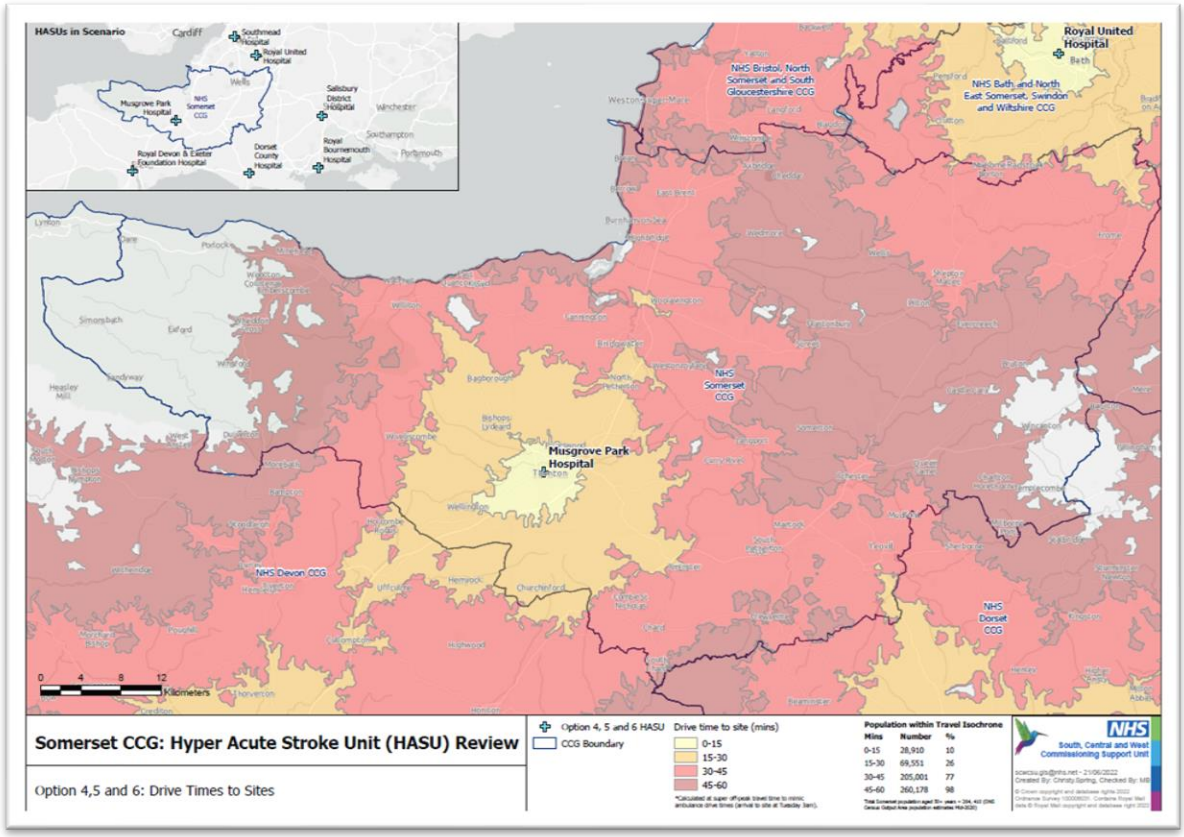
The travel times below are calculated based on road travel at 03:00am on a Tuesday morning. This is a standard proxy measure for "blue light" ambulance travel times.

In this option, people would be transferred to the nearest HASU. For many Somerset residents, this would be Taunton.

It shows that:

- 77% of the population can reach a HASU within 45 minutes.
- 98% can reach a HASU within 60 minutes.

328 BASP-Stroke-Medicine-Workforce-Requirements-Report-FINAL.pdf.pagespeed.ce.K6If1Ae4ai.pdf (biasp.org)
329 BASP-Stroke-Medicine-Workforce-Requirements-Report-FINAL.pdf.pagespeed.ce.K6If1Ae4ai.pdf (biasp.org)



Impact on journey times: No HASU in Yeovil

The map below shows the impact of not having a HASU in Yeovil on blue light ambulance journey times, in comparison to current ambulance journey times[330].

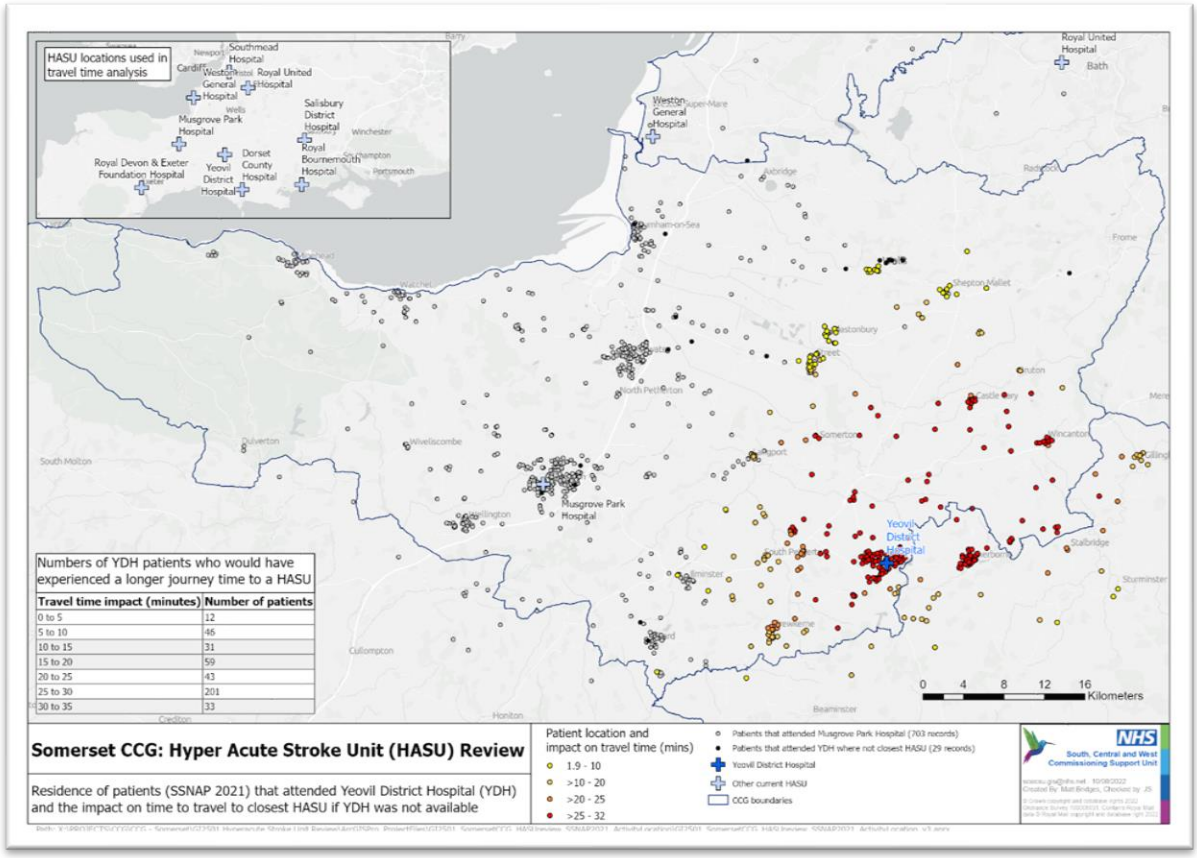
This analysis was undertaken using 2021 SSNAP data (excluding stroke mimics).

It shows the hypothetical difference in journey times that people would have experienced under this option.

It shows that:

- 12 people would experience less than 5 minutes increase in travel time
- 77 would experience an increase of up to 15 minutes
- 102 would experience an increase of between 15 and 25 minutes
- 201 would experience an increase of 25 – 30 minutes
- 33 people would experience an increase of between 30 - 35 minutes

[330] Journey times are modelled based on a car travelling at 03.00 hours on a Tuesday, which is used a proxy measure for ambulance "blue light" times.



Impact on journey times: No HASU in Yeovil or Weston

The map below shows the impact of not having a HASU in Yeovil or Weston (as per the BNSSG proposals) on ambulance journey times, in comparison to current ambulance journey times[331].

This analysis was undertaken using 2021 SSNAP data (excluding stroke mimics).

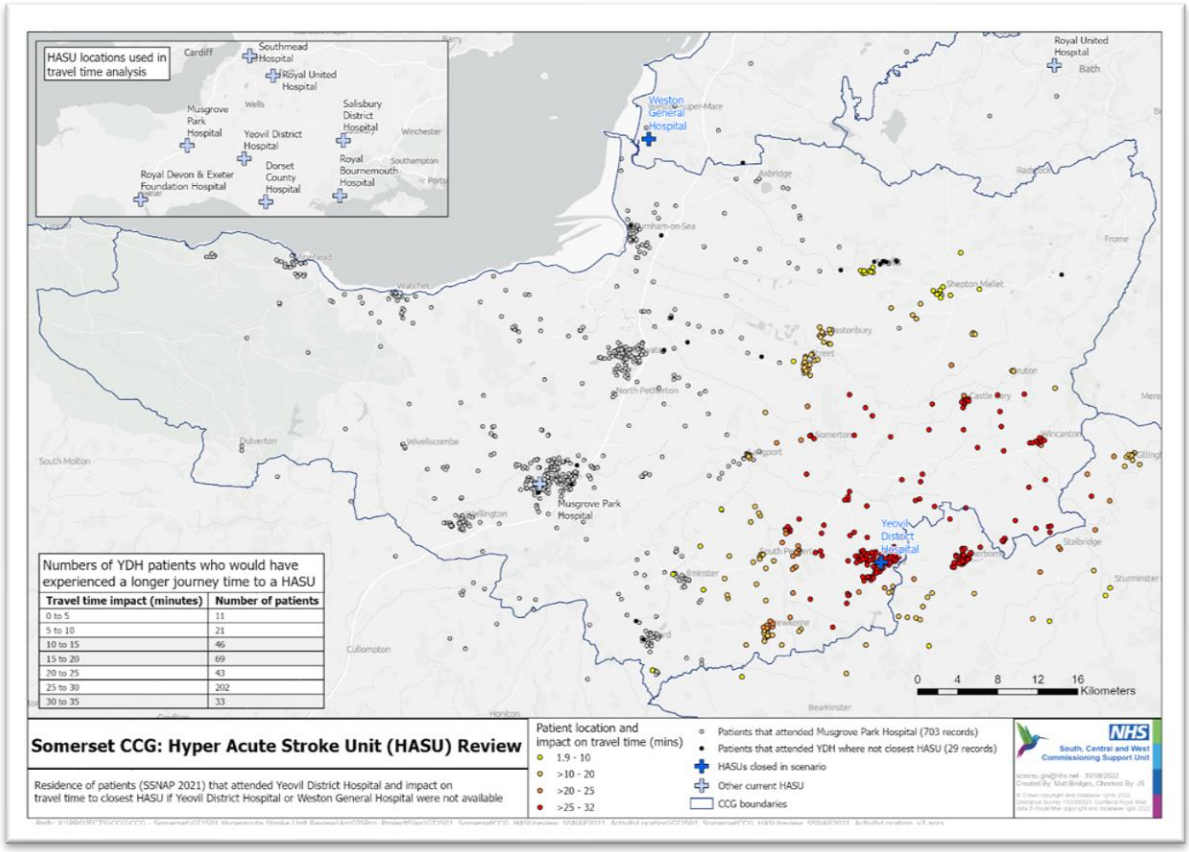
It shows the hypothetical difference in journey times that people would have experienced under this option.

It shows that:

- 11 people would experience less than 5 minutes increase in travel time
- 67 would experience an increase of up to 15 minutes
- 112 would experience an increase of between 15 and 25 minutes
- 202 would experience an increase of 25 – 30 minutes

[331] Journey times are modelled based on a car travelling at 03.00 hours on a Tuesday, which is used a proxy measure for ambulance "blue light" times

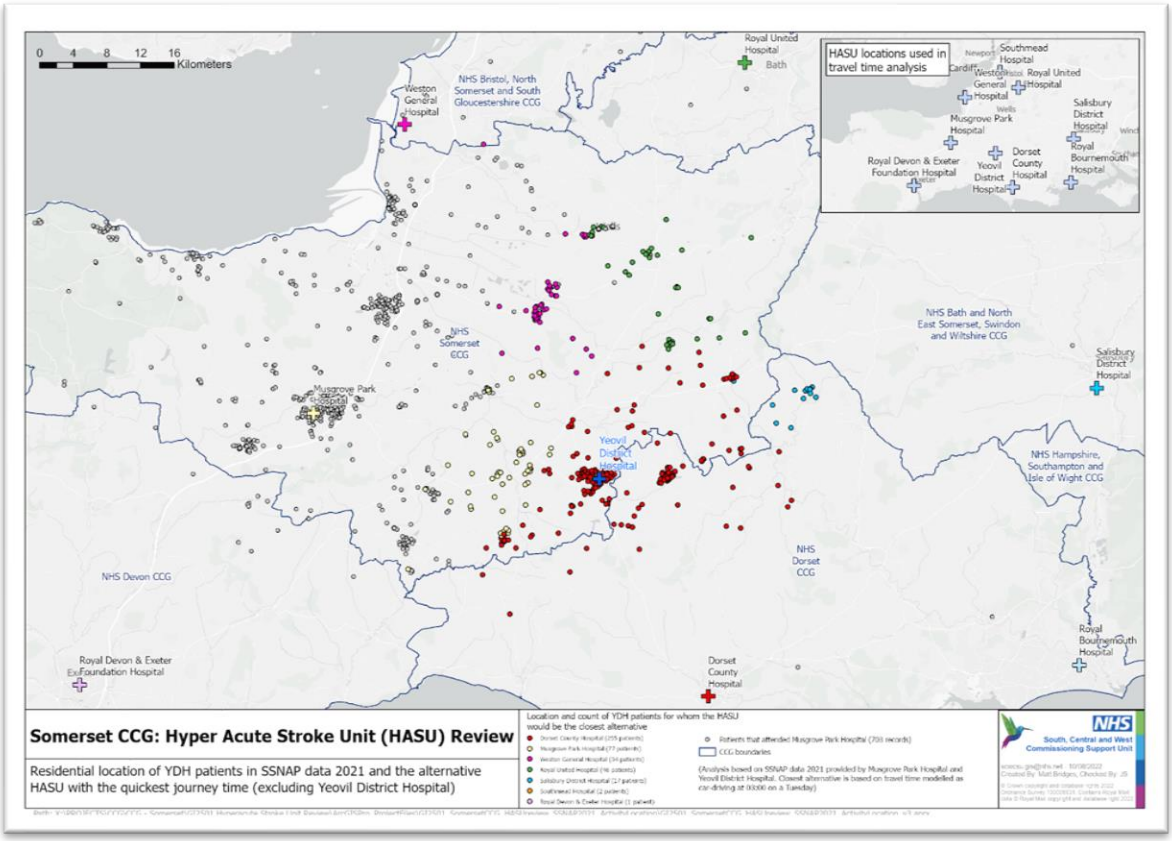
- 33 people would experience an increase of between 30 - 35 minutes



Impact on closest HASU: No HASU in Yeovil

The map below shows the closest alternative HASU if there was no HASU in Yeovil.

Most of the people for whom Salisbury becomes their nearest HASU are Dorset residents.

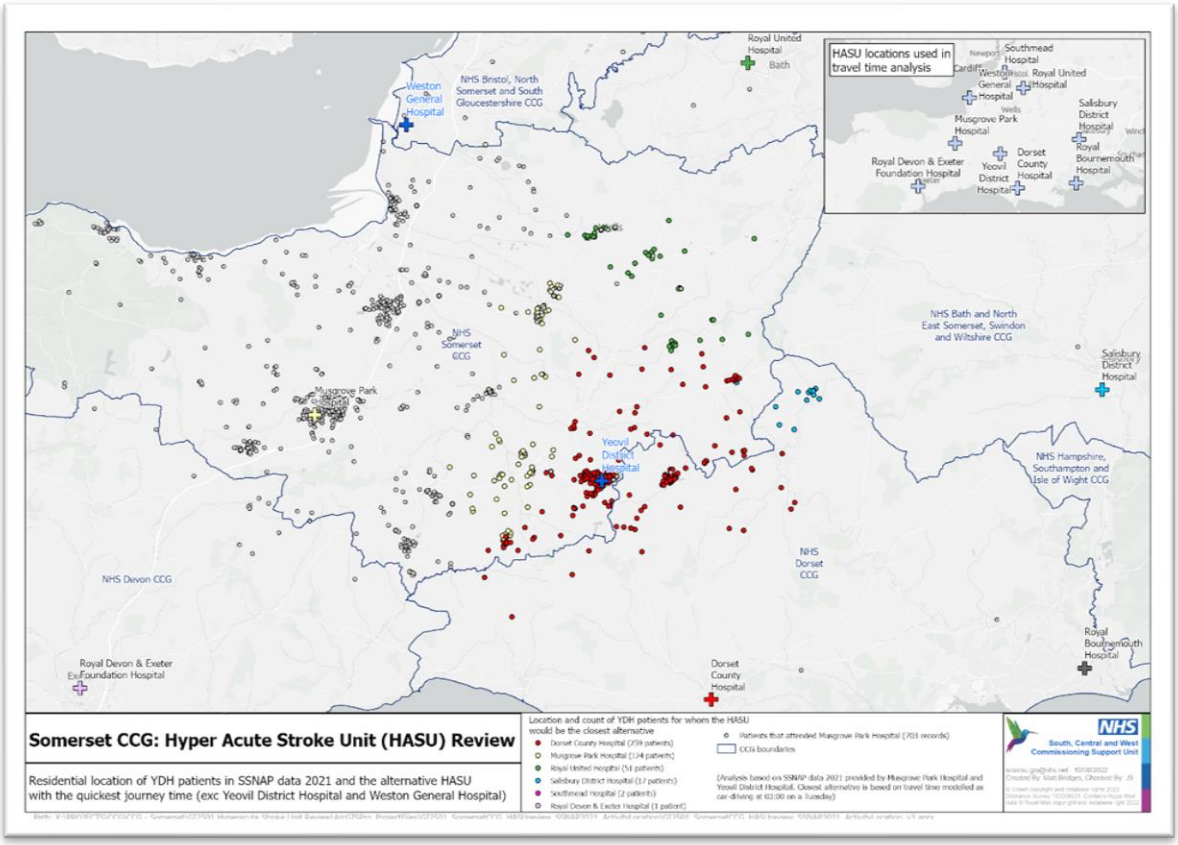


Impact on closest HASU: No HASU in Yeovil or Weston

The map below shows the closest alternative HASU if there was no HASU in Yeovil or Weston (as per BNSSG proposals).

The closure of Weston HASU has most impact on Musgrove Park, with negligible impact on Dorset. There is a slight increase in impact on RUH in Bath, and minimal impact on Southmead in Bristol.

Most of the people for whom Salisbury becomes their nearest HASU are Dorset residents



Equalities

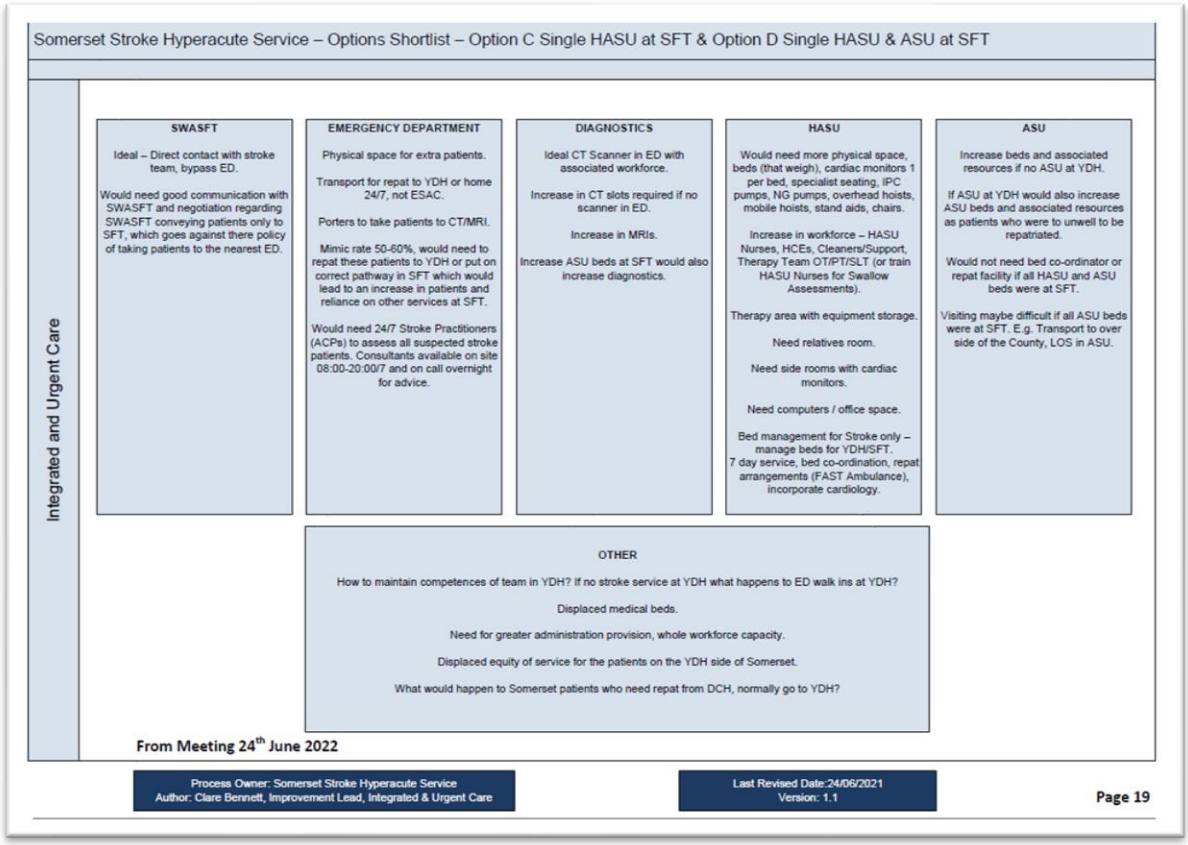
This option would reduce inequity in clinical outcomes by ensuring that all suspected stroke patients are conveyed to the nearest HASU. In this centralised model, this would ensure consistent timely access to specialist assessment, diagnosis, and intervention in the hyperacute phase.

However, there would be a negative impact on carers and relatives, especially those who are older, live in rural areas or are in areas of deprivation, as there would be an increased distance to travel to visit loved ones. This would potentially be for up to 10 days, rather than the 72 hours in Option C. As such, this has a much more significant impact.

Impact on other services

Interdependencies

The following image detailing the interdependencies and implications of Option C and D was developed with clinical stakeholders in a workshop on 23rd June 2022.



The modelling shows that 172 patients who would normally be conveyed to the HASU at Yeovil District Hospital would instead be conveyed to Musgrove Park Hospital. This equates to an additional 3.3 patients per week (2.4 of whom would be confirmed strokes).

In part, this increased workload will be mitigated through increased specialist stroke staffing cover and through the continued use of direct admission pathways to the stroke unit, for specialist intervention and treatment. The on-site stroke team will ensure that there is opportunity to assess, treat and admit patients rapidly to the HASU from A&E.

Of these 3.3 additional patients with suspected stroke symptoms each week, it is likely that 2.4 patients will have a confirmed stroke and 1 patient will have a stroke-like symptoms that, after assessment turn out to be another “stroke mimic” condition that needs further assessment and treatment.

There would be an additional 370 patients conveyed to Dorset County Hospital instead of Yeovil District Hospital. This equates to an additional 7.1 patients per week (5 of whom would be confirmed strokes). Of these 370 patients, 94 would be Dorset residents, and 276 would be Somerset residents. Somerset residents who required ongoing inpatient stroke care after the initial 72 hours in Dorset

County Hospital HASU would be repatriated to the acute stroke unit in Yeovil District Hospital, or the community stroke recovery unit in South Petherton hospital.

Centralisation of the hyperacute stroke service would enable more rapid assessment, diagnosis, and determination of non-stroke care pathways (such as a Stroke Mimic pathway).

The National Optimal Stroke imaging pathway (see Diagnostics section) helps to facilitate this rapid assessment. Some stroke mimic conditions (e.g., migraine) will have a short length of stay and can be rapidly discharged home. Other patients will need to be admitted to the acute medical unit.

Some patients will need to be repatriated to Yeovil District Hospital following diagnosis.

TIA

The table below describes the implications for the TIA shortlist if "Option D – Single HASU and ASU at MPH" was implemented for stroke:

Stroke Option C Single HASU at MPH	**TIA Option A** **7-day service at MPH** **5-day service at YDH**	**TIA Option B** **7-day service at MPH** **7-day service at YDH**
Workforce	• There would be no substantive specialist stroke staff at YDH, therefore a TIA service could not operate there.	
Clinical outcomes	• This would lead to worse outcomes for people from Yeovil who have a TIA	
Inequalities	• There would be an increase in inequity for people living in the Yeovil area who have a TIA	
Finance	• There would be no significant impact on finance	

SWASFT

SWASFT is only used is the transport of patients requiring urgent or emergency care, all other transportation and repatriation will be provided by non-emergency patient transport providers. This reduces pressure on SWASFT and minimises impact on availability and response times. It also ensures there is a dedicated resource available to support timely inter-facility transfers.

People with suspected stroke would continue to be managed through 999 calls as an Emergency Category 2 call. They would be taken to their nearest hospital with a HASU.

In this option, the only hospital in Somerset with a HASU would be Taunton.

For patients in south Somerset, their nearest HASU may be in Dorset and for patients in northeast Somerset, their nearest HASU may be in Bristol, Bath, or Salisbury.

Patients would remain in Taunton (or closest out-of-area hospital) for both their hyperacute and acute care. They would then either be discharged home or transferred to a community hospital (ideally closer to home, although this may not always be possible) for their ongoing rehabilitation. This transfer would be done using patient transport services, not SWASFT as the patients would be medically stable.

Patients receiving hyperacute and acute care in an out of county hospital would be able to express a preference about where they would receive their rehabilitation, however this is determined by bed availability and clinical requirements. Again, this transfer would be undertaken through patient transport services, not SWASFT.

For thrombectomy, eligible patients would continue to may be transferred by SWASFT from Taunton or Yeovil to Southmead Hospital in Bristol for intervention, as a Category 2 response. This would be conducted under the escalation of care principle. Following thrombectomy, they would then be re-patriated by Retrieve Ambulance[332] to either Taunton or Dorset for their ongoing acute stroke care once a stroke bed is available.

Musgrove Park Hospital

It is anticipated that MPH would see an increase in activity of between 78 and 124 stroke admissions per year if YDH was to no longer have a HASU on site.

The table below shows how much of the current YDH activity (454 people) would be transferred to MPH if there was no HASU at YDH. It also shows the place of residence (by CCG area) for each of these people:

Activity volumes by site for each modelled option, by geographical area of residence

		Scenario			Activity change from 'Do nothing'	
Hospital Site	Place of residence	**Option A** Do nothing	**Option C (1)** No HASU YDH WGH open	**Option C (2)** No HASU YDH WGH closed	**Option C (1)** No HASU YDH WGH open	**Option C (2)** No HASU YDH WGH closed
Musgrove Park Hospital	Somerset	645	723	767	+78	+122
	Dorset	3	3	3	0	0
	Other CCG	43	43	45	0	2

[332] Retrieve is the dedicated Adult Critical Care Transfer Service for South West England. Hosted by University Hospitals Bristol and Weston NHS Foundation Trust and commissioned by NHS England / Improvement South West

	Total	**691**	**769**	**815**	**+78**	**+124**

The table below shows the percentage of current YDH activity (454 admissions) that would be transferred to MPH and their place of residence (based on CCG area):

Proportion (%) of YDH activity (total 454 admissions) that would attend each modelled site based on patients' geographical area (CCG) of residence

CCG	Hospital Site	Option C (1) No HASU YDH WGH open	Option C (2) No HASU YDH WGH closed
Total	Musgrove Park Hospital	17.2%	27.3%
Somerset CCG residents	Musgrove Park Hospital	21.3%	33.2%
Dorset CCG residents	Musgrove Park Hospital	0.0%	0.0%
Other CCG residents	Musgrove Park Hospital	0.0%	28.6%

Impact on neighbouring systems

Under this option, there will be an impact on the neighbouring health systems, with the greatest impact on Dorset County Hospital.

In summary,

- Over 50% of the current YDH activity (454 people) would be transferred to DCH - around 255 people a year
- RUH would take around 10%, approximately 50 people per year
- With Salisbury picking up less than 4%, around 17 people per year
- There would be negligible impact on Southmead and RD&E.

Full details of the modelling can be found in Appendix 13.

Dorset County Hospital, Dorset

It is anticipated that DCH would see an increase in activity of around 250 – 260 admissions for stroke each year, if YDH was to no longer have a HASU on site.

The table below shows how much of the current YDH activity (454 people) would be transferred to DCH if there was no HASU at YDH. It also shows the place of residence (by CCG area) for each of these people:

Activity change from 'do nothing'			
Hospital Site	Place of residence	**Option C (1)** No HASU YDH WGH open	**Option C (2)** No HASU YDH WGH closed
Dorset County Hospital	Somerset	+189	+193
	Dorset	+66	+66
	Other CCG	0	0
	Total	**+255**	**+259**

The table below shows the percentage of current YDH activity (454 admissions) that would be transferred to DHC and their place of residence (based on CCG area):

Proportion (%) of YDH activity (total 454 admissions) that would attend each modelled site based on patients' geographical area (CCG) of residence			
CCG	**Hospital Site**	**Option C (1)** No HASU YDH WGH open	**Option C (2)** No HASU YDH WGH closed
Total	Dorset County Hospital	56.2%	57.0%
Somerset CCG residents	Dorset County Hospital	51.5%	52.6%
Dorset CCG residents	Dorset County Hospital	82.5%	82.5%
Other CCG residents	Dorset County Hospital	0.0%	0.0%

Dorset are currently developing a business case to support additional funding for their HASU, ASU and rehabilitation beds within the west of the county, at DCH. Whilst this business case was already underway, it is now being developed with the Somerset reconfiguration in mind to ensure their services have adequate capacity to support future growth. It is anticipated that these changes would be operational ahead of any decision being made within Somerset.

The following aspects require further consideration as part of the ongoing discussions with Dorset colleagues:

- There needs to be a pathway for stroke mimics who may be admitted particularly those who may live in Yeovil and have had a SAH, or brain tumour diagnosed as they may not want to be having treatment at Bournemouth.
- Dorset would need equal admitting rights to South Petherton community stroke unit and ESD under option D and we will need to consider whether we have enough beds or space on ESD.
- Need to consider those patients who may need vascular surgery (carotid endarteccctomy) as Dorchester do not have a service so patient would go to Bournemouth.

Royal United Hospitals, Bath

It is anticipated that RUH would take around 10% of the current YDH activity and would see an increase in activity of approximately 50 admissions per year if YDH was to no longer have a HASU on site.

The table below shows how much of the current YDH activity (454 people) would be transferred to RUH if there was no HASU at YDH. It also shows the place of residence (by CCG area) for each of these people:

Activity change from 'do nothing'			
Hospital Site	Place of residence	**Option C (1)** No HASU YDH WGH open	**Option C (2)** No HASU YDH WGH closed
RUH Bath	Somerset	+46	+51
	Dorset	0	0
	Other CCG	0	0
	Total	**+46**	**+51**

The table below shows the percentage of current YDH activity (454 admissions) that would be transferred to RUH and their place of residence (based on CCG area):

Proportion (%) of YDH activity (total 454 admissions) that would attend each modelled site based on patients' geographical area (CCG) of residence			
CCG	**Hospital Site**	**Option C (1)** No HASU YDH WGH open	**Option C (2)** No HASU YDH WGH closed
Total	RUH Bath	10.1%	11.2%

Somerset CCG residents	RUH Bath	12.5%	13.9%
Dorset CCG residents	RUH Bath	0.0%	0.0%
Other CCG residents	RUH Bath	0.0%	0.0%

Weston General Hospital, Weston-Super-Mare

BNSSG are planning to close the HASU at WGH and transfer hyperacute stroke care to Southmead by the end of 2022. However, for completeness, we have modelled the impact of this option on WGH.

It is anticipated that WGH would see an increase in activity of around 55 admissions for stroke each year, if YDH was to no longer have a HASU on site.

The table below shows how much of the current YDH activity (454 people) would be transferred to WGH if there was no HASU at YDH. It also shows the place of residence (by CCG area) for each of these people:

Activity change from 'do nothing'			
Hospital Site	Place of residence	**Option C (1)** No HASU YDH WGH open	**Option C (2)** No HASU YDH WGH closed
Weston General Hospital	Somerset	+53	0
	Dorset	0	0
	Other CCG	+2	0
	Total	**+55**	**0**

The table below shows the percentage of current YDH activity (454 admissions) that would be transferred to WGH and their place of residence (based on CCG area):

Proportion (%) of YDH activity (total 454 admissions) that would attend each modelled site based on patients' geographical area (CCG) of residence			
CCG	**Hospital Site**	**Option C (1)** No HASU YDH WGH open	**Option C (2)** No HASU YDH WGH closed
Total	Weston General Hospital	12.1%	0.0%

Somerset CCG residents	Weston General Hospital	14.4%	0.0%
Dorset CCG residents	Weston General Hospital	0.0%	0.0%
Other CCG residents	Weston General Hospital	28.6%	0.0%

Southmead Hospital, Bristol

BNSSG are planning to close the HASU at WGH and transfer all their hyperacute stroke care to Southmead by the end of 2022. As such, they have undertaken their own modelling to understand the impact on Somerset services. However, for completeness, we have modelled the impact of this option on Southmead.

It is anticipated that Southmead would see an increase in activity of around 2 admissions for stroke each year, if YDH was to no longer have a HASU on site.

The table below shows how much of the current YDH activity (454 people) would be transferred to Southmead if there was no HASU at YDH. It also shows the place of residence (by CCG area) for each of these people:

Activity change from 'do nothing'			
Hospital Site	Place of residence	**Option C (1)** No HASU YDH WGH open	**Option C (2)** No HASU YDH WGH closed
Southmead Hospital	Somerset	0	0
	Dorset	0	0
	Other CCG	+2	+2
	Total	**+2**	**+2**

The table below shows the percentage of current YDH activity (454 admissions) that would be transferred to Southmead and their place of residence (based on CCG area):

Proportion (%) of YDH activity (total 454 admissions) that would attend each modelled site based on patients' geographical area (CCG) of residence			
CCG	**Hospital Site**	**Option C (1)** No HASU YDH WGH open	**Option C (2)** No HASU YDH WGH closed

Total	Southmead Hospital	0.4%	0.4%
Somerset CCG residents	Southmead Hospital	0.0%	0.0%
Dorset CCG residents	Southmead Hospital	0.0%	0.0%
Other CCG residents	Southmead Hospital	28.6%	28.6%

Salisbury District Hospital

It is anticipated that Salisbury would see an increase in activity of around 17 admissions for stroke each year, if YDH was to no longer have a HASU on site.

The table below shows how much of the current YDH activity (454 people) would be transferred to Salisbury if there was no HASU at YDH. It also shows the place of residence (by CCG area) for each of these people:

Activity change from 'do nothing'			
Hospital Site	Place of residence	**Option C (1)** No HASU YDH WGH open	**Option C (2)** No HASU YDH WGH closed
Salisbury Hospital	Somerset	+1	+1
	Dorset	+14	+14
	Other CCG	+2	+2
	Total	**+17**	**+17**

The table below shows the percentage of current YDH activity (454 admissions) that would be transferred to Southmead and their place of residence (based on CCG area):

Proportion (%) of YDH activity (total 454 admissions) that would attend each modelled site based on patients' geographical area (CCG) of residence			
CCG	**Hospital Site**	**Option C (1)** No HASU YDH WGH open	**Option C (2)** No HASU YDH WGH closed
Total	Salisbury Hospital	3.7%	3.7%
Somerset CCG residents	Salisbury Hospital	0.3%	0.3%
Dorset CCG residents	Salisbury Hospital	17.5%	17.5%

Other CCG residents	Salisbury Hospital	28.6%	28.6%

Impact on carbon footprint

Travel

There will be an impact on carbon footprint because of travel changes within this option – which needs to be fully quantified and assessed.

There will be an increase in travel in the following groups:

- Ambulance conveyance to nearest HASU (instead of nearest ED) - An average of 31.3 kg of carbon dioxide (CO2) is produced per ambulance response[333]
- Increased number of journeys to and from Bristol for thrombectomy
- Staff journeys - HASU and ASU staff from YDH potentially working in Taunton
- Staff journeys – increased volume of staff travelling 7 days a week to support minimum staffing levels associated with increased HASU / ASU bed numbers
- Family and friends travel – to visit relatives in HASU and ASU; proxy calculation e.g., 1 x journey per day for 10 days

Estates

There would be an environmental impact of the option as there would be additional estates capacity required to accommodate the additional and displaced beds and equipment that would be necessary to support a centralised HASU and ASU at MPH.

This may be offset by the reduced requirement for estates upgrades at YDH.

In addition, it may be possible to offset the carbon impact through sustainable building practices, greater energy efficiency within new builds and the installation of renewable energy sources.

Digitisation

There would be minimal opportunity for significantly increasing the use of digital technology solutions within this option, as all stroke services would be based at one a single site.

[333] The figure of 31.3 kg of CO_2 per response represents the average of all data available from articles included in this study. It is recognised that this figure is an approximation, although it is still a useful estimate of CO_2 produced per ambulance response until further evidence becomes available. Scoping ambulance emissions: recommendations for reducing engine idling time | Journal Of Paramedic Practice

Risks with this option

Criteria	Detail	Level of risk
Clinical Outcomes	There would be a significant improvement in stroke clinical outcomes under this option. There would be a risk to TIA outcomes for Yeovil patients under this option, unless a SRU was located at YDH in place of an ASU.	Low
Workforce	There is a risk this option will destabilise the workforce in YDH, by staff leaving the Trust to work in stroke at MPH or DCH or leaving the organisation because of the changes. There is a risk that not enough nursing and AHP staff will transfer to MPH, leaving the service functioning below minimum staffing standards.	High
Inequalities	There would be an increase in inequalities for TIA provision. There would be a negative impact on carers, especially those who are older, live in rural areas or in areas of deprivation.	High
Finance	There would be financial costs associated with capital investment for additional beds at MPH. There would be costs associated with staff travel as part of potential TUPE arrangements. There would be a loss of income associated with the increase in HASU and ASU care being taken out of county.	Medium

15. Finance

Case for change - Change in cost base within Somerset Hospitals

The system in Somerset needs to invest in stroke service to improve workforce sustainability and clinical outcomes for patients, to reduce inequalities and to improve financial sustainability.

The system has assessed the investment required to deliver these improvements, which are costed in Option A1.

Alongside Option A1, each of the shortlisted options detailed in Chapter 14 have been assessed from a financial perspective in comparison with Option A, the current or 'Do Nothing' position.

It is currently assumed that there is no financial impact above that of Option A1, as no patient flows are changed. Whilst there may be some additional costs relating to inefficiencies in travel, this has not been taken forward as the Clinical Senate have advised they are not assured clinically of this option.

The table below summarises the cost differential position within Somerset NHS Foundation Trust and Yeovil District Hospitals NHS Foundation Trust by staff type and organisation of Options A1, C and D:

STROKE BED OPTIONS															
		A		A1		C		D		CHANGE		CHANGE		CHANGE	
		EXISTING								A TO A1		A TO C		A TO D	
No. of beds	HASU	8		14		8		8		6		0		0	
	ASU	31		31		27		19		0		(4.0)		(12.0)	
		WTEs	£'000	WTEs	£'000	WTEs	£'000	WTEs	£'000	WTEs	£'000	WTEs	£'000	WTEs	£'000
THERAPIES	SFT	12.6	573	15.9	733	15.9	733	15.9	733	3.3	160	3.3	160	3.3	160
	YDH	7.1	417	7.1	417	3.7	216	0.0	0	0.0	0	(3.4)	(201)	(7.1)	(417)
		19.7	**990**	**23.0**	**1,150**	**19.6**	**950**	**15.9**	**733**		**160**		**(40)**		**(256)**
NURSING	SFT	42.7	1,852	54.3	2,406	67.9	2,971	67.9	2,971	11.6	554	25.2	1,119	25.2	1,119
	YDH	29.1	1,263	31.8	1,389	12.9	541	0.0	0	2.7	126	(16.2)	(723)	(29.1)	(1,263)
		71.8	**3,115**	**86.1**	**3,795**	**80.8**	**3,511**	**67.9**	**2,971**		**680**		**397**		**(144)**
MEDICAL	SFT	11.0	1,148	13.6	1,536	13.6	1,536	13.6	1,536	2.6	388	2.6	388	2.6	388
	YDH	8.0	699	11.0	1,188	5.3	466	0.0	0	3.0	489	(2.7)	(233)	(8.0)	(699)
		19.0	**1,847**	**24.6**	**2,724**	**18.9**	**2,002**	**13.6**	**1,536**		**877**		**155**		**(311)**
ACPs	SFT	0.0	0	5.3	369	5.3	369	5.3	369	5.3	369	5.3	369	5.3	369
	YDH	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
		0.0	**0**	**5.3**	**369**	**5.3**	**369**	**5.3**	**369**		**369**		**369**		**369**
ADMIN	SFT	2.9	79	3.9	108	6.6	197	6.6	197	1.0	29	3.7	118	3.7	118
	YDH	2.9	78	2.9	78	1.7	47	0.0	0	0.0	0	(1.2)	(31)	(2.9)	(78)
		5.8	**157**	**6.8**	**186**	**8.3**	**245**	**6.6**	**197**		**29**		**87**		**40**
NON PAY	SFT		162		209		209		209		47		47		47
TOTAL		**116.3**	**6,271**	**145.8**	**8,434**	**132.9**	**7,286**	**109.3**	**6,016**	**29.5**	**2,163**	**16.6**	**1,015**	**-7.0**	**(255)**
	SFT	69.2	3,814	93.0	5,361	109.3	6,016	109.3	6,016	23.8	1,548	40.1	2,202	40.1	2,202
	YDH	47.1	2,457	52.8	3,072	23.6	1,270	0.0	0	5.7	615	(23.5)	(1,187)	(47.1)	(2,457)
	TOTAL	**116.3**	**6,271**	**145.8**	**8,434**	**132.9**	**7,286**	**109.3**	**6,016**	**29.5**	**2,163**	**16.6**	**1,015**	**(7.0)**	**(255)**

The table above shows that the cost of providing stroke services in Somerset hospitals. In summary:

- Option A1 is £2.163m more than Option A
- Option C is £1.015m more than Option A
- Option D is £0.255m less than Option A

Change in financial flows across systems

In addition to the cost impact at each Trust, the change in patient flows will alter the financial flows across system boundaries, where it is estimated that patients will be treated at a different provider Trust than they are currently.

In all options, the changes in the configuration of stroke services within the Bristol, North Somerset and South Gloucestershire (BNSSG) ICB, predominantly linked to no stroke provision being provided at Weston Hospital, means that Musgrove Park Hospital will be required to provide stroke services for a cohort of patients previously cared for at Weston Hospital.

Based on the modelling assumptions from BNSSG[334], 94 patients will be admitted to MPH and 162 patients attend the emergency department each year.

Based on an average stroke tariff at £3,702 per patient and average ED attendance at £220 per patient, an additional £0.383m will remain in the Somerset system.

	£		
Full Stroke Tariff	**3,702**		
ED Tariff	**220**		
Patients diverted to MPH rather than UHBW		**Patients**	**£**
Estimated admission		**94**	**347,453**
Estimated ED attendances		**162**	**35,561**
			383,014

In options C and D, the potential changes in the configuration of stroke services within the Somerset system, means that Dorset County Hospital will be required to provide stroke services for a cohort of patients previously cared for at Yeovil District Hospital.

The table below shows the impact of Option C and D on:

- The loss of income to the Somerset system of out of county patients, previously seen at YDH, who will now go to an out of county provider for their stroke care. Based on the modelling, 80 patients will go to DCH and 7 patients to other systems, with financial modelling based on an average stroke tariff at £3,702 per patient.
- The cost to the Somerset system of Somerset patients, previously seen at YDH, who will now go to an out of county provider for their stroke care. Based on the modelling, 193 patients will go to DCH, 51 to RUH Bath and 1 patient to Salisbury FT, with financial modelling based on an average stroke tariff at £3,702 per patient.
- The analysis assumes that 50% of Somerset patients now being admitted to DCH, will repatriate to YDH (option D) or MPH (option C) for their ASU care. We have included an assumption that this will attract a cost 60% of tariff, so the Somerset system would pay £2,221. This assumption needs to be tested.

[334] As detailed in the Somerset Stroke Case for Change document

	£					
Full Stroke Tariff	**3,702**	**Option D**		**Option C**		
ASU Only Tariff	**2,221**					
Out of County Patients no longer admitted to YDH		**Full Tariff**				
		Patients	**£**	**Patients**	**£**	**Notes**
Dorset		80	296,160	80	296,160	Unlikely to repatriate
Other Commissioners		7	25,914	7	25,914	Unlikely to repatriate
Loss of Activity/Income at YDH		**87**	**322,074**	**87**	**322,074**	Loss of income to YDH
Somerset Patients admitted to Out of County providers						
		Patients	**£**	**Patients**	**£**	**Notes**
Dorset County Hospital		193	355,392	96	355,392	Assumes 50% Somerset patients repatriate to YDH ASU.
Dorset County Hospital		97	215,456	97	215,456	Assumes 50% Somerset patients repatriate to YDH/MPH ASU. 40% tariff reduction
RUH Bath		51	188,802	51	188,802	Unlikely to repatriate
Salisbury Hospital		1	3,702	1	3,702	Unlikely to repatriate
Increase in activity/cost to OoC		**342**	**763,352**	**245**	**763,352**	Increase in ICB contract payments to Out of County providers
		Transport		**Transport**		**Notes**
		Patients	**£**	**Patients**	**£**	
		97	52,671	97	52,671	50% repatriation of Somerset patients from DCH to YDH or MPH
				183	92,141	50% repatriation of Somerset patients from MPH to YDH
		97	**52,671**	**280**	**144,812**	
			1,138,097		**1,230,238**	

The table above shows that the change in patient flows in Option C will result in:

- a loss of income to the somerset system of £0.322m because of out of county patients no longer being treated in Somerset, and
- an increased cost to the Somerset Commissioner £0.763m more than Option A, because of more Somerset patients being admitted for Stroke care to out of county hospitals, who previously would have been cared for in Somerset hospitals, and an increased cost to the Somerset system of £0.145m for transport to repatriate several patients back to their local hospital for care.

The table above shows that the change in patient flows in Option D will result in:

- a loss of income to the somerset system of £0.322m because of out of county patients no longer being treated in Somerset, and
- an increased cost to the Somerset Commissioner £0.763m, because of more Somerset patients being admitted for Stroke care to out of county hospitals who previously would have been cared for in Somerset hospitals, and
- an increased cost to the Somerset system of £0.053m for transport to repatriate several patients back to their local hospital for care.

Fast Transport Costing	£			
Repatriation from MPH to YDH				
Service Charge	325		5 hrs @ £65	
Mileage	179		£1.50 pr mile @ 119 miles	
	504			
Repatriation from DCH to YDH				
Service Charge	390		6 hrs @ £65	
Mileage	153		£1.50 pr mile @ 102 miles	
	543			

The above table is the estimated cost of transport for repatriating a patient from MPH or DCH to YDH for their acute stroke care.

Assumptions

This analysis assumes that:

- 50% of Somerset patients now being admitted to DCH, will repatriate to either YDH or MPH for their ASU care. We have included an assumption that this will attract a cost 60% of tariff, so the Somerset system would pay £2,221. This assumption needs to be tested.
- 50% of Somerset patients now being admitted to MPH, will repatriate to YDH for their ASU care.
- The transport costings for repatriating patients from MPH to YDH and DCH to YDH are based on estimated figures provided by FAST Ambulance.

Revenue impact

The overall revenue impact of each option compared to Option A 'Do Nothing', considering the changes in cost base within local Trusts and the financial flow impact of the change in patient flows across commissioner boundaries, is summarised in the table below:

STROKE BED OPTIONS																	
		A		A1		C		D		CHANGE		CHANGE		CHANGE	
		EXISTING								A TO A1		A TO C		A TO D	
No. of beds	HASU	8		14		8		8		6		0		0	
	ASU	31		31		27		19		0		(4.0)		(12.0)	
		WTEs	£'000	WTEs	£'000	WTEs	£'000	WTEs	£'000	WTEs	£'000	WTEs	£'000	WTEs	£'000
THERAPIES	SFT	12.6	573	15.9	733	15.9	733	15.9	733	3.3	160	3.3	160	3.3	160
	YDH	7.1	417	7.1	417	3.7	216	0.0	0	0.0	0	(3.4)	(201)	(7.1)	(417)
		19.7	**990**	**23.0**	**1,150**	**19.6**	**950**	**15.9**	**733**		**160**		**(40)**		**(256)**
NURSING	SFT	42.7	1,852	54.3	2,406	67.9	2,971	67.9	2,971	11.6	554	25.2	1,119	25.2	1,119
	YDH	29.1	1,263	31.8	1,389	12.9	541	0.0	0	2.7	126	(16.2)	(723)	(29.1)	(1,263)
		71.8	**3,115**	**86.1**	**3,795**	**80.8**	**3,511**	**67.9**	**2,971**		**680**		**397**		**(144)**
MEDICAL	SFT	11.0	1,148	13.6	1,536	13.6	1,536	13.6	1,536	2.6	388	2.6	388	2.6	388
	YDH	8.0	699	11.0	1,188	5.3	466	0.0	0	3.0	489	(2.7)	(233)	(8.0)	(699)
		19.0	**1,847**	**24.6**	**2,724**	**18.9**	**2,002**	**13.6**	**1,536**		**877**		**155**		**(311)**
ACPs	SFT	0.0	0	5.3	369	5.3	369	5.3	369	5.3	369	5.3	369	5.3	369
	YDH	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
		0.0	**0**	**5.3**	**369**	**5.3**	**369**	**5.3**	**369**		**369**		**369**		**369**
ADMIN	SFT	2.9	79	3.9	108	6.6	197	6.6	197	1.0	29	3.7	118	3.7	118
	YDH	2.9	78	2.9	78	1.7	47	0.0	0	0.0	0	(1.2)	(31)	(2.9)	(78)
		5.8	**157**	**6.8**	**186**	**8.3**	**245**	**6.6**	**197**		**29**		**87**		**40**
NON PAY	SFT		162		209		209		209		47		47		47
TOTAL		**116.3**	**6,271**	**145.8**	**8,434**	**132.9**	**7,286**	**109.3**	**6,016**	**29.5**	**2,163**	**16.6**	**1,015**	**-7.0**	**(255)**
	SFT	69.2	3,814	93.0	5,361	109.3	6,016	109.3	6,016	23.8	1,548	40.1	2,202	40.1	2,202
	YDH	47.1	2,457	52.8	3,072	23.6	1,270	0.0	0	5.7	615	(23.5)	(1,187)	(47.1)	(2,457)
	TOTAL	**116.3**	**6,271**	**145.8**	**8,434**	**132.9**	**7,286**	**109.3**	**6,016**	**29.5**	**2,163**	**16.6**	**1,015**	**(7.0)**	**(255)**
								Impact of change in patient flows							
								Weston			-383		-383		-383
								YDH					1,230		1,138
								Total increase in system deficit			**1,780**		**1,862**		**500**

The financial modelling suggests that:

- Option A1 would increase the system deficit by £1.780m
- Option C would increase the system deficit by £1.862m
- Option D would increase the system deficit by £0.5m

Summary

	Option A	Option A1	Option B	Option C	Option D
Criteria	**Do Nothing** No change to current model	**Do minimum** Achieve the minimum standards	**Do Minimum** Option A1, with shared medical workforce	**1 HASU at MPH** No HASU in Yeovil	**1 HASU and ASU at MPH** No HASU or ASU in Yeovil
Overall impact	There is no financial impact	There is a financial impact	There is a financial impact	There is a financial impact	There is a financial impact
Cost to deliver	**£6.271m**	**£2.163m** more than Option A	**£2.163m** more than Option A	**£1.015m** more than Option A	**£0.255m** less than Option A
Income from patients from out of county being	There is no loss of income	There is no loss of income	There is no loss of income	Loss in income of **£0.322m**	Loss in income **of £0.322m**

treated in Somerset					
Cost of Somerset patients being treated in other counties	There is no extra cost	There is a cost reduction of **£0.383m**	There is a cost reduction of **£0.383m**	There is a cost of **£0.38m**	There is a cost of **£0.38m**
Cost of repatriation	There is no cost for repatriation	There is no cost for repatriation	There is no cost for repatriation	There is a cost of **£0.145m**	There is a cost of **£0.053m**
Impact on system deficit	No impact on system deficit	Increase system deficit by **£1.78m**	Increase system deficit by **£1.78m**	Increase system deficit by **£1.862m**	Increase system deficit by **£0.5m**

Capital costs

Option C will require additional HASU and ASU capacity to be provided at MPH and additional ASU capacity at YDH, and Option D would require additional HASU and ASU capacity at MPH. This additional capacity would need to be delivered in line with the standards specified in the NHS Adult Inpatient Health Building Notes[335].

To achieve this, there would be capital costs involved to enable expansion to accommodate the additional beds at both MPH and YDH.

The high-level costs for a typical bay - with 4 beds per bay - are as follows:

- £20k - £33k per bay – works only, excluding all other costs
- £29k - £47k per bay – including works and fees, surveys, and OH&P[336]
- £30 - £49k per bay – including for the works, fees, surveys, OH&P, and contingency
- £36k - £59k per bay – including VAT and an allowance for inflation

These costs are based on the following specifications:

- Simple £/m2 rates
- No equipment allowances, e.g., piped oxygen, suction, beds, overhead hoists.
- Works including:
    - Additional hoist rails
    - Removing medical gas outlets

[335] NHS England » (HBN 04-01) Adult in-patient facilities: planning and design

[336] OH&P is overhead and profit. Profit can be defined as the money the project makes after accounting for all costs and expenses; Overheads are the are the calculated costs of running a project. Profit and overheads on construction projects - Designing Buildings

- General redecoration, making good and repair by replacement
- Amending the nurse call system
- Adjusting curtain tracking
- Signage

	Project Details	Dunkery Hyper Acute Stroke Beds				
	Department:	Medicine				
	Name of lead contact(s):	Julie Jones				
	Project Type:	Alteration/Refurbishment/Decant				
	Description of project:	Various Works				
	Version:	1				
	Date:	16.07.2021				
	Floor Area (m2):	65	"TYPICAL BAY"			
	Account code/cost centre:	N/A				
	Authorised signatory:	N/A				
			Budget inc VAT	Budget inc VAT	Budget inc VAT	Budget inc VAT
			0.00	0.00	0.00	0.00
Item	High Level Cost Breakdown		Budget (Lower)	Budget (Median)	Budget (Upper)	Budget (Average)
1	Works Allowance (£/m2 rate)		£19,500.00	£26,000.00	£32,500.00	£26,000.00
2	Abnormals 1 - Med Gas Shutdown		£1,000.00	£1,000.00	£1,000.00	£0.00
3	Abnormals 2		£0.00	£0.00	£0.00	£0.00
4	***Sub-Total 1***		***£20,500.00***	***£27,000.00***	***£33,500.00***	***£26,000.00***
5	Prelims	8.00%	£1,640.00	£2,160.00	£2,680.00	£2,080.00
6	OH&P	8.00%	£1,640.00	£2,160.00	£2,680.00	£2,080.00
7	Fee Allowance	15.00%	£3,075.00	£4,050.00	£5,025.00	£3,900.00
8	Survey Allowance	5.00%	£1,025.00	£1,350.00	£1,675.00	£1,300.00
9	Equipment Allowance	0.00%	£0.00	£0.00	£0.00	£0.00
10	Decant Allowance	5.00%	£1,025.00	£1,350.00	£1,675.00	£1,300.00
11	***Sub-Total 2***		***£8,405.00***	***£11,070.00***	***£13,735.00***	***£10,660.00***
12	***Sub-Total 3 (Sub-total 1 + Sub-total 2)***		***£28,905.00***	***£38,070.00***	***£47,235.00***	***£36,660.00***
13	Contingency Allowance	5.00%	£1,445.25	£1,903.50	£2,361.75	£1,833.00
14	***Sub-Total***		***£30,350.25***	***£39,973.50***	***£49,596.75***	***£38,493.00***
15	VAT	20.00%	£6,070.05	£7,994.70	£9,919.35	£7,698.60
16	VAT Reclaim (assumed to be achievable)	0.00%	£0.00	£0.00	£0.00	£0.00
15	Inflation	10.00%	£3,035.03	£0.00	£0.00	£0.00
17	**Estimated Project Cost**		***£36,420.30***	***£47,968.20***	***£59,516.10***	***£46,191.60***
			-£36,420.30	-£47,968.20	-£59,516.10	-£46,191.60

Equipment costs

To deliver Options C or D, the following equipment would be required to set up the expanded HASU service at MPH, which will be phased over the next 5-10 years: :

Equipment	Quantity	Cost per unit	Total
Cardiac monitors	8	£10,000	£80,000
Beds that can weigh	12	£5,000	£60,000
Telemetry and central monitoring station	TBC	£20,000 – £50, 000	£50,000
ECG machine	1	£6,000	£6,000
Syringe pumps	3	Free of Charge	0
Intermittent Pneumatic Compressions Devices	5	Free of Charge	0
Tympanic thermometers	2	Free of Charge	0
TOTAL			£196,000

The system will need to manage any additional capital and equipment costs within its Capital Prioritisation Process.

16. Conclusions

Summary of the evidence

The table below draws together the conclusions on the performance of the shortlisted options against the criteria and sets it alongside the outcomes of the stakeholder workshops.

	Option A Previously Option 1	**Option B** Previously Option 2	**Option C** Previously Option 5b	**Option D** Previously Option 6B
Criteria	**Do Nothing** No change to current model	**Do Minimum** As for option A, but with shared medical workforce	**1 HASU** Single HASU at Musgrove Park Hospital in Taunton. No HASU in Yeovil. ASU at Taunton and Yeovil.	**1 HASU and ASU** Single HASU and ASU at Musgrove Park Hospital in Taunton. No HASU or ASU at Yeovil
Quality of Care	This option provides no opportunity to improve the clinical outcomes for people who have had a stroke. There would be no change to current performance measures. This option would negatively impact the provision 7-day TIA service in YDH. The 5-day TIA service would be unaffected. **Failure to meet the >600 admissions per year criteria.** **Failure to improve access to time critical interventions.**	This option provides limited opportunity to improve the clinical outcomes for people who have had a stroke. There may be an improvement in access to a specialist for assessment and diagnosis, which may speed up decision making. This option would support the provision of a 5-day or 7-day TIA service in YDH. **Failure to meet the >600 admissions per year criteria.** **Failure to improve access to time**	This would improve equity of access to and quality of hyperacute stroke care, regardless of where people live. All suspected strokes would go to their nearest HASU – this may be in Taunton, or out of county. Clear pathways and a minimum specification would be in place at YDH to ensure people who walk in or are admitted via inpatient routes are not disadvantaged. This option would support the provision of a 5-day	This option is likely to provide the best clinical outcomes. It would improve equity of access to and quality of hyperacute and acute stroke care, regardless of where people live. All suspected strokes would go to their nearest HASU – this may be in Taunton, or out of county. Clear pathways would be in place at YDH to ensure people who walk in or are admitted via inpatient routes are not disadvantaged.

		critical interventions.	or 7-day TIA service in YDH.	This option would negatively impact the provision of a 5-day or 7-day TIA service in YDH.
Access to care	There would continue to be inequitable access to care across sites, which impacts on clinical outcomes. It would not be possible to improve this without changing the way services are delivered. **Failure to meet the equitable access to 24/7 care criteria**	There may be improvements in access to specialist assessment, however this would most likely need to be supported through digital technology, rather than "in person" presence. **Failure to meet the equitable access to 24/7 care criteria**	There would be improved access to specialist assessment and timely follow-up for clinical interventions as decision making would be quicker. Interdependent services (such as diagnostics and therapies) would need to be appropriately resourced to cope with the increased demand centralisation would bring, but this in turn would provide greater flexibility to offer 24/7 cover. There would be a risk to continuity of care because of repatriation between HASU and ASU.	There would be improved access to specialist assessment and timely follow-up for clinical interventions as decision making would be quicker. Interdependent services (such as diagnostics and therapies) would need to be appropriately resourced to cope with the increased demand centralisation would bring, but this in turn would provide greater flexibility to offer 24/7 cover. There would be improved continuity of care, as transfers are reduced, and ASU care would be delivered on the same site.
Workforce	Forthcoming workforce challenges in Yeovil present a significant clinical risk. There are recruitment challenges across both YDH and MPH, and the current model does not appear to attract potential candidates. This is the preferred option for some existing YDH staff; however, they have also acknowledged that it is not a viable	There are currently inadequate staffing levels across YDH and SFT to make this a deliverable option in the short-term. Unlikely to provide a long-term sustainable solution. Shared posts across YDH/MPH have previously not attracted applicants. Risk that this model may destabilise workforce at MPH to	This option is unlikely to destabilise YDH, as most staff would not transfer to MPH. There may be potential to TUPE or second YDH staff into MPH. Additional staff may be required at MPH to deliver this model. There would be more opportunities for rotations between YDH/MPH.	This option is unlikely to destabilise YDH, as most staff would not transfer to MPH. There may be potential to TUPE or second YDH staff into MPH. Stroke staff from YDH would need to be found alternative employment if they chose not to transfer to MPH. Additional staff would be required at

	or clinically safe option.	provide service to YDH. Preferred option for MPH stroke team.	There are opportunities to upskill the non-medical workforce and to create clearer training and development pathways for all staff – including those within YDH, to maintain their skills. Additional recruitment may be required for imaging and therapies. Relationships between YDH and MPH would need to be strengthened. This option may help with recruitment across all staff groups. This is the preferred option of most staff groups.	MPH to deliver this model. There are opportunities to upskill the non-medical workforce and to create clearer training and development pathways for all staff – including those within YDH, to maintain their skills. Additional recruitment would be required for imaging and therapies. This option should help with recruitment across all staff groups as all acute stroke services would be centralised in Taunton. This is the preferred option from SWASFT.
Impact on equalities	There is inequitable provision across Somerset, which impacts outcomes. This would not change under this option.	There would be improved access to specialist assessment, diagnosis and decision making in YDH, however it is possible that this may negatively impact those outcomes in MPH as a result.	This option would ensure equitable hyperacute stroke care is in place for all. There would be potential for choice in where people are to receive ASU care – this would help mitigate inequalities caused by ASU only being provided in Taunton.	This option would ensure equitable hyperacute stroke care is in place for all. There is potential that this option has a negative impact due to both the HASU and ASU care being provided in Taunton – the average LOS is 10 days in total.
Finance	Option A1 would increase the system deficit by £1.78m	There is no further financial change aside from A1.	Increase system deficit by £1.862m	Increase system deficit by £0.5m
Family & carer experience	There would be no change to current carer experience in this option. People would continue to visit and	There would be minimal change to current carer experience in this option.	There is likely to be an impact on current carer experience in this option. There may be confusion about	There would be an impact on current carer experience in this option. Whilst this option provides greater

	be involved in decision making in the same way.	People would largely continue to visit and be involved in decision making in the same way, however, there would be more virtual consultation and assessment. Carers may feel that continuity of care and communication is negatively impacted.	where relatives are at different stages of their care – i.e., HASU to ASU. There is the opportunity for choice in the location of ASU care – which may enable care closer to home. There is a risk associated with lack of continuity of care and subsequent involvement of carers in decision making and recovery support. This was the preferred option with the lived experience group – with improved clinical outcomes being viewed as more important than increased carer travel – as it is only for the hyperacute phase.	continuity of care, the lack of opportunity to repatriate for ASU care is seen as a significant negative. There is concern from lived experience groups and staff about the impact on Yeovil residents being further away from their carers for 10 days.
Deliverability	This option could continue to be delivered within the short-term. However, the pending workforce risks and vulnerability make it unviable in the medium- to long-term.	This option may be delivered within the short-term, although the digital infrastructure is not in place to support it. This is not a viable long-term solution with current staffing levels across both sites.	This option would not be deliverable in the short-term, due to the implications on delivering the required the number of beds and associated staffing requirements. There are implications for out of county providers in this option, primarily Dorset. Significant planning needs to be undertaken collaboratively to ensure that these providers can manage the increased demand.	This option would not be deliverable in the short-term, due to the implications on delivering the required the number of beds and associated staffing requirements. This option would have most impact on staff across both YDH and MPH. There are implications for out of county providers in this option, primarily Dorset. Significant planning needs to be undertaken collaboratively to ensure that these

			There is an impact on SWASFT with potential increased transfers and journey times. Contracting a provider for repatriation would be required. With appropriate investment this option would be deliverable and sustainable in the medium- to long-term.	providers can manage the increased demand. With appropriate investment this option would be deliverable and sustainable in the medium- to long-term.

Ranking the shortlist

The following section ranks each option based on the outcomes of the hurdle criteria assessment, stakeholder assessment of the shortlist and outputs from the modelling.

The table below details the outcome of the ranking that was undertaken with the Stakeholder Reference Group (consisting of those with lived experience) during an engagement event on 25th August 2022. The aim of this session was to rank the four shortlisted options, having had access to additional information such as modelling and workforce, from their least preferred to most preferred. The higher the score the preferable the option, the maximum possible score was 70.

The outcomes of this exercise are detailed below:

Lived experience	Ranking Option A Previously Option 1	Option B Previously Option 2	Option C Previously Option 5B	Option D Previously Option 6B
Person who survived a stroke	1	1	5	9
Carer	1	2	9	5
Carer	2	4	9	3
Person who survived a stroke	1	2	9	9
Healthwatch colleague #1	1	5	5	4
Healthwatch colleague #2	1	3	5	5
Patient Engagement and Experience Manager, Yeovil District Hospital	3	5	5	3
Total	10	22	47	38
Average	1.42	3.14	6.71	5.42

Scale: 1 - least preferred, 10 - most preferred

Average: total / number of people 7

The table below shows the ranking of options from the Steering group members, which was undertaken virtually during September 2022:

Appraisal criteria		Option A	Option B	Option C	Option D
Quality of Care	Does this option ensure all HASUs receive >600 stroke patients per year	0	0	6	6
	Does this option improve access to time critical interventions?	0	1	8	7
	Does this option provide equitable safe and effective care?	2	4	9	7
Access to care	Does this option provide equitable 24/7 access?	2	3	9	7
Workforce	Does this option improve existing staffing levels?	0	1	5	4
	Does this option lead to improved recruitment potential?	0	0	5	3
	Does this option improve workforce sustainability?	0	2	6	4
	Does this option present better opportunities for training and development of staff?	0	2	6	4
	Does this option involve significant change for current staff?	1	4	5	5
Impact on equalities	Does this option reduce existing health inequalities?	0	2	4	3
Finance Completed by finance team	Is this option affordable in the short/medium term?	9	9	1	7
	Is this option affordable in the long term?	9	9	1	7
Family & carer experience	Does this option impact the distance, cost, and time for people to visit those in hospital?	2	4	3	2
	Does this option make it easier for carers to be involved in choices relating to care?	2	4	5	4
Deliverability	Is this option deliverable now, in terms of workforce, estates and cost?	3	0	2	1
	Is this option sustainable for the future, in terms of workforce, estates and cost?	0	0	3	2
	Does this option impact on other co-dependent Somerset services, including ED and imaging?	2	2	2	1
	Does this option impact on neighbouring health systems, including SWASFT, Dorset, etc?	4	5	5	4
Green Plan	Does this option align with and support the ICB Green Plan objectives?	2	2	1	0
	Collective score	29	45	85	71
	Ranked position	**4**	**3**	**1**	**2**

Through this ranking activity, it is clear to see that there is consistency between the views of the Steering Group and Stakeholder Reference Group.

Option C (single HASU at MPH) is the highest scoring option, with option D (single HASU and ASU at MPH) as the second preference. Option B (shared medical delivery team) scored poorly in third place, with Option A (do nothing) ranked lowest by a considerable margin.

Preferred option(s)

Following a thorough assessment process from a wide range of stakeholders, the shortlist has now been reduced and two preferred options have been identified to take forward to consultation:

Option A Previously Option 1	**Option B** Previously Option 2	**Option C** Previously Option 5b	**Option D** Previously Option 6B
Do Nothing No change to current model	**Do Minimum** As for option A, but with shared medical workforce	**1 HASU** Single HASU at Musgrove Park Hospital in Taunton. No HASU in Yeovil. ASU in Taunton and Yeovil.	**1 HASU and ASU** Single HASU and ASU at Musgrove Park Hospital in Taunton. No HASU or ASU at Yeovil
Not taking forward to consultation Failure to meet the >600 admissions per year criteria. Failure to improve access to time critical interventions. Failure to meet the equitable access to 24/7 care criteria	**Not taking forward to consultation** Failure to meet the >600 admissions per year criteria. Failure to improve access to time critical interventions. Failure to meet the equitable access to 24/7 care criteria	**Option to take forward to consultation**	**Option to take forward to consultation**

This was supported and endorsed by:

- Clinical Senate 28/09/22
- SFT/YDH Trust Board 04/10/22
- ICB Executive Committee 05/10/22
- ICB Board 10/10/22

A health equity assessment[337] of the final two options has been undertaken and will underpin the development of the consultation approach and materials[338].

[337] Health Equity Assessment Tool (HEAT) - GOV.UK (www.gov.uk)

[338] HEAT Assessment can be found in Appendix 05.

17. Compliance with NHS 5 Key Tests

The following table provides a summary of the evidence which demonstrates that we have satisfied the requirements for each of the five key tests for significant service change[339]:

	Evidence of compliance

Test 1: Strong patient & public engagement	Continuous patient and public engagement and involvement
	• Development of the initial stroke strategy in 2019
	• Development of options criteria in 2019
	• Development of the Case for Change (C4C) 2022, including review by the Healthwatch Readers Panel
	• Development of the options, from longlisting to shortlisting, including participation through
	  ○ the Stakeholder Reference Group
	  ○ 1-2-1 conversations with people with lived experience and their carers
	  ○ attendance at Stroke Survivor Groups
	  ○ lived experience representation on the Stroke Steering Group
	  ○ the Clinical Reference Group
	  ○ review of proposals by the Clinical Executive Committee
	  ○ presentations to Somerset and Dorset HOSCs throughout the development of the PCBC
	  ○ staff engagement sessions within Somerset and Dorset.
	• Support in preparing for consultation
	  ○ Effective involvement to date has identified concerns around travel and access, which will be specifically addressed within the consultation materials.
	  ○ Procurement of third party to deliver and analyse consultation findings to ensure no bias within the process.

	Stakeholder Reference Group • Formed in 2022 to specifically support the stroke and TIA reconfiguration activity. • Representatives from a range of voluntary sector groups and representatives with a range of different lived experience, including carers. • Supported the review of the longlist for stroke and application of hurdle criteria to inform the development of the shortlist. • Provided “check and challenge” to proposals at every stage of the process. • Provided a mirror back to the system regarding how the case for change is presented and the importance of the use of Plain English to ensure that complex information (whether written of verbal) is made accessible to all. • Comments and feedback have informed the development of the FAQs that will form part of the pack of consultation materials.
	Lived Experience Representation on Steering Group • Rick Hein has lived experience as a stroke survivor. • He has been part of the Stroke Steering Group since its inception. • Whist his stroke and subsequent treatment did not take place in Somerset, he has a wealth pf personal experience which he has been able to share.

[339] planning-assuring-delivering-service-change-v6-1.pdf (england.nhs.uk)

	• He has had full access to the case for change and PCBC throughout. He has contributed to the review of the longlist, application of hurdle criteria and development and refinement of the stroke and TIA shortlists. • He is a key member of the Stakeholder Reference Group. • His contributions have provided valuable insights into the implications (pro's and con's) of the shortlisted options for stroke especially in relation to the impact on carers and relatives of Options C & D. His views regarding the balance between choice / location of HASU services and access to the highest quality care were insightful and helped us to refine how we articulate this to the public. • He has helped to inform the way in which content is being presented, both within presentations, as well as in written formats. This has directly fed into the development of the consultation materials.
	Thematic analysis from patient and public engagement • Waiting times for ambulances - people trust that the hospital they are taken to is the right one, but there are concerns that ambulance arrival times may impact treatment. • Being treated quickly by specialists is preferable in the acute stages, to maximise treatment effectiveness, but there is a desire to return care close to home as soon as possible afterwards. • Being treated close to home matters to the patient, loved ones, carers and friends. Somerset is a difficult place to travel across, especially for those who do not drive and live in rural areas. • Remember to treat the whole person, not just the stroke. Treating people with dignity and respect, respecting choice, management of other health and care needs. • Quality of communication with patient should empower them. Staff need to listen well and avoid making assumptions; no person and no stroke is the same. Need to involve relatives in supporting communication with the patient, especially if they also have dementia. • Include the loved one/carer in conversation with person who has the stroke; there are significant benefits to involving carers and relatives early in the treatment and rehabilitation, especially for those patients who have co-morbidities, such as dementia. • Support for loved ones/carers that is offered/made available. A stroke changes everyone's life - loved ones may suddenly become carers and therefore need treating with empathy and have access to support.

	VCSE involvement
	• Representation on the Stakeholder Reference Group from:
	  ○ The Stroke Association
	  ○ Healthwatch Somerset
	  ○ Yeovil Stroke Club
	  ○ The Alzheimer's Society
	  ○ Millbrook Health, Community Engagement for Wheelchair users
	  ○ Diverse Communities, Community Council for Somerset
	  ○ Diversity Voice
	  ○ Headway Somerset
	  ○ Primary Care Patient Participation Group Chair
	• Supported the review of the longlist for stroke and application of hurdle criteria to inform the development of the shortlist.
	• Provided "check and challenge" to proposals at every stage of the process.
	• Provided a mirror back to the system regarding how the case for change is presented and the importance of the use of Plain English to ensure that complex information (whether written of verbal) is made accessible to all.
	• Comments and feedback have informed the development of the FAQs that will form part of the pack of consultation materials.

	Engagement plan and activity aligned to EIA / HEAT • Local health inequalities data identified areas of greatest need and where we may need to provide targeted interventions.

	• Use of geospatial analysis provided visual representation of data, which can be used to both shape the engagement activity, but also used as a tool within the activity itself, e.g. maps of current activity and travel time analysis. • Review has been undertaken of the targeted health inclusion groups, such as the homeless and Gypsy and Roma communities to ensure we engage with and reach out to these easy to ignore groups. • Ensure our communications accessible to meet the needs of diverse communities. We have easy read versions of our materials.
	Engagement with the local authority and HOSCs[340] • We have attended a number of HOSC sessions within both Dorset and Somerset throughout the development of our proposals for change. • Concerns, questions and feedback provided have been incorporated into our thinking and have been used to inform the development of the consultation FAQs.

	Staff engagement
	• Staff have been involved from across the following organisations throughout the stroke and TIA reconfiguration process:
	  ○ Taunton-based stroke, therapies, imaging and emergency department teams
	  ○ Yeovil based stroke, therapies and emergency department teams
	  ○ Dorset stroke teams
	  ○ South Western Ambulance Services Foundation Trust
	• Involvement has included Clinical Reference Group representation, which has been instrumental in the development of the longlist, shortlist, pathway mapping, clinical model and ideal stroke pathway. This has all directly influenced the development of the proposals.
	• A number of site visits have been undertaken to engage with staff at all levels, including attendance at staff meetings, stroke specific Q&A sessions and 1-2-1 interviews.
	• There have been very mixed responses from staff across Taunton and Yeovil sites, especially in relation to Options C & D, especially in relation to the implications for staff travel.
	• High level travel analysis has been undertaken and a next step for consultation and subsequent DMBC is to explore implications for staff travel further.
	• The outputs of these interactions have directly influenced the development of the final shortlist and the consultation FAQs.

	Healthwatch Somerset • Healthwatch Somerset have been represented on the Stakeholder Reference Group since its inception. They have acted as a critical friend throughout the development of or proposals. • A Healthwatch Readers Panel reviewed the Case for Change document and made a number of recommendations to improve its accessibility ahead of publication as part of the consultation materials. • We will continue to work with Healthwatch to ensure our communication materials and engagement approaches accessible to meet the needs of our diverse communities.
	Consultation • Co-design of the plan and materials working with the Stakeholder Reference Group to ensure we communicate in Plain English and ensure we reach out effectively within our consultation activity • The consultation delivery plan encompasses a specific approach to ensuring inclusion of those impacted by health inequalities. This includes active engagement in localities and neighbourhoods identified as experiencing high levels of deprivation.
	MPs and Councillors

[340] See Appendix 03e

	• Engagement to deliver the consultation will work with identified local leaders including MPs and Councillors to ensure they are involved and informed of content. • They will specifically be engaged in planning and delivery of public engagement events in Yeovil and Taunton that speak to impacted communities. • Local councillors have been involved to date through the meetings with Somerset HOSC
Test 2: Consistency with current & prospective need for patient choice	Emergency care • Advice sought from Clinical Senate, NHSE the Somerset ICB solicitors regarding the implications for choice within hyperacute stroke services. • Guidance is that choice is overridden by need for high quality clinical care. • This was discussed within the Stakeholder Reference Group, who concurred that access to the right treatment to prevent or minimise the impact of a stroke was more important than having a choice about where to receive treatment. • Consideration has been given within the PCBC to those who have an advance care plan in place or who have a stroke whilst an inpatient in a non-HASU site. • These issues may be addressed via the consultation FAQs.
	Travel Impact Assessment • Travel analysis has been undertaken and whilst there will be an increase in travel time to the nearest HASU for some residents, this will be offset by the improvements in timely access to specialist assessment and interventions, which will ultimately lead to improved outcomes. • This view was supported fully by our Stakeholder Reference Group.
	EIA/HEAT and Rurality • Somerset is a rural county, with 42% of the population living rurally. • Travel time and ease of access to many services is therefore adversely affected. • Whilst people may prefer to have routine treatment and care provided locally, there is a need for urgent and emergency care, such as that for stroke, to be provided in fewer specialised centres. • This view was supported fully by our Stakeholder Reference Group however will be tested further through the consultation process, which will involve targeted engagement within rural communities.
	TIA • Under proposals there is the option for people to choose to travel from YDH to MPH for weekend TIA clinics, in the event of a 5-dy service provision in YDH. • Experience suggests people may choose not to travel to Taunton if there was not a 7-day service at Yeovil. • The implications of this choice would be clearly explained to those making this decision.
	Rehabilitation • Greater levels of choice may be available at different parts of the stroke pathway, for example within acute stroke care and rehabilitation services. However, this remains dependent on the availability of beds. • This will be discussed as part of the consultation process.
Test 3: Clear, clinical evidence base	Case for change • There is a strong, clear clinical evidence base provided to support the rationale for change. • This has been supported by the Clinical Senate and Clinical Executive Committee.
	Clinical leadership • There is strong clinical leadership within the reconfiguration programme from Dr Rob Whiting. He is a practising stroke consultant and Clinical Lead for Stroke • He is supported by a strong cross-agency, multidisciplinary clinical team that are represented through the Stroke Steering Group and Clinical Reference Group.

	Development of the options • The application of the evidence base has been used throughout the stroke and TIA reconfiguration process and has been integral to the process of developing the longlist through to the final shortlist. The evidence has been used to assess the options against a set of “pass / fail” hurdle criteria and the development of minimum specification criteria for HASU and ASU provision. • The evidence has been reviewed and , where appropriate, challenged by the Clinical Senate and NHSE South West Clinical Network for Cardiovascular Disease
	Outcomes and benefits • Through the application of robust evidence to support our case for change, we have been able to articulate a clear benefits realisation approach, which includes a range of objective clinical measures of improvement.

Test 4: Support for proposals from clinical commissioners	Internal governance and assurance
	• We have a strong internal governance process, which has ensured that the proposals have been taken through the following routes for information, endorsement or approval before reaching the final preferred options:
	  ○ FFMF Programme Board
	  ○ ICB Executive Committee (Previously Clinical Executive Committee)
	  ○ ICB Board
	  ○ SFT/YDH Joint Board in Common
	  ○ Health and Wellbeing Board – JSNA / JHWS
	  ○ Clinical Reference Group
	  ○ Somerset People Board for Health and Social Care
	  ○ Somerset Directors of Finance
	  ○ ICS Strategic Estates Group
	  ○ Somerset Digital Strategy Group
	  ○ Inequalities Steering Group

	Partnership working across organisations and systems has been at the heart of our approach • Dorset – We have representatives from Dorset ICS and Dorset County Hospital within our Steering Group and Clinical Reference Group. In addition, we have presented to Dorset HOSC together with our Dorset colleagues. We are aware of the impact of our changes on the Dorset system as a result of our proposals, and vice versa. As such close partnership working has been critical. In addition, we are seeking to engage with the NHSE Regional team to look at how we can work more effectively across system boundaries to support innovative approaches to delivering service change. We have received a letter of support from the Dorset system for our work. • SWASFT - We have representatives from SWASFT within our Steering Group and Clinical Reference Group. Our ambulance data has been reviewed and endorsed by SWASFT to ensure it is accurate and recognised. We have been able to identify the impact of different options on SWASFT and tested this with our colleagues. We have received a letter of support from SWASFT for our work. • BSW and BNSSG have been involved in he development of our proposals, and we are aware of the impact of our work on their systems, and vice versa. We have received letters of support from both systems. • NHSE regional team have been supporting us with the development of our proposals and ensuring that we are maximising opportunities to work collaboratively across systems to achieve the best outcomes.
	Finance • The Somerset ICS has considered the financial impact of each proposal, in terms of both capital and revenue, and these are documented in the finance section. • The Somerset ICS has a high degree of confidence that it would be capable of delivering each option as proposed, each option does not imply an unsustainable level of capital expenditure and/or projected spend profiles that cannot be reconciled to available resources and will not be affordable in revenue terms.

	Health inequalities • Somerset ICS is aware of their duties under the Equality Act 2010 regarding the public sector equality duty (PSED) and our duty to reduce health inequalities, and duties under the NHS Act 2006 (amended in 2012). • We have identified potential impact of our proposals on health inequalities through the completion of an EIA and HEAT.
	Joint Strategic Needs Assessment • Our proposals have a clear alignment to both the JSNA and JHWS

	External assurance
	• We have engaged with NHSE Regional team and the Clinical Senate throughout the development of our proposals. This has ensured we have been able to address any areas of concern and strengthen our approach, to ensure it is adherent to national guidance and best practice approaches for significant service change.
	• We have participated in the following formal checkpoints, as well as a number of informal meetings:
	  ○ Stage 1 - Strategic sense check with NHSE
	  ○ Stage 2 - Assurance checkpoint
	  ○ Clinical Senate - Desktop Review
	  ○ Clinical Senate - Clinical Review Panel

Test 5: NHS beds test / patient care test	This this key service change test is not applicable to our adult acute stroke service reconfiguration proposals as there will be no overall reduction in bed numbers across the system, although the location of the beds might be different.

18. Consultation

Public consultation will be undertaken in line with NHS England guidance on ‘Planning, assuring, and delivering service change for patients’ and with support from The Consultation Institute.

There is a requirement for full patient and public engagement to understand the needs and wishes of the Somerset population to any proposed changes. This will build on previous engagement activities carried out prior to and since publication of the 2019 stroke strategy.

The aim is to create meaningful engagement with local people and stakeholders to involve them in deliberations about the future configuration of acute stroke services in Somerset. The approach will be responsive and proportionate to the whole community.

Throughout this journey we want to include people and communities and use their feedback to inform our thinking and solutions.

We initially established the Somerset Stroke Transformation Steering Group which included clinical and managerial representation from both acute providers, Somerset CCG and the FFMF programme, The Stroke Association, SWASFT and Dorset health and care system.

We have since expanded the membership of this group, now called Stroke Steering Group, to include people with lived experience of stroke and colleagues from Healthwatch. This is to ensure the patient voice is embedded in the development of hyper acute stroke services.

The programme Equality and Impact Assessment has enabled the programme team to identify key stakeholders from all relevant patient groups to ensure they are fully informed and can support development of the proposals.

A pre-consultation engagement and communications plan is in place which will ensure that all key stakeholders, including those with lived experience and the public, are actively engaged with the proposed plans and will be continually reviewed and updated as the programme progresses.

A draft consultation plan has been developed, which builds on the engagement activity already undertaken[341].

Aims of the consultation

Our aim is to create meaningful discussions with local people and stakeholders, where people have a genuine opportunity to influence our work, to involve them in public consultation about the future configuration of acute hospital-based stroke services in Somerset.

In our formal public consultation, we will be consulting on proposals to:

- Deliver **hyper acute stroke services** at **one hyper acute stroke unit** located at Musgrove Park Hospital in Taunton
- Deliver **acute stroke services** at either:
    - **Two acute stroke units** at both Yeovil District Hospital and Musgrove Park Hospital, Taunton; or
    - **One acute stroke unit**, which would need to be located at the same hospital as the hyper acute stroke unit proposed to be Musgrove Park Hospital, Taunton.

The approach will be responsive and proportionate to the community and aims to:

- Describe and explain the options, including our preferred options, for acute hospital-based stroke services in Somerset.
- Ensure people with lived experience, carers, the public and key stakeholders who have an interest in stroke can be fully involved in the consultation.
- Ensure an open and transparent approach to sharing information and opportunities with staff, stakeholders, and patients.
- Provide a meaningful and transparent process in which the feedback from those involved in the consultation will help to shape decision making about the future configuration of the service.

Public consultation gives people the opportunity to provide their views. We want to understand what the potential upsides and downsides are to our proposal from a range of perspectives. This will help us to plan the solution. There may be something we haven't thought of, or an aspect that we need to consider further.

The programme is committed to listening to people and we will ensure that all the feedback from the consultation is collated, analysed, and reported on by an independent organisation[342] to demonstrate

[341] See Appendix 03c for the Draft Consultation Plan
[342] Procurement underway to appoint – Update as available

our transparency and objectivity. We will carefully consider these responses, alongside other evidence and information gathered.

The final Decision-Making Business Case will demonstrate how the feedback has been taken on board when it puts forward the final clinical model for a final decision by the ICB Board.

No final decisions will be taken until after the consultation has closed and results have been collated and independently analysed.

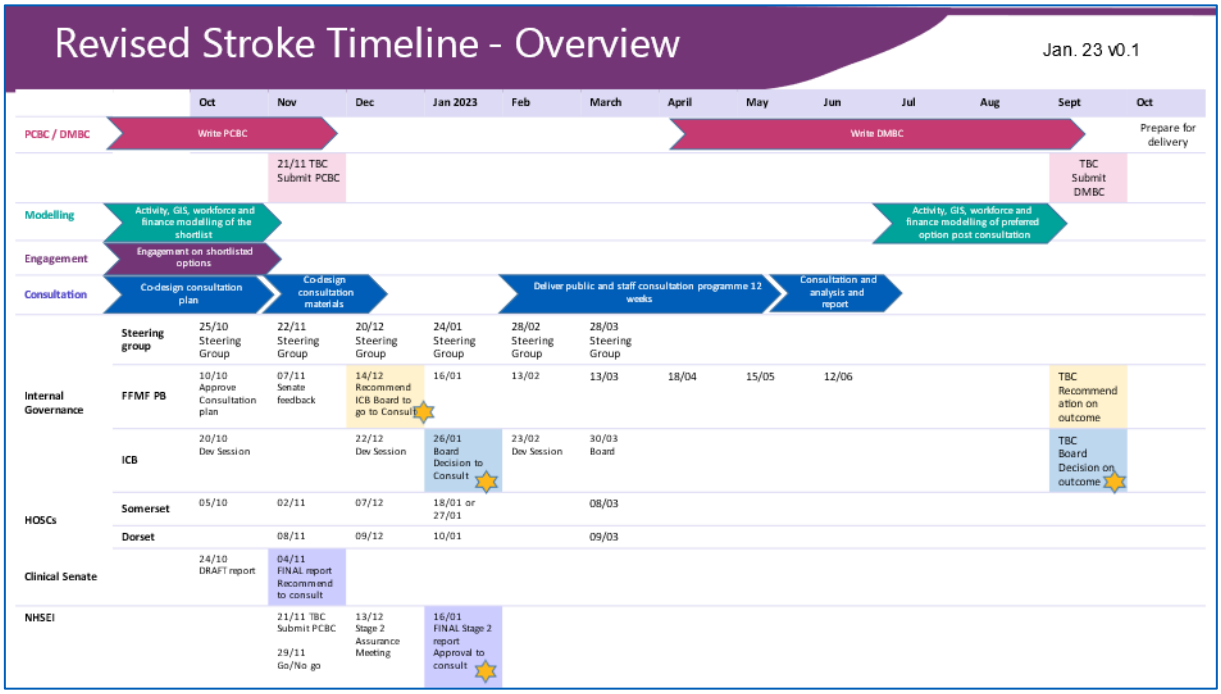
19. Next steps

The next phase of the programme will focus on preparation for consultation, implementing the findings from the consultation and developing the decision-making business case (DMBC).

We will:

- Continue to engage with staff, people with lived experience, and their relatives and carers
- Continue to engage with Dorset on the impact of Options C&D on their services
- Utilise an external agency to support the public consultation
- Finalise the consultation plan and supporting materials with our stakeholders and support from the Consultation Institute
- Use the Equality Impact Assessment (EIA) and Health Equity Assessment Tool (HEAT) to inform the consultation plan
- Undertake a 12-week public and staff consultation, ensuring that we have reached out to the key groups identified through the EIA / HEAT
    - Planned consultation start date end of January 2023
    - Continue to work with Opinion Research Services (ORS)[343] - an independent research organisation – to deliver a robust and thorough consultation evaluation
    - Undertake engagement activity that includes a wide range of approaches
    - Undertake an iterative mid-point review of the consultation responses to inform our engagement and communications in the second half of the consultation
- Continue to refine and test and the activity, workforce, and financial modelling using exiting groups and governance routes.
- Continue to work towards the development of a sustainable workforce to deliver the shortlisted options through the workforce working group
- Establish additional enabler working groups for finance, inequalities, digital, quality and estates to support the development of the DMBC
- Undertake more detailed travel analysis, to include public transport analysis and staff travel
- Continue to evaluate the environmental impact of Options C&D
- Develop the DMBC

[343] Home - Opinion Research Services (ors.org.uk)


Revised Stroke Timeline - Overview
Jan. 23 v0.1
Oct
Nov
Dec
Jan 2023
Feb
March
April
May
Jun
Jul
Aug
Sept
Oct
PCBC / DMBC
Write PCBC
Write DMBC
Prepare for delivery
21/11 TBC Submit PCBC
TBC Submit DMBC
Modelling
Activity, GIS, workforce and finance modelling of the shortlist
Activity, GIS, workforce and finance modelling of preferred option post consultation
Engagement
Engagement on shortlisted options
Consultation
Co-design consultation plan
Co-design consultation materials
Deliver public and staff consultation programme 12 weeks
Consultation and analysis and report
Internal Governance
Steering group
25/10 Steering Group
22/11 Steering Group
20/12 Steering Group
24/01 Steering Group
28/02 Steering Group
28/03 Steering Group
FFMF PB
10/10 Approve Consultation plan
07/11 Senate feedback
14/12 Recommend ICB Board to go to Consult
16/01
13/02
13/03
18/04
15/05
12/06
TBC Recommend ation on outcome
ICB
20/10 Dev Session
22/12 Dev Session
26/01 Board Decision to Consult
23/02 Dev Session
30/03 Board
TBC Board Decision on outcome
HOSCs
Somerset
05/10
02/11
07/12
18/01 or 27/01
08/03
Dorset
08/11
09/12
10/01
09/03
Clinical Senate
24/10 DRAFT report
04/11 FINAL report Recommend to consult
NHSEI
21/11 TBC Submit PCBC
29/11 Go/No go
13/12 Stage 2 Assurance Meeting
16/01 FINAL Stage 2 report Approval to consult

20. Glossary and abbreviations

Term / Abbreviation	Definition
A&E	Accident and Emergency department (interchangeable with ED)
ACP	Advanced Care Plan
AI	Artificial Intelligence
ASU	Acute Stroke Unit
BaNES	Bath and Northeast Somerset
BASP	British Association of Stroke Physicians
BNSSG	Bristol, North Somerset, and South Gloucestershire
BRI	Bristol Royal Infirmary
BSW	BaNES, Swindon, and Wiltshire
CCG	Clinical Commissioning Group
CCU	Coronary Care Unit
CDU	Clinical Decision Unit
COVID	Coronavirus Disease
CQC	Care Quality Commission
CST	Community Stroke Team
CT	Computerised Tomography
DCC	Direct Clinical Care
DCH	Dorset Country Hospital
DMBC	Decision Making Business Case
DPIA	Data Privacy Impact Assessment
ED	Emergency Department (interchangeable with A&E)
EIA	Equalities Impact Assessment
ESD	Early Supported Discharge
FAST	Facial dropping, Arm weakness, Speech difficulties, and Time
FFMF	Fit for My Future Programme
GIRFT	Getting It Right First-Time programme

HEAT	Health Equity Assessment Tool
HASU	Hyper Acute Stroke Unit
HDU	High Dependency Unit
HEE	Health Education England
HOSC	Health Oversight Scrutiny Committee
ICB	Integrated Care Board
ICD	International Classification of Diseases
ICS	Integrated Care System
ICSS	Integrated Community Stroke Service
ICU	Intensive Care Unit (interchangeable with ITU)
ISDN	Integrated Stroke Delivery Networks
ITU	Intensive Therapy Unit (interchangeable with ICU)
LTP	NHS Long Term Plan
MAU	Medical Assessment Unit
MCA	Mental Capacity Act
MDT	Multidisciplinary Team
MEND	Miami Emergency Neurologic Deficit
MRI	Magnetic Resonance Imaging
NHS	National Health Service
NHSE	NHS England (merged with NHSI 01/07/22)
NHSI	NHS Improvement (merged with NHSE 01/07/22)
NICE	National Institute for Health and Care Excellence
ONS	Office for National Statistics
PA	Programmed Activities
PCBC	Pre-consultation Business Case
PGH	Poole General Hospital
QIA	Quality Impact Assessment
RASC	Rapid Access Stroke Clinic
RBH	Royal Bournemouth Hospital
RCP	Royal College of Physicians
RUH	Royal United Hospital Bath
SCW	NHS South, Central and West Commissioning Support Unit
SFT	Somerset NHS Foundation Trust

SRU	Stroke Recovery Unit
SSEF	Stroke Specific Education Framework
SSNAP	Sentinel Stroke National Audit Programme
STP	Sustainability and Transformation Plan
SWASFT	South Western Ambulance Service NHS Foundation Trust
TEP	Treatment Escalation Plan
TIA	Transient Ischaemic Attack
VCSE	Voluntary, Community and Social Enterprise
WGH	Weston General Hospital
WTE	Whole Time Equivalent
YDH	Yeovil District Hospital NHS Foundation Trust

Key term	Definition/Description
Advanced Care Planning (ACP)	ACP is a voluntary process of discussion and review to help an individual who has capacity to anticipate how their condition may affect them in the future and, if they wish, set on record: choices about their care and treatment and/or an advance decision to refuse a treatment in specific circumstances.
Artificial Intelligence (AI)	Artificial Intelligence (AI) is the use of a non-human software package to interpret brain imaging, even if the imaging is also subsequently interpreted by a radiologist.
Carer	A person (commonly the patient's spouse, a close relative or friend) who provides on-going, unpaid support and personal care at home.
Commissioners	Funding bodies of NHS services.
CT angiogram	Uses a CT (computerised tomography) scanner to produce detailed images of both blood vessels and tissues in various parts of the body.
CT scan	A CT (computerised tomography) scan X-rays the body from many angles. The X-ray beams are detected by the scanner and analysed by a computer. The computer compiles the images into a picture of the body area being scanned. These images can be viewed on a monitor or reproduced as photographs.
Direct clinical care (DCC)	Refers to the time a doctor spends on direct patient contact and/or management. DCC is work directly related to preventing, diagnosing, or treating illness, including emergency work carried out during or arising from on-call work.
Door-to-needle time (DTN)	Term that refers to the time from arrival at hospital or onset of stroke (for inpatient strokes) to the time a patient is thrombolysed.

Getting It Right First Time (GIRFT) [344]	Getting It Right First Time (GIRFT) is a national programme designed to improve medical care within the NHS by reducing unwarranted variations. By tackling variations in the way services are delivered across the NHS, and by sharing best practice between trusts, GIRFT identifies changes that will help improve care and patient outcomes, as well as delivering efficiencies such as the reduction of unnecessary procedures and cost savings.
Hyperacute stroke unit (HASU)	Some stroke services designate the most intensive treatment as hyperacute. This would be where patients are initially treated and usually for a short period of time, i.e., up to three days.
Long Term Plan[345]	The NHS long Term Plan launched in January 2019. It is sets out a plan for the NHS to improve patient care and health outcomes in the future.
Median	The median is the middle point of a data set; half of the values are below this point, and half are above this point.
Multi-disciplinary	A team or service which is composed of staff from different healthcare professions with specialist skills and expertise. The members work together to ensure patients receive comprehensive, coordinated treatment.
Organisational Audit	Audit of the service organisation, particularly relevant in stroke audit due to the evidence supporting organised stroke services.
Out of hours	In hours is between 08.00-18.00 Monday to Friday. Out of hours is all days and times outside this range
Programmed activities (PA) sessions	PA sessions are a 4-hour unit of time (one half day), 10 of which comprise a consultant's work week. In contrast to supporting professional activities, programmed activities are dedicated to direct clinical care (DCC).
Secondary Prevention	Measures to prevent recurrence of the same illness.
Sentinel Stroke National Audit Programme (SSNAP)[346]	The Sentinel Stroke National Audit Programme (SSNAP), which assesses the care provided for patients during and after they receive inpatient care following a stroke. SSNAP measures the process of care (clinical audit) against evidence-based quality standards referring to the interventions that any patient may be expected to receive. These standards are laid out in the latest clinical guidelines, including the Royal College of Physicians National Clinical Guideline for Stroke (2016) and the NICE Clinical Guideline on Acute Stroke and TIA (NG128, 2019), and include:

344 https://gettingitrightfirsttime.co.uk/

345 https://www.longtermplan.nhs.uk/wp-content/uploads/2019/08/nhs-long-term-plan-version-1.2.pdf

346 Sentinel Stroke Audit Programme Annual Report 2022 – HQIP

	• Whether patients receive clot busting drugs (thrombolysis), • Interventions for clot retrieval (thrombectomy), • How quickly they receive a brain scan or • How much therapy is delivered in hospital and at home.
Service centralisation	The reorganisation of many stroke services into fewer, highly specialised hospitals that focuses on acute stroke care. For example, London and Greater Manchester have a centralised stroke service which means a stroke patient will be taken to a dedicated specialist stroke unit rather than their nearest hospital.
Sessions	A term used to describe a junior doctor's time. One session represents half a day.
Specialist community rehabilitation team (CRT)	A specialist community rehabilitation team refers to a stroke specific service delivered by specialist professionals within a multi-disciplinary team working in the community delivering rehabilitation services within a patient's home. A community rehabilitation team (CRT) will cater for patients following inpatient rehabilitation or transfer from early supported discharge (ESD).
Specialist early supported discharge (ESD) team	An early supported discharge team refers a stroke specific service delivered by specialist professionals within a multidisciplinary team. They provide rehabilitation and support in a community setting with the aim of reducing the duration of hospital care for stroke patients and enabling them to return home quicker.
Stroke mimic	A patient assessed by the stroke team as a suspected stroke but whose final diagnosis was not a stroke.
Swallow screening	Swallow screening refers to a process which broadly identifies the safety of patient's swallow ability. This screening process, which may be performed by any member of the team trained to do this, acts to establish whether the patient requires further formal assessment regarding the patient's ability to swallow (either fluids or solid foods).
Telemedicine	The remote diagnosis and treatment of patients by means of telecommunications technology
Thrombolysis	The use of drugs to break up a blood clot.
Transient Ischaemic Attack (TIA)	A transient ischaemic attack is less severe than a stroke in that all the symptoms disappear within a day (and often last for less than half an hour). It is also referred to as 'mini stroke'.
Trusts	In the context of the UK's National Health Service (NHS), trusts are organisational units, e.g., hospital trusts, community trusts, primary care trusts or combinations thereof. In this report it usually refers to hospitals.
Whole time equivalent (WTE)	The whole time equivalent (WTE) of staff is the number of hours staffing disciplines are contracted to work within a typical working week. For example, a WTE number of 1.0 means that the person is equivalent to a full-time worker (and works e.g., 37.5 hours per week); while a WTE of 0.5 signals that the worker is half-time (and works 18.75 hours).

	This should not be confused with the number of individuals, which is the number of people (bodies) a service must deliver those hours.