Kent and Medway
Stroke Review
Pre Consultation Business Case

Final Version
24 January 2018

1. Foreword

The eight clinical commissioning groups (CCGs) in Kent and Medway have been working together on this review since late 2014, in response to national evidence, requirements and recommendations specifically for hospital stroke care, meaning the care people receive in hospital after having a stroke. We've also involved partners across our county border.

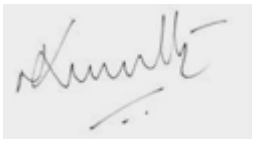
Around 3,000 people a year who have a stroke live nearest to a Kent and Medway hospital. National evidence shows people having a stroke do best when they are treated in a specialist stroke unit, available 24 hours a day, seven days a week and staffed by specialist doctors, nurses and therapists. Over recent years, a number of areas across the country have reorganised their stroke services to provide such units and have seen significant improvements in patient outcomes as a result.

Although hospital staff in Kent and Medway provide the best service they can, the way stroke services are set up currently, along with staff shortages, mean our local hospitals do not consistently meet the national standards for clinical quality. Evidence shows that to best maintain their skills, specialist stroke staff should treat over 500 strokes every year. Only one of the seven hospitals in Kent & Medway regularly treats more than 500 stroke patients a year.

Following detailed engagement with stroke survivors, their families, the public, stroke doctors and nurses and other key stakeholders since 2014, we are looking at creating hyper acute and acute stroke units in Kent and Medway. This is expected to lead to an improvement in outcomes for patients, reducing deaths and disability.

We are consulting on five three-site options for hyper acute and acute stroke units which involve changing services at seven hospital sites in Kent and Medway. This pre-consultation business case outlines our proposals in detail.

Over the coming months, we will be working towards significant improvement of stroke services as a first phase of transformation for the wider Kent and Medway STP. Our thanks and gratitude go to everyone who has been involved in this work so far for the time, dedication and enthusiasm they have shown for this important work.



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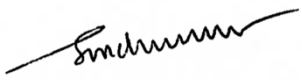

Dr Sid Deshmukh
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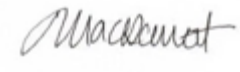

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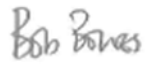

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A glossary of terms used in this PCBC can be found at Appendix A.

2. Executive summary

1. Foreword

The Chairs of the eight CCGs in Kent and Medway plus the chairs of Bexley CCG and High Weald Lewes Haven CCG, supported by the Sustainability and Transformation Partnership Chief Executive, outline the challenge to provide better quality care for stroke services. Stroke services in Kent and Medway do not consistently meet the national standards for clinical quality. Local units treat fewer patients than recommended, there are a lack of specialist staff available 24 hours a day, seven days a week and many patients do not receive the most appropriate treatment within recommended time limits. In response to this, the CCGs and hospital trusts have developed proposals to create specialist hyper acute stroke units in Kent and Medway which will lead to an improvement in outcomes for patients, reducing deaths and disability.

2. Executive summary

3. Introduction

This chapter describes the work that has been done on stroke services through the Stroke Review and within the Sustainability and Transformation Partnership. The eight clinical commissioning groups (CCGs) in Kent and Medway (and more recently the CCGs outside Kent and Medway whose populations use stroke services in Kent and Medway) have been working together on this review since late 2014, specifically for hospital stroke care. The review is being led by a Stroke Programme Board supported by a Clinical Reference Group, which provides clinical leadership and input to the Stroke Review, a Public and Patient Advisory Group (PPAG) which provides a patient and public perspective and a Finance Group which provides financial leadership and strategic advice.

4. Stakeholder engagement

This chapter describes how there has been engagement with a wide range of stakeholders. Through a series of major stakeholder events, meetings, focus groups, online surveys, newsletters and other channels, the thinking has been tested with clinicians, patient groups, the public, providers, local authorities, and MPs, to gather feedback and act on it as proposals have been developed. This has enabled effort to be focused on the areas that are most important to each stakeholder group and ensures there is a solid foundation of engagement before the proposals are put to public consultation.

5. Case for change

This chapter introduces the context for stroke services in Kent and Medway and describes why change is necessary and why it must start now. Clinicians have looked at the current and future demand for stroke services in Kent and Medway and how the current configuration of services is not delivering the best clinical outcomes and positive patient experience. Although hospital staff in Kent and Medway provide the best service they can, the way stroke services are set up currently, along with staff shortages, mean local hospitals do not consistently meet the national standards for clinical quality. Hospital stroke services are also currently running at an estimated £7.8 million loss. The case for change shows that stroke services need to be reconfigured to improve quality and sustainability.

6. Our vision for the future

This chapter describes how patients will be treated in the future to ensure they receive the highest standards of care for stroke in prevention, urgent care and rehabilitation. The ambition is to deliver clinically sustainable, high quality stroke services that are accessible to Kent and Medway residents 24 hours a day, 7 days a week. The key to successful outcomes for stroke patients is a high-quality stroke unit with rapid access to diagnostics, specialist assessment and intervention. Evidence shows that rapid specialist assessment and intervention in the hyper acute phase (the first 72 hours after a stroke) reduces mortality and improves long term outcomes for stroke patients. Clinicians have agreed a hospital stroke patient pathway for Kent and Medway which will provide care 24 hours a day, 7 days a week utilising a multi-disciplinary team and incorporating national guidance and best practice. This will be supported by the development of key enablers such as workforce, estates and digital.

7. Benefits of implementing the vision

This chapter describes the benefits that are expected following the implementation of the vision and models of care. The proposed changes will result in improved outcomes for patients, staff and organisations.

8. Quality assurance

This chapter describes the external assurance and scrutiny that the Stroke Review has undergone. The clinical proposals have been assured by the South East Coast Clinical Senate. The whole process and engagement undertaken by the Stroke Review has been assured by NHS England and consultation was dependent on this assurance being received. The Stroke Review has met the four tests and three conditions for reconfiguration set out by the Secretary of State and complied with its duties under the Equalities Act 2010.

9. Development of the options

This chapter describes the process by which the options were developed and evaluated. To deliver the vision, and following detailed engagement with stroke survivors, their families, the public, stroke doctors and nurses and other key stakeholders since the Stroke Review started in 2014, CCGs are proposing the creation of specialist hyper acute and acute stroke units in Kent and Medway. Stakeholder have also been fully engaged throughout the development of the options for where these units will be located.

10. Options appraisal (shortlisting)

This chapter describes the process for determining a shortlist of options for more detailed evaluation. A set of hurdle criteria, developed by clinicians and the public, was used to establish the optimal number of stroke units and, based on this, clinicians believe Kent and Medway needs three co-located hyper acute and acute stroke units alongside 7-day TIA clinics for high risk patients. Any fewer would mean units would be too large and inaccessible and any more would lead to insufficient staff and throughput to meet quality standards. Further analysis of access, the size of units and the flows out of and into Kent and Medway resulted in the creation of a medium list of thirteen site-specific options for locating the co-located hyper acute and acute stroke units.

11. Evaluation of options

This chapter describes the detailed evaluation that was done on the remaining thirteen site-specific options. This evaluation led to a recommendation by clinicians that five options should go forward for public consultation. These options are to site co-located hyper acute and acute stroke units alongside 7-day TIA clinics for high risk patients at:

A. Darent Valley Hospital, Medway Hospital, William Harvey Hospital
B. Darent Valley Hospital, Maidstone General Hospital, William Harvey Hospital
C. Maidstone General Hospital, Medway Hospital, William Harvey Hospital
D. Tunbridge Wells Hospital, Medway Hospital, William Harvey Hospital
E. Darent Valley Hospital, Tunbridge Wells Hospital, William Harvey Hospital

These options give the best combination of quality, accessibility, workforce, deliverability and affordability. This means changing services at seven hospital sites in Kent and Medway. William Harvey Hospital is in all options with some combinations from amongst Medway Hospital, Darent Valley Hospital, Maidstone General Hospital and Tunbridge Wells Hospital as the second and third sites. Under all options, urgent stroke services would no longer be provided at Queen Elizabeth the Queen Mother Hospital and Kent and Canterbury Hospital.

12. Impact of options for consultation

This chapter describes the options to put to public consultation in more detail. Each option will mean something different for each site and there are implications for activity, estates and workforce. The overall net present value (NPV) at 20 years of implementing any one of these five options ranges from £62.4 million to £68.6 million. Sensitivity analysis showed that all five options are recommended to go forward to public consultation. All the options for consultation address the issues raised in the case for change.

13. Implementing the proposals

This chapter describes how, dependent on the outcome of consultation, the chosen option would be implemented. Subject to the outcome of consultation, it is intended that changes to hospital stroke services will start being made in October 2018 with a phased go live expected from May 2019.

14. Undertaking consultation

This chapter describes the work carried out to prepare for consultation and the plans for conducting the consultation. The consultation will run for a period of 10 weeks as agreed by the Joint Health Oversight and Scrutiny Committee in January 2018. During this period a range of media will be used to describe the consultation proposals and to get feedback to inform any future decision. In addition to the consultation document and questionnaire, this will include newspaper editorial and adverts, display boards in key locations, twenty listening events, discussion groups with targeted populations, drop-in sessions for staff, presentations to patients and carer groups, ten focus groups, in-depth telephone interviews, one-to-one meetings with key stakeholders and digital communications. Seldom heard groups and others with special requirements will be specifically targeted.

15. Approval process

This chapter describes the approval process for the work of the Stroke Review and the PCBC prior to going to the Joint Committee of Clinical Commissioning Groups. The work has been recommended

by the Stroke Programme Board, Clinical Reference Group and Finance Group with input from the STP Programme Board and the STP Clinical Board.

16. Conclusion and next steps

Following consultation, all the responses will be collated and taken into consideration. The business case will be refreshed and the proposals may be refined. There will also be an independent report compiled on the consultation responses. A final set of proposals will be given to the Joint Committee of Clinical Commissioning Groups, with an aim for a final decision on service change by the end of September 2018.

3. Introduction

3.1 Stroke Review background

The Kent and Medway Stroke Review was commissioned in December 2014 in response to concerns by Kent and Medway CCGs about the performance and sustainability of hospital stroke services across all units in Kent and Medway. Stroke services in Kent and Medway do not consistently meet the national standards for clinical quality. Local units treat fewer patients than recommended, there are a lack of specialist staff available 24 hours a day, seven days a week and many patients do not receive the most appropriate treatment within recommended time limits. In response to this, the CCGs and hospital trusts were tasked with developing proposals to improve outcomes for patients, reducing deaths and disability.

A Stroke Programme Board was established in January 2015, supported by a Clinical Reference Group, with oversight from the South East Cardio Vascular Network and the national Clinical Director for stroke services.

3.2 Sustainability and Transformation Partnership

Sustainability and Transformation Plans were proposed in the annual NHS planning guidance Delivering the Forward View: NHS planning guidance 2016/17 – 2020/21, issued in December 2015[1]. The further development of Sustainability and Transformation Plans, and a recognition that these arrangements are about collective system leadership, led to the establishment of Sustainability and Transformation Partnerships following Next Steps on the Five Year Forward View[2], published in March 2017.

To deliver on the Five Year Forward View, every area in the country was asked to produce a five-year, place-based Sustainability and Transformation Partnership (STP) plan. The Kent and Medway footprint includes eight CCGs, two local authorities, four acute trusts, one social care and mental health trust, one community trust, two non-NHS community providers and one ambulance service trust. On 21 October 2016, Kent and Medway STP set out clear plans to achieve the triple aim of closing gaps in health and wellbeing, care and quality, and finance and efficiency for the local population of 1.8 million people.

In March 2017, the Kent and Medway Sustainability and Transformation Partnership published a case for change to improve health and social services and recognised that the Stroke Review should continue at pace with changes to stroke services being a priority. In May 2017, the work already undertaken by the Stroke Review was integrated into the Sustainability and Transformation Partnership (STP) governance structure.

An extensive engagement plan has underpinned the Stroke Review process and this iterative process. The work has been developed iteratively with members of the public, patients and key stakeholders, including the Stroke Association, to build the case for change and work through the possible options for hospital stroke services in Kent and Medway.

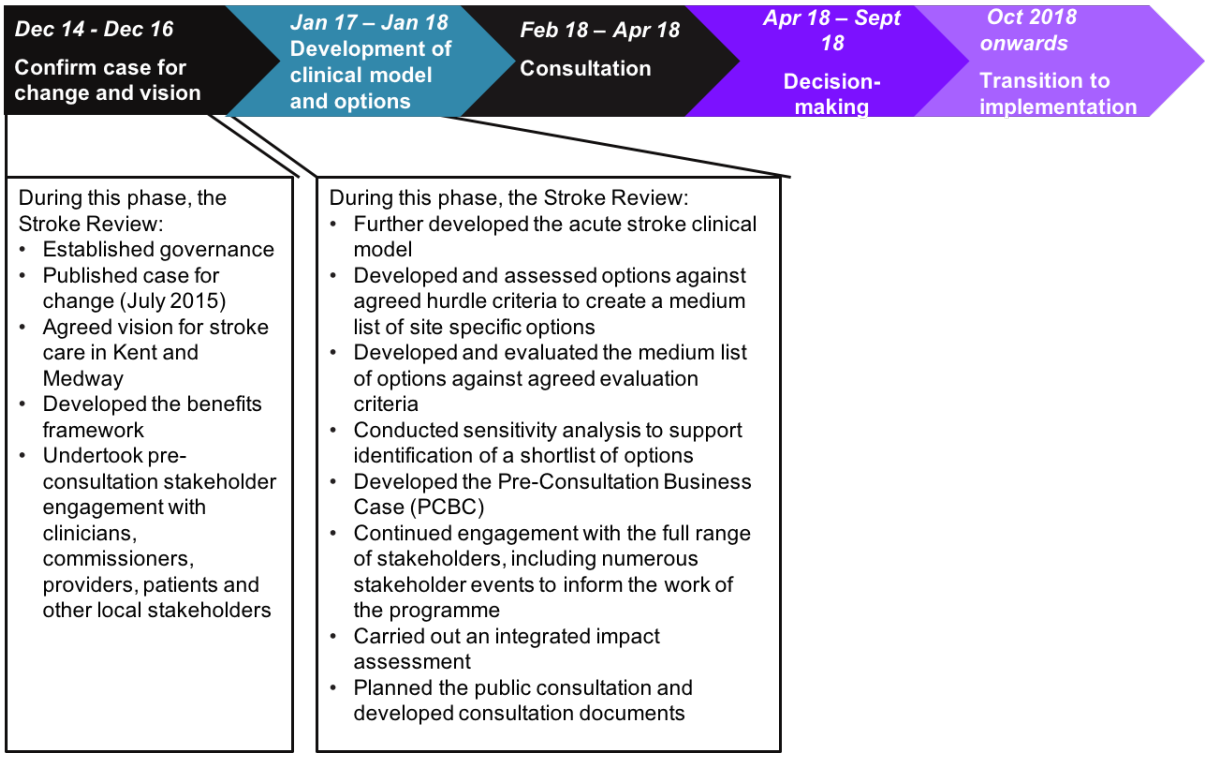
3.3 Overview of Stroke Review timeline

The Stroke Review has been a five-step process which started in December 2014 with planned implementation from October 2018. The five steps of the process are:

- **Confirm case for change and vision** (December 2014 to December 2016): including establishing the Stroke Review, publishing the case for change and undertaking significant pre-consultation stakeholder engagement.
- **Development of clinical model and options** (January 2017 to February 2018): including agreeing the clinical model, identifying options for consultation, developing this PCBC and continued stakeholder engagement.
- **Consultation** (planned February 2018 to April 2018): public consultation including extensive stakeholder engagement across the affected population.
- **Decision-making** (planned April to end of September 2018): consideration of the feedback from consultation and decision-making on the option to implement following engagement and consultation.
- **Transition to implementation** (planned October 2018 onwards): implementation of the agreed option.

This timeline is shown at a high level in Figure 1.

Figure 1: high-level Stroke Review timeline

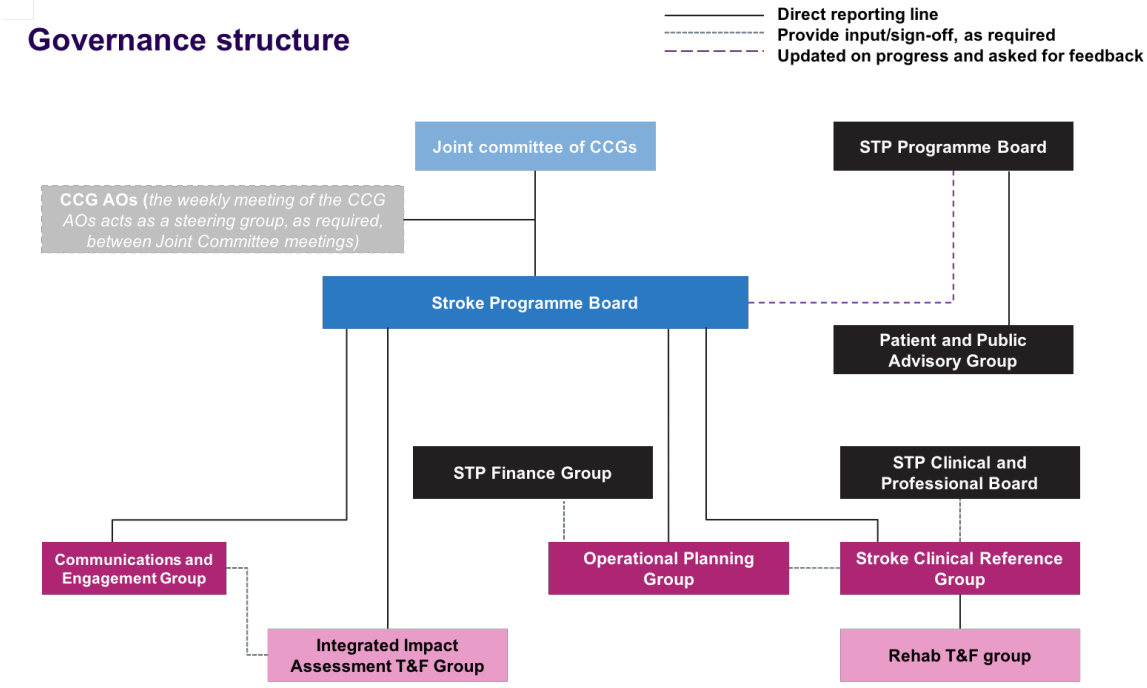


3.4 Governance arrangements

The CCG Governing Bodies, through a **Joint Committee of Clinical Commissioning Groups** (JCCCG) will make the final decisions on issues covered by the consultation. The JCCCG comprises the eight CCGs in Kent and Medway plus two other CCGs with substantially affected populations; Bexley CCG and High Weald Lewes Havens CCG. Bromley CCG has decided not to be part of the Joint Committee of CCGs in recognition of the potential impact on activity and patient flows at the Princess Royal Hospital within its CCG area, preferring instead to be a consultee and to respond to the consultation with this in mind. The CCGs' Accountable Officer weekly meeting has acted as a Steering Group for the Stroke Review on behalf of the CCGs, where required between meetings of the JCCCG.

A **Stroke Programme Board** works directly to the JCCCG and makes recommendations on changes to stroke services in Kent and Medway. It comprises of commissioners and providers from across Kent and Medway plus patient, local authority and Stroke Association representatives. The Stroke Programme Board provides oversight and steer to the work of the Stroke Review and is accountable for providing recommendations on the future of hospital stroke services in Kent and Medway. It was established in January 2015. It is chaired by the Stroke Review Senior Responsible Officer who is also a CCG Accountable Officer. The governance structure is shown in Figure 2.

Figure 2: Kent and Medway STP governance structure



There are several groups working to the Stroke Programme Board who are doing more detailed work as part of the development of these proposals. These include:

- **Stroke Clinical Reference Group**: the Stroke Programme Board is advised by the Clinical Reference Group which provides clinical leadership and input to the Stroke Review, but is not decision making. It was established in January 2015. It has an independent clinical chair and comprises clinical members (including nurses) from provider trusts and the ambulance service plus patient representatives. A Rehabilitation Task and Finish Group, reporting to the Clinical Reference Group, has done detailed work on the rehabilitation pathway.

- **Operational Planning Group:** the Operational Planning Group leads on the detailed development of plans for implementation. It is comprised of representatives from providers and the ambulance service.

- **Integrated Impact Assessment Task and Finish Group:** this group has reviewed the recommendations arising from the Integrated Impact Assessment with a particular focus on equalities and health inequality. It comprises representatives from CCGs, local authorities and patient representatives.

- **Communications and Engagement Group:** the Communications and Engagement Group ensures that communications and engagement is taking place as required. It is a small working group which has co-ordinated the development of the consultation materials and consultation plan. It comprises operational managers leading on various aspects of communications and engagement.

The work of the Stroke Programme Board is also supported by STP groups to ensure coherence with other workstreams within Kent and Medway:

- **STP Programme Board:** Kent and Medway Sustainability and Transformation Partnership is overseen by a Programme Board. This group brings together senior leaders from across the health and social care system including Clinical Commissioning Group (CCG) Accountable Officers, provider Chief Executives, Kent County Council and Medway Unitary Authority representatives (including elected council leaders), NHS England and NHS Improvement representatives. Additionally, representatives from other STP groups attend, including the chairs of the STP Clinical Board and Finance Group, the STP Programme Director and the Chief Executive of Healthwatch Kent (chair of the STP PPAG). The STP Programme Board is chaired by the Chief Executive of the STP.

- **STP Clinical and Professional Board:** comprising of senior clinical and professional leaders from the STP members i.e. provider Medical Directors, CCG clinical chairs, Directors of Public Health, nursing representatives, allied health professional and social care. The Board provides visible, collective clinical leadership, oversees the clinical workstreams and ensures that they result in a coherent clinical model of high quality services with good outcomes. It is co-chaired by a provider Medical Director and CCG clinical chair who also sit on the STP Programme Board.

- **Finance Group:** comprising the Chief Finance Officers and Directors of Finance from CCGs and providers. The group provides financial leadership and strategic advice and guidance for the development and delivery of the STP. It is responsible for ensuring that the STP makes the best use of available resources for the health of the population of Kent and Medway. This group is chaired by a provider Finance Director who also sits on the STP Programme Board.

- **Patient and Public Advisory Group:** this engages patient representatives and members of the public to help shape the Stroke Review. The group advises the Stroke Programme Board on key issues as they relate to the people of Kent and Medway. This group is chaired by the Chief Executive of Healthwatch Kent, who also sits on the STP Programme Board.

There are a number of enabler workstreams that underpin the development of the STP including:

- **Workforce:** supports the ability of Kent and Medway to plan, recruit, inspire and retain the skilled health and care workers we need to deliver high-quality services – including partnership with local universities to develop a medical school. The workstream involves a range of clinicians, operational management, human resources and finance.

- **Digital:** delivers the digital capabilities and components necessary to support the clinical work streams. The work stream has been developed from the four Local Digital Roadmaps (LDRs) that have been developed within Kent and Medway to deliver paperless working at the point of care by 2020/2021. The LDR encourages service user empowerment through

technology and will drive the use of familiar consumer technology to support greater self-care, improvements in health and wellbeing, and access to services.

- **Estates:** works to develop a credible strategic estates plan and identify areas where improvements can be achieved in order to ensure the sustainability not only of acute NHS Trusts, but also providers of mental health, community and social care services.

Additionally, there are other organisations that are not members of the STP, but play an important role in the work of the Stroke Review.

- The **NHS Commissioning Board** (NHS England) is responsible for overseeing the budget, planning and day to day operation of the commissioners in England, as set out by the Health and Social Care Act 2012. NHS England is required to undertake assurance of all substantial transformation plans.
- The Kent and Medway NHS **Joint Health Overview and Scrutiny Committee** (JHOSC) brings together elected representatives from the relevant HOSCs (Kent County Council and Medway Unitary Authority, plus London Borough of Bexley and East Sussex County Council) and Healthwatch Kent. It informs the Stroke Review whether it considers that consultation is required regarding proposed service changes.

3.5 Purpose and scope of PCBC

The focus of this consultation is on changes to hospital stroke services in Kent and Medway. The process of public involvement is governed by Sections 14Z2 of the National Health Act 2006 (as amended by the Health and Social Care Act 2012). Whilst not all service changes require public involvement by way of consultation, public consultation is typically necessary where significant service change is proposed. The framework set out in the legislation has been expanded in guidance, "Changing for the Better", "High Quality for All – NHS Next Stage Review" and "Planning, Assuring and Delivering Service Change for Patients", published by the Department of Health. The guidance mandates the need for a pre-consultation business case (PCBC).

The PCBC is a technical and analytical document that sets out the information necessary for the Clinical Commissioning Groups (CCGs) to make a decision as to whether to proceed to consultation. It sets out in detail the process to identify the proposals for change, the final set of proposals and the implications of these proposals. It includes:

- The case for change to improve stroke care for the public and patients of Kent and Medway
- The benefits that will be realised and how they will be assessed and measured
- How the options available have been considered and evaluated to a recommended option
- The proposals for service change recommended for consultation
- What the next steps are to enable the start of consultation and to support planning for implementation.

The PCBC is a published document but it is not intended to be the main mechanism through which proposals are explained to the public. The consultation document is a public-facing document that sets out the proposals and their implications and asks specific questions to help to test and refine these proposals. Further information on the consultation document can be found in section 14. Further Stroke Review documentation and information can be found on the website at http://kentandmedway.nhs.uk/stp/.

4. Stakeholder engagement

4.1 Introduction

The development of proposals for stroke services in Kent and Medway has required the input of a wide range of stakeholders. These include: local people, patients and their families and carers; those with the knowledge, skills and experience in delivering care; and those with roles and responsibility to oversee and scrutinise the system. Each of these stakeholder groups has had an important role in challenging and contributing to the work and helping make sure the right solutions to current and future challenges are developed.

Engagement throughout the Stroke Review has been extensive. It has been led by a communications and engagement lead for stroke, linked in with both the Stroke Programme Board and communications and engagement colleagues from across the CCGs to ensure as wide a group of stakeholders and public is reached as possible. Engagement has included CCGs outside Kent and Medway whose patients use Kent and Medway hospitals and neighbouring providers who may be affected by the changes in the flow of patients as a result of the proposals.

An independent review by Healthwatch Kent has looked at the stakeholder engagement undertaken prior to consultation. The review found clear evidence for the case for change and agreed that the public have been involved in shaping and developing the case for change. Healthwatch Kent deem the two-year window of patient and public engagement events to be good practice and detailed. Further information can be found in Appendix Cii.

Further detailed information on the Integrated Impact Assessment including the equalities impact assessment can be found in Section 13.3. Further information on how the 'four tests' in respect of major service changes have been met is set out in Section 13.6.

4.2 Stakeholder context

4.2.1. Stakeholder engagement to date

Health commissioners from the eight clinical commissioning groups (CCGs) in Kent and Medway, (and latterly two outside CCGs whose local populations use Kent and Medway services) have been working in partnership on a review of stroke services since December 2014. Stakeholders have been engaged throughout the process, including stroke survivors, their families and carers, members of the public, clinicians, and other key stakeholders.

4.2.2. Principles

Stakeholder engagement is embedded within the Stroke Review. Six principles developed by the People and Communities Board[3] have been adopted, which set out the basis of good person-centred, community-focused health and care and require that:

1. Care and support is person-centred: personalised, coordinated, and empowering
2. Services are created in partnership with citizens and communities
3. Focus is on equality and narrowing inequalities
4. Carers are identified, supported and involved
5. Voluntary, community and social enterprise and housing sectors are involved as key partners and enablers
6. Volunteering and social action are recognised as key enablers

Clinicians have been at the frontline of involving others in the future design of services and in the stakeholder engagement activity that has been undertaken as part of the Stroke Review.

4.2.3. The communications and engagement workstream

A dedicated communications and engagement workstream has been established to provide high level, strategic advice to the Stroke Review and brings communications and engagement professionals from partner organisations across Kent and Medway together to make sure that clear, concise and cohesive messages are presented and stakeholders are engaged in a timely manner. The overarching aim of the communications and engagement workstream is to ensure there is:

- clear, consistent, regular and effective communication to key audiences about the development and delivery of health and social care in Kent and Medway
- appropriate and effective engagement and involvement (and formal consultation where necessary) with partner organisations' governing bodies/boards, clinical leaders, front-line staff, stakeholders in the health and social care system, patients, service users, carers and the public as the plans are developed and implemented.

4.3 Objectives for engagement

The following objectives guide the work and underpin the shared ambition for extensive stakeholder engagement within the Stroke Review.

Objective	**Impact and benefit**
To develop an awareness and understanding of the need for change amongst key audiences.	Create a mandate for change. Help create an understanding and acceptance that change needs to happen.
To build awareness and understanding of the Stroke Review's ambitions and progress amongst key audiences by ensuring regular, clear, targeted and consistent communications at each key stage.	Help foster understanding, engagement and support amongst key audiences.
To ensure the patient, staff and stakeholder voice is represented by engaging identified audiences in the design and development of the plans and proposals at each stage.	Help generate shared/more comprehensive solutions. Help meet statutory duties and best practise guidance.
To demonstrate the shaping of the work by staff, stakeholders, patients and public where appropriate with a clear 'you said, we did' response to feedback.	Help build and maintain engagement, trust and credibility.
To help create a successful environment for change by supporting the building and strengthening of open, trusted and constructive relationships across the health and care system, with staff, key stakeholders, patients, service users, carers and the public.	Help build and maintain engagement, trust and credibility.
To position the Stroke Review and its ambitions as clinically led, about health, wellbeing and quality improvement as well as affordability.	Help build and maintain engagement, trust and credibility.

Objective	Impact and benefit
	Rebuttal against political/campaigning misconceptions.
To help create a successful environment for change by building and maintaining the reputation of the Stroke Review.	Help build and maintain engagement, trust and credibility.
To support the delivery of effective consultation as needed that meets statutory duties and requirements, with opportunities for widespread participation including amongst the seldom heard and nine protected characteristic groups.	Help generate shared/more comprehensive solutions. Help identify issues to consider in implementation phase. Help increase understanding of need for and acceptance of change. Help meet statutory duties and best practise guidance.

4.4 Approach to engagement

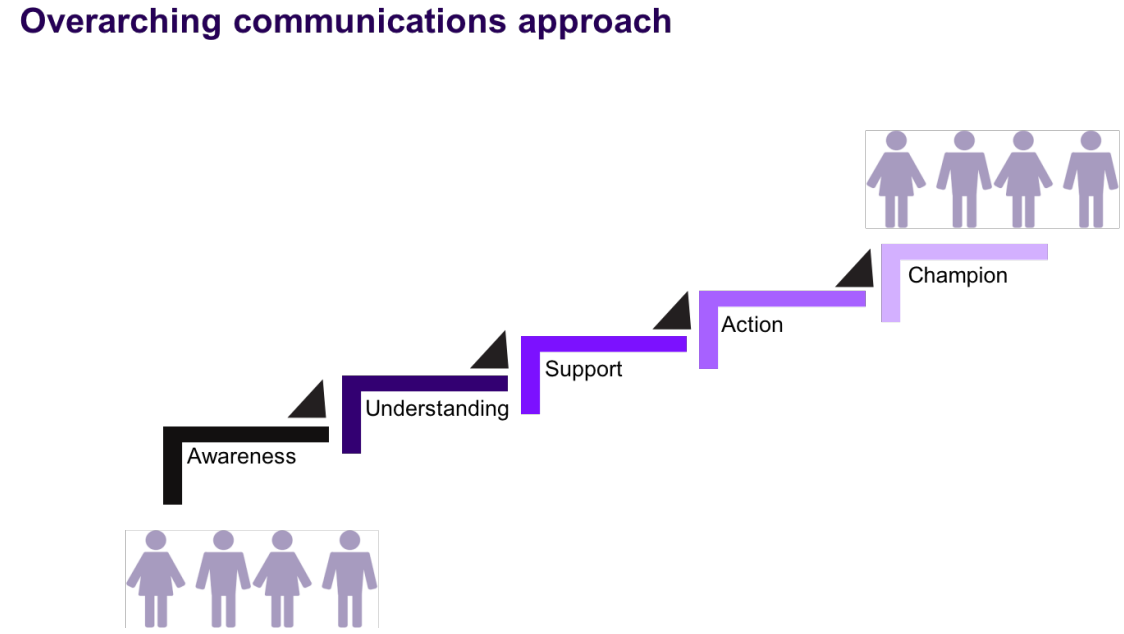
4.4.1. Underpinning principles

The following principles have been at the centre of the stakeholder engagement approach:

- Evidence-based
- Clinically led
- Characterised by informal as well as formal engagement – seeking to create long-lasting understanding and working relationships
- Honest and demonstrates real engagement and involvement – with a 'you said, we did' feedback loop
- Clear and consistent
- Open and transparent
- Aligned - internal and external communications and messaging are consistent
- Focused on embedding the patient voice
- Proactive
- Responsive and operates with pace.

Communications and engagement have been used to facilitate understanding and support for the proposed changes with identified key audiences: what it means for them; how they can feed into the thinking; and what (if anything) they need to do differently as a result. This overarching approach is shown in Figure 3.

Figure 3: overarching communications approach



This approach means the recommendations set out in NHS England's guide for STP areas, *NHS England – Engaging Local People – A guide for local areas developing Sustainability and Transformation Plans*[4] are met. Other guidance and good practice that has been taken into account includes:

- Reconfigure it out: good practice principles for communication service change in the NHS, NHS Confederation, 2014
- Patients as partners: building collaborative relationship among professionals, patients, carers and communities, The Kings Fund, 2016
- Sustainability and transformation plans in the NHS: how are they being developed in practice?, The King's Fund, 2016
- Smart Guide to Engagement: Working with Local Authority Scrutiny, Centre for Public Scrutiny, 2014
- A guide for CCGs: Engaging the public in difficult decisions about health service change, NHS Clinical Commissioners Lay Member Network, 2015
- Transforming participation in health and care, NHS, 2013
- Independent Reconfiguration Panel website https://www.gov.uk/government/organisations/independentreconfiguration-panel
- The Consultation Institute website http://www.consultationinstitute.org/
- Consultation principles, Cabinet Office, 2016

4.5 Identifying stakeholders

To support the stakeholder management process, systems and processes have been established including comprehensive databases of contacts, targeted approaches to make sure key individuals and organisations are engaged as well as many broader audience engagement trackers to capture activity with stakeholders (including feedback) and a log into which correspondence received/sent with stakeholders is noted. Stakeholder mapping has been completed by each commissioning and provider organisation, and overseen by the Stroke Review programme team. Stakeholder lists are

updated regularly. CCG communication and engagement leads contributed to a stakeholder map at the start of the Stroke Review and target audiences were identified for focused engagement.

In June 2017, a stakeholder stocktake took place which reviewed engagement activity to date (who; what; where; when), and showed engagement activity (meeting/event/involvement) as well as highlighting evidence of where feedback has been gathered. It pinpointed where additional effort needed to be made to ensure that feedback has been incorporated into plans. It also confirmed plans to make sure continued, focused engagement with stroke clinicians and hospital staff potentially affected by any service changes is maintained.

Whilst the proposals involve changing acute stroke services within Kent and Medway, there are neighbouring communities whose residents may be impacted. The Health Overview and Scrutiny Committees across county borders in East Sussex and in Bexley, south east London have been engaged consequently. Neighbouring Clinical Commissioning Group colleagues in Bexley, Bromley and High Weald Lewes and Haven have also been engaged. To continue the out of area engagement efforts, links will be developed with communications and engagement colleagues in Bexley and High Weald Lewes and Haven CCGs to:

- identify stakeholders and networks – particularly to reach the targeted audiences
- cascade and distribute information
- signpost and encourage responses to our consultation questionnaire
- attend key meetings and fora
- hold open listening events with the public.

These areas will be included in the wider engagement to gather views from a representative section of the consultation population, for example, through focus groups and telephone polling, and in outreach activity to consult with seldom heard and protected characteristic groups. More details are set out in Section 14.

4.5.1. Stakeholder mapping

A summary of identified audiences and stakeholders is set out below.

Audience/stakeholder	**Rationale for engagement**
Patients, service users, carers and the public. Activities are segmented to appeal to groups such as young people, mothers of young children, patients with long-term conditions, older people, all those covered by the nine protected characteristics, seldom heard and hard-to-reach groups. In addition, a key audience of stroke survivors and their carers and families, plus patient support groups with an interest in stroke and stroke care have been targeted.	Their experience of services, their understanding of need, and as the current and future services users. A statutory duty under the NHS Act 2006 (as amended by the Health and Social Care Act 2012).
Voluntary and community groups	Their understanding of, working with, and channels to reach local people, patients and carers. Includes both advocacy organisations and those involved in health service delivery (now or in the future).

Audience/stakeholder	Rationale for engagement
Trade unions	Their understanding of workforce issues, representation of staff and channels to staff. Their understanding of workforce training.
CCG staff across Kent and Medway (also staff in CCGs outside Kent and Medway who might be impacted by the proposals)	Their role and responsibility in the design, commissioning and monitoring of health services.
National and regional bodies and regulators	Their role and responsibility to set health care policy and authority to scrutinise and monitor the delivery of health services.
Professional associations	Their clinical and workforce understanding.
GP and primary care teams	Their role and responsibility in the delivery of primary care and joined up care along the stroke pathway, and in the case of GP members in the governance of CCGs in Kent and Medway.
Clinicians, staff and volunteers working at the provider organisations across Kent and Medway (also staff in provider organisations outside Kent and Medway who might be impacted by the proposals)	Their role and responsibility in the delivery of health and social care.
Local authorities and their staff	Their role and responsibility in the design, commissioning and delivery of local public services, including public health and social care.
Local democratic leaders	Their role and responsibility in representing local people and their authority to scrutinise and monitor the delivery of health and care services.
Out of county stakeholders (including patients and the public, CCGs, GPs, provider hospitals and Health Overview and Scrutiny Committees).	Their role and responsibility in the design, commissioning and monitoring of health services, and representation of patients and communities who may flow over county borders to use Kent and Medway services.

4.6 Engagement materials and activities

In recognition of the fact that 'one size does not fit all' when engaging such diverse groups of stakeholders, a wide range of channels, materials, tools and activities have been used. A summary of the engagement materials and activities is set out below.

Material/ activity	Detail
Web presence	CCG and provider websites include information about the Stroke Review and carry regular updates about the work. Thanet CCG's website is an example: http://www.thanetccg.nhs.uk/health-network/stroke-services-review/ Transforming health and social care in Kent and Medway – http://kentandmedway.nhs.uk/stp/. This website went live in March 2017 and includes details of the Stroke Review's governance structure, workstreams and activity, regular updates on meetings, research and findings from engagement

Material/ activity	Detail
	activity and details at http://kentandmedway.nhs.uk/workstreams/hospitalcare/stroke-care-review/
Presentations	Regularly updated presentation material for presenters including tailored presentations for public audiences. Presentations from the listening events of summer 2017 are now made available on a dedicated YouTube channel at: https://www.youtube.com/channel/UCwhn95yX5P0ceMRCjqpmF3g
Case for Change – stroke services	Published in July 2015, this included the full technical evidence case for the review of stroke services and an executive summary developed for a public audience. The latter is available to download as a pdf from CCG and partner websites: https://democracy.kent.gov.uk/documents/s53558/Case%20for%20Change%20-%20Stroke%20Review.pdf
'People's panels' and listening events	There has been an ongoing programme of events aimed at patients and the public across Kent and Medway to involve them in the Stroke Review. These have included listening events and larger, deliberative events called 'People's panels'. They have included presentations from key spokespeople within the Stroke Review and facilitated round table discussions to capture views and insights. External clinicians such as the national lead for stroke, have also taken part in these events. Regular analysis and evaluation of the outcomes of these events, identifying key themes, is undertaken and the results fed into workstreams for consideration in their planning and made available on the website. Planning for listening events in Bexley and High Weald Lewes and Haven CCGs is detailed in the consultation plan (See Section 14).
Kent and Medway Sustainability and Transformation Partnership plan	Published in November 2016, this public facing document outlined the challenges facing the health and social care economy in Kent and Medway, the national requirements to address the challenges set out in the NHS Five Year Forward View and explained how the STP process – including partnership approach – offers a unique opportunity for transformation. STP communications routinely include updates on stroke. Supporting information, in the form of appendices, was made available electronically.
Case for change – Kent and Medway	A public facing explanation of the rationale for change to health and care services across Kent and Medway. Published in March 2017, it was produced in an easy read format with translation into the top ten languages in Kent and Medway and other formats for accessibility available on request. The main distribution method was 'digital by default' through a Kent and Medway-wide cascade through stakeholder and partner networks and online. In addition, more than 10,000 printed copies were distributed to partner organisations, hospital waiting rooms and reception areas, GP surgeries, libraries, via patient representatives and at events and meetings. Postcard-sized flyers highlighting key points from the document were produced for use in roadshows and other awareness-raising engagement activity in local communities. A video has been produced and is available at: http://kentandmedway.nhs.uk/latest-news/watch-film-plans-improve-health-care-services/ A technical version of this case for change is available electronically on the STP website, and includes PowerPoint slides of analysis and supporting evidence.

Material/ activity	Detail
Focus group research	Targeted research undertaken to reflect a broad spectrum of demographics to inform plans and proposals. Analysis is fed back into the Stroke Review and published on the website.
Social media	Dedicated Twitter, Facebook and YouTube feeds as well as links to partner organisation's own social media sites.
Media	Media relations work is focussed on Kent and Medway media (online, print and broadcast). There is also ongoing ad hoc work with trade and professional media as appropriate.
Briefing materials including briefings and FAQs	Ongoing production of FAQs, briefings and narratives for key audiences as well as to support Stroke Review spokespeople. This is part of a library of information on dedicated STP website. FAQs produced to support specific workstreams and launches e.g. stroke, STP, case for change.
Core content and key messages	Core content developed for use by partner organisations in internal and external communications and engagement activity about the Stroke Review and its work.
Discussion guides and surveys questionnaires	Developed to support engagement and listening events around the STP and case for change, to support Stroke Review members in their specific networks to garner feedback and views and to promote feedback from engagement activities on evaluation criteria and models of care.
Newsletters and bulletins	A Stroke Review update was published in summer 2017 and autumn 2017 and circulated via STP, CCG, provider and Healthwatch channels. A Kent and Medway STP bulletin is published on a monthly basis, and a public-facing summary of STP Programme Board meetings is produced and circulated to stakeholders as well as being published on the STP website.
Dedicated email addresses	Updates and details of events and engagement opportunities are sent to a database of people who have expressed an interest in the Stroke Review by attending events.
Targeted engagement with seldom heard voices	Kent and Medway STP engaged with 15 targeted seldom heard groups and 158 individuals were spoken to. This included people with protected characteristics under the Equalities Act 2010: age, disability, gender reassignment, marriage and civil partnerships, sexual orientation. Further work will be done to reach seldom heard groups outside of the Kent and Medway borders.

4.7 Overview of stakeholder engagement activity

A range of engagement activity has been undertaken with each stakeholder group. The table below provides an overview with a more detailed history of the stakeholder engagement in Appendix B.

Stakeholder/ audience	Detail
Patients, service users, carers and the public	
Case for change – July 2015	A full technical 'case for change' and an eight-page executive summary available as a pdf to download from CCG websites and some copies were printed and taken to listening events.
Case for change –	To support the publication of the case for change and elicit feedback on the content from key stakeholders, 10 events were held for the affected populations

listening events – July 2015	(Sittingbourne, Canterbury, Gravesend, Gillingham, Tonbridge, Margate, Maidstone, Dover, Ashford and Sheerness). All 10 events were promoted to community groups, voluntary organisations and the wider public via newspaper articles, social media and posters. Facilitated discussion at the 10 events captured the public's response to the Case for Change and the findings of these events is captured in the 'Listening to you' report which is available on CCG websites. http://www.westkentccg.nhs.uk/news/news-articles/?blogpost=7932
Survey – Autumn 2015	A survey was widely publicised to gather views on the case for change in Autumn 2015. 285 responses were obtained from across the county.
11 focus groups – September 2015	In conjunction with the Stroke Association, 11 focus groups were held to look at the Case for Change and feedback.
People's Panels – November/ December 2015	In November and December 2015, three deliberative events, called 'People's Panels', looked in detail at the case for change, and questioned and challenged the proposals for improving future stroke care. They also voted on different aspects of services - establishing what they, as patients and carers, value most. The resulting information from the events is captured in a report which was presented to the Joint Health Overview and Scrutiny Committee as an additional update briefing in January 2016. A video compilation of key spokespeople from the review team as well as footage of the People's Panels was created and is available on CCG websites and has been used in meetings and briefings with stakeholders.
Engagement events – Autumn 2016	Four events took place in September and October 2016 with stroke survivors, family carers and members of the public who had been involved in previous engagement activities. The events were held in key areas, designed to update participants on the detailed work that had taken place since previous engagement and to explore any outstanding issues people may have. 69 people attended from across the affected populations. The Programme Director presented at a Stroke Survivors Group in Swale which was attended by 30 stroke survivors and family carers. A full report of these events, including detailed feedback about the concerns, issues and themes raised by participants is available at: https://democracy.kent.gov.uk/documents/s73808/Stroke%20Engagement%20Report.pdf This feedback was used to: • create a detailed set of questions and answers that has been shared with participants and published on CCG websites • update Joint Health Overview and Scrutiny Committee on the engagement process • inform the next stage of development of the potential options to be presented to CCGs.
Focus groups – summer 2017	Eight focus groups (one in each Kent and Medway CCG) were held in July and August 2017, linking with Stroke Association and stroke survivors and carers. These focus groups looked at the evaluation criteria to shortlist of options. A further workshop was held in Ashford which was publicised to the wider public.

	There was a further 15 focus groups and digital engagement with seldom heard and protected characteristic groups. Presentations given at listening events are available to view on a dedicated YouTube channel: https://www.youtube.com/channel/UCwhn95yX5P0ceMRCjqpmF3g
Online survey and briefing for stroke and East Kent evaluation criteria – summer 2017	To complement the focus group work, an online survey was developed to capture responses to the evaluation criteria. As well as using local media, social media and websites to raise awareness, the survey and an accompanying briefing document were emailed to local health networks: http://kentandmedway.nhs.uk/latest-news/share-views-new-stroke-evaluation-criteria/
Summer update 2017	Developed to support the listening events and as a general update for all stakeholder groups, the summer update was published in July 2017 and included an overview of the Stroke Review, as well as providing questions for further feedback opportunities. A digital copy of this is available online at http://kentandmedway.nhs.uk/summerupdate/. As well as digital publication, 10,000 copies were printed and distributed via trusts, CCGs and Patient and Public Advisory Group members, and at listening events.
Patient and Public Advisory Group (PPAG) for Kent and Medway	The Patient and Public Advisory Group (PPAG) held a preliminary meeting in February 2017 and meets on a monthly basis. It consists of members of the public and key patient representatives. The role of the group is: • To ensure patients and the public have a real voice during the development of plans and to support elements of the decision-making process • To provide advice to the Sustainability and Transformation Partnership Programme Board on key issues • To help drive forward a programme of involving patients and people across Kent and Medway • To act as ambassadors with other patient and community groups and to build awareness and support for the new health and care plans and the process to develop the detail within them.
Voluntary organisations and community groups	
Voluntary organisations	In the autumn of 2015, voluntary organisations including the Stroke Association undertook targeted engagement on behalf of the Stroke Review, with small groups of people. At the People's Panel events, the public, stroke survivors and carers, and community representatives, including voluntary organisations, reviewed the case for change, possible options for the future, and the criteria that should be used in taking decisions on options. In addition, two engagement events were held with Voluntary Community and Social Enterprise (VCSE) representatives on 17 and 18 October 2017 with 120 people in attendance across the two events. A follow up is planned for early 2018.
Clinicians, staff and volunteers working at the impacted provider organisations	
Frontline staff	Clinical engagement and involvement in the Stroke Review been led by the Clinical Reference Group. The Clinical Reference Group members take away actions to engage with staff within their own Trusts. There is also significant clinical representation on the Stroke Programme Board.

	All partnership organisations have undertaken to inform and engage their staff on the proposals, and involve them in the development of the detailed plans. For example, provider trusts have held a series of regular briefing sessions with staff and CCG clinical chairs have been engaging and updating member GPs via existing clinical forums and peer-to-peer discussion.
Local authorities and their staff	The public health team in Kent and Medway carried out an initial review of evidence on treatment of stroke. They looked at best practice guidance and examined likely incidences of stroke within the local population. Public health clinicians and practitioners have been included in engagement opportunities.
Clinical Senate	The South East Clinical Senate reviewed the Case for Change; the report is shown at Appendix J. These recommendations were taken through the Stroke Programme Board and fed into the development of the proposals. The South East Coast Clinical Senate also reviewed the care models and options for change. The report is at Appendix E. Further engagement with the South East Coast Clinical Senate to keep members updated as the Stroke Review progresses is planned, particularly around aspects of clinical change and service transformation.
Trade unions	Trade unions are actively engaged across the system through local staff side meetings and are part of the formal cascade plan of key messages. In addition, they are engaged specifically through the workforce workstream members (led by the Stroke SRO and workstream lead) as well as via a regular Kent, Surrey, Sussex representatives' forum with Health Education England. During the course of public listening events and other engagement activity, union representatives have regularly attended and input their views in table discussions, and taken information back out to members.
GP and primary care teams	Regular updates on stroke and the STP are given via the CCGs' internal GP communication and engagement channels which include bulletins, events and intranets.
CCG staff	Regular general meetings and updates are given on development of the Stroke Review. There is circulation of material when new information is published such as Case for Change through bulletins and staff briefings. Information is available on intranets and organisation websites. Copies of the case for change were made available in offices.
Local democratic leaders	
Members of Parliament	There has been regular engagement with MPs during the review and the subsequent development of the proposals as part of the 'business as usual' meetings and focussed briefings. Accountable Officers of the CCGs update their MPs on the Stroke Review and MPs are included on CCG stakeholder lists. CCGs provide updates and details of engagement opportunities to MPs as part of their key stakeholder list.
Joint Health Overview and Scrutiny Committee (JHOSC) engagement	The review has been presented to the Kent and Medway Joint Health Overview and Scrutiny Committee on six occasions and features as part of the STP programme during formal and informal meetings with elected members across Kent and Medway and neighbouring affected CCGs. The review will also be discussed with colleagues from the East Sussex HOSC and Bexley HOSC. More details of this engagement can be found in Section 13.4.

Health and Wellbeing Boards	Updates and face-to-face briefings on the Stroke Review have been given to Health and Wellbeing Boards. Updates and details of engagement opportunities are shared with CCGs to disseminate to Health and Wellbeing Boards as part of their key stakeholder list.
District and borough councillors	Local CCG leaders meet regularly with councillors to discuss health issues and services in their localities and respond to requests for an update on the Stroke Review and facilitate discussion on this. Updates and details of engagement opportunities are shared with CCGs to disseminate to councillors as part of their key stakeholder list.
Out of county providers	Stroke reviews are also underway in Surrey and Sussex. A Kent, Surrey and Sussex overview group is in place to make sure cross boundary issues are properly considered and understood. Meetings have been held with the Medical Director and operational leads of the Princes Royal University Hospital (PRUH), which is part of Kings College Hospitals NHS FT, so that the impact of any additional patients travelling into their unit could be assessed and their issues understood. Clinicians and managers from the PRUH attended the evaluation workshop on 20th September. Further engagement is ongoing with the south east London STP.
Media and national bodies	
Media relations	The Stroke Review has been covered in broadcast, radio and print media since it was launched in 2014.
National and regional bodies and regulators	NHS England is represented on the Stroke Programme Board. Updates were also given as part of the NHS England assurance process and regular informal briefings to the South East Strategic Clinical Network Stroke Network alongside this. In addition, updates have been given to the Kent and Medway Commissioning Committee.
Professional associations	Representatives on the Clinical Reference Group are responsible for linking in with professional bodies as appropriate.

4.8 Actions from engagement

The extensive engagement was used throughout the process to inform and guide the development of the care models, options and evaluation criteria. The key issues raised by stakeholders were addressed (issues were raised by multiple stakeholders).

Development area	Issue raised	Response
Care model	The new model of care should provide 24/7 specialist care	The agreed service model and Stroke Review ambitions all state that the new acute stroke service will be centred on consultant led 24/7 care. All analysis performed and workforce calculations are based on a 24/7 service. The consolidation of stroke services ensures that all future HASU/ASUs will see around 500 -1500 patients a year. This is the national recommendation to ensure that there is sufficient patient volume for a 24/7 service to be sustained.
	Need to take into account	TIA patients are taken into account when modelling future stroke activity by site by adding a 10% uplift on current confirmed stroke numbers. The 10%

Development area	Issue raised	Response
	transient ischaemic attacks (TIA) numbers in analysis of stroke rates	figure was agreed with the Clinical Reference Group (CRG) as a clinically appropriate assumption. Further detailed work is being undertaken by the CRG to confirm the workforce requirements to support TIA patients who are not admitted but who will be seen at the HASU/ASU sites under the new proposed pathway, and will form part of the Decision Making Business Case. The agreed model of care covers the entire stroke pathway, from prevention to rehabilitation. The model is shown in Section 6.5.1.
	Importance of rehabilitation care, including speech and language therapy	While the rehabilitation pathway is not in the scope of this review, a stroke rehabilitation task and finish group has been set up to further develop a rehabilitation model of care that ensures the delivery of high quality rehabilitation care in line with the acute reconfiguration. This model is shown in Section 6.5.1.
	Importance of the ambulance service; need to ensure that they are involved and have adequate capacity to fulfil the new model of care	South East Coast Ambulance Service (SECAmb) representatives have been involved in the development of the work throughout the review, including as part of the regular working group meetings and as members of the Clinical Reference Group and Stroke Programme Board. SECAmb are in the process of undertaking detailed modelling of costs and the effects of increased capacity to ensure that they able to accommodate longer travel times. Through SECAmb, ambulance colleagues in London have been involved as well as lessons learnt from the ambulance crews in Sussex.
Options	Workforce as a potentially limiting factor: the national shortage of stroke consultants	A key driver for this reconfiguration is to provide a sustainable service in terms of workforce. It is understood that there is a national shortage of stroke consultants and the review aims to provide 24/7 consultant led care for all patients, this will be possible via the consolidation proposed. Analysis has shown that for a 24/7 service a 1:6 rota for stroke consultants is required and all options were assessed against this criterion. The evaluation of options includes evaluating against a set of workforce criteria. Recruiting a sufficient number of staff has been recognised as a potential risk and this is included within the key risks in Section 12.5.
	Reducing the number of stroke units will increase travel times – there are different views on	Travel times have been reviewed in detail and patient access was one of the most important factors when shortlisting options. It is also important to note that there are currently no hyper acute stroke units (HASUs) in Kent and Medway so access will improve for all patients. The future stroke model of care uses the 120-minute call to needle time recommended by South East Coast Clinical Senate[5]. It is not possible to assess the full call to needle time so a proxy of 95% of the local population

Development area	Issue raised	Response
	what an acceptable maximum travel time should be and how this should be measured	to have a peak hours travel time of less than 60 minutes or less was agreed and analysed. This proxy was considered in detail with many stakeholder groups. Any option that could not deliver this travel time was not considered for the medium list. One of the key evaluators when shortlisting options was the percentage of the local population with access within 30 and 45 minutes at peak times and by ambulance. Those options that have shorter travel times were considered more favourable. It is anticipated that the increase in travel time will be mitigated later down the pathway by having a more streamlined hospital service; the aim in the service model being 30 minutes from hospital door to needle. Patient events have considered that the most important factor in acute stroke care is access to a 24/7 consultant led service, acknowledging that visitor access becomes vital at the rehabilitation stage. The stroke rehabilitation model of care will ensure that rehabilitation remains as close to home and relatives as possible.
	Treatment being within the standard time given the potential increase in travel times	Although the future configuration may result in a longer travel time for some patients, there are currently no hyper acute stroke units (HASUs) in Kent and Medway, so access to high quality care will improve for all patients. All analysis has been based on the South East Coast Clinical Senate recommendation of 120 minute call to needle time[6] with travel accounting for 60 minutes of this. At least 98% of the confirmed stroke total population are able to access a HASU within a maximum of 60 minutes at peak travel time. See Section 9.6 for more detail.
	Issues around funding; need to ensure sustainability of service but also ensure that the review is not financially-driven at the expense of quality	Consistently throughout the work (as reflected at patient and public engagement events), senior members of the Stroke Review have highlighted that the reason for this review is patient safety and not financially driven. In the evaluation of options, quality and access was considered the most important criteria for assessment. When shortlisting options the quality and access evaluations were considered first and then finance. Feedback from recent public engagement events which identified quality, access and workforce as the most important factors for patients and the public, was considered by the CCGs when shortlisting options. The new service model is designed to provide a better long-term outcome for stroke patients and also have financial benefits to the system.
	Take into account different perspectives	A number of perspectives have been considered on the optimal number of future HASU/ASU sites in Kent and Medway. Analysis was conducted for one site to seven site options. However, a 3-site model was found to be the

Development area	Issue raised	Response
	on the appropriate number of HASU/ASU sites	most sustainable option for workforce whilst offering good access for all local patients.
	Increase in housing and population in Kent and Medway	Analysis has been undertaken that looks at the impact of projected population growth and housing developments. The incidence of stroke per total population is falling, however, there is an increasing population (especially in the older age categories). Taking these two facts into account, the number of strokes is expected to remain at current levels. Specific work has been undertaken with Kent County Council and Darent Valley Hospital to ensure the impact of the Garden City development has been taken into account. However, it is not anticipated that this should change the prevailing assumptions around stroke levels as set out above.
	Consider access for those living in rural areas	Travel time analysis has looked at all local populations, including those living in rural areas. All shortlisted options allow 95% of the population to travel to a HASU/ASU at peak time within 60 minutes (the agreed travel time proxy to allow for call to needle time of 120 minutes).
Evaluation	Relevance of including level 3 NICU as part of the co-adjacencies evaluation	Although the Keogh model recommends the presence of a level 3 NICU on site for a Major Emergency Centre, it was agreed by the Clinical Reference Group that this is not relevant to the provision of a HASU and was therefore removed from the evaluation assessment.
	Choice is not relevant as a specific evaluation criterion, as high quality care is more important	In response to this feedback, choice was removed as a specific evaluation criterion. In the evaluation of the options, quality and access were felt to be most important. Choice will be considered as part of the design of post-acute and rehabilitation care, including as part of this enabling patients to receive care in their own home.
Engagement	Being clear what the Stroke Review means for patients	Patient engagement events have focused on ensuring that patients understand what the review means and that any concerns or suggestions are considered. A number of different types of events and methods of engagement have been conducted including online surveys, listening events, focus groups and deliberative events; running from 2015 to 2017. Patient questions have been addressed and clarified throughout the engagement process. Patient groups such as Healthwatch and the Stroke Association have been involved throughout the review process. Patient representatives, carers and stroke ambassadors have supported the development of patient-facing materials, e.g. the following blog written by a stroke survivor which is

Development area	Issue raised	Response
		published on the STP website and CCG websites: http://www.ashfordccg.nhs.uk/news/blog/?blogpost=7836#.We8jE62ZNmA
	Need to engage with seldom heard voices	As part of the STP, all of the agreed targeted seldom heard and protected characteristic groups have been engaged with, either through digital or face to face methods. Ongoing efforts are continued to try and reach deeper into current serving military personnel. The principle has been to build trust and routes to engagement with such groups, to gather initial feedback and views but also in preparation for formal consultation and to build ongoing relationships. 158 people were engaged during outreach engagement visits and 95 people completed a monitoring form. The majority of people engaged considered that they, or a member of their household, had a long- standing illness, disability or infirmity. The key themes emerging from this engagement have been considered in the development of care models and options.

5. Case for change

There are currently no specialist acute stroke units in Kent and Medway. Stroke services in Kent and Medway do not consistently meet the national standards for clinical quality. Six out of seven local units treat fewer patients than recommended, there are a lack of specialist staff available 24 hours a day, seven days a week and many patients do not receive the most appropriate diagnostics and treatment within recommended time limits. The evidence shows that non-compliance with standards for clinical quality results in disability, poor quality of life and death. The case for change is overwhelming and services need to change as quickly as possible.

The case for change was developed by clinicians with involvement from representatives of patient groups and the public, provider organisations and health and social care managers. The key elements of the case for change are set out below. The stroke case for change was published in July 2015 and was updated as part of the Kent and Medway Sustainability and Transformation Partnership case for change which was published in March 2017. The stroke case for change is available at Appendix F and the Kent and Medway case for change is on the website http://kentandmedway.nhs.uk/stp/. The detailed evidence review undertaken by Kent and Medway Public Health Observatory to support the case for change is available at Appendix G.

5.1 Background to stroke services

A stroke is the brain equivalent of a heart attack. The blood supply to part of the brain is interrupted by either a blood clot or a bleed, and surrounding brain tissue is damaged or dies. There are two main types of stroke, ischaemic or haemorrhagic stroke. Ischaemic strokes are the most common form of stroke, caused by a clot blocking or narrowing an artery carrying blood to the brain, whilst haemorrhagic strokes are more likely to be fatal. Some patients may suffer from a Transient Ischaemic Attack (TIA), a temporary stroke that occurs when the blood supply to part of the brain is cut off for a short time only. This results in short term symptoms which normally disappear within 24 hours. This is often a warning that the patient may be at risk of a more serious stroke occurring. A haemorrhagic stroke is where a blood vessel bursts or leaks and blood spills into or around the brain and creates swelling and pressure, damaging cells and tissue in the brain. This is more likely to have a poor outcome and even death. The likelihood of suffering a stroke increases with age and smoking, amongst other factors.

Stroke is a major health problem in the UK. It is a preventable and treatable disease which, nevertheless, is the third biggest cause of death in the UK and the largest single cause of severe disability. Each year in England, approximately 110,000 people[7] have a first or recurrent stroke which costs the NHS over £2.8 billion. South Asians (Indians, Pakistanis and Bangladeshis) have a higher risk of stroke than the rest of the population. Stroke mortality rates in the UK have been falling steadily since the late 1960s. The development of stroke units and the further reorganisation of services following the advent of thrombolysis (the use of drugs to reduce clots), have resulted in further significant improvements in mortality and morbidity from stroke[8].

Patients with any type of stroke should receive their care on a specialist stroke unit. Initially this will be on a hyper acute stroke unit and then after 72 hours it will be on an acute stroke unit; some hospitals have combined units. Hyper acute stroke units enable patients to have rapid access to the right skills and equipment and be treated 24/7 on a dedicated stroke unit, staffed by specialist teams. Following a stroke, a patient is taken directly to a hyper acute stroke unit where they will receive expert care, including immediate assessment, access to a CT scan and clot-busting drugs (if appropriate) within 30 minutes of arrival at the hospital. Acute stroke units (ASUs) are for

subsequent (after 72 hours) hospital care. These units offer ongoing specialist care with 7-day therapies services (physiotherapy, occupational therapy, speech and language therapy, dietetics input) and effective multi-disciplinary team (MDT) working.

Stroke services have been reconfigured across the country and consolidating services to provide rapid access to specialist staff, equipment and imaging has been demonstrated to improve quality and outcomes for patients. For example, in London, the reconfiguration of urgent stroke services in 2010 led to an increase in thrombolysis rates from 12% in Feb-July 2010 to 18% in Jan-July 2012 and saved almost 100 lives per year[9].

5.2 Stroke in Kent and Medway

Kent and Medway comprises eight CCGs – Ashford, Canterbury and Coastal, Dartford Gravesham and Swanley, Medway, South Kent Coast, Swale, Thanet and West Kent – which cover the areas of Kent County Council and Medway Unitary Authority. It includes the city of Canterbury (population c.160,000) in the east, the large market town of Maidstone (population c.165,000) in the west, and Medway, a large unitary authority (population c. 278,542). This large geographical area (1,368 square miles)[10] includes many smaller towns and villages and rural areas, and borders with London in the north west. Kent and Medway has a long coastline which gives rise to challenges in providing accessible services. The number of people living in Kent and Medway is approximately 1.8 million[11] and this is projected to increase to 2.2 million people by 2031 due to the aging population and people moving into the area[12]. Some people in neighbouring CCGs including Bexley CCG, Bromley CCG and High Weald Lewes Haven CCG also use hospital stroke services in Kent and Medway.

Stroke prevalence across the Kent and Medway CCGs is around the national average of 1.7% with higher prevalence in West Kent (1.8), Ashford (1.8) Canterbury (1.9) and Thanet (2.1), as shown in Figure 4. Neighbouring CCG High Weald, Lewes and Haven also as a higher than average prevalence (2.0). Stroke care accounts for about 4.5% of total spending on healthcare in Kent and Medway with an average £7,000 per year spent on people who have had a stroke (compared to an average £2,700 per year for those who have not)[13].

Figure 4: stroke and atrial fibrillation prevalence, population and deprivation by CCG

Stroke and atrial fibrillation prevalence, population and deprivation by CCG

	West Kent CCG	DGS CCG	Medway CCG	Swale CCG	Ashford CCG	Canterbury and Costal CCG	South Kent Coast CCG	Thanet CCG	High Weald Lewes Haven CCG	Bexley CCG	National
Stroke prevalence (%)	1.8	1.6	1.2	1.4	1.8	1.9	1.4	2.1	2.0	1.5	1.7
Atrial fibrillation prevalence (%)	2.0	1.7	1.5	1.6	2.4	2.2	2.4	2.2	2.3	1.6	1.7
% population over 65	17.8	16.1	14.4	17.0	17.8	19.6	21.5	21.5	22.7	16.5	17.7
% of people in the most deprived quintile	3.6	12.4	20.1	23.8	11.1	10.1	17.5	35.9	0.9	5.6	20.1
Admitting units	TWH, MGH (MMH)	DVH	MMH	MMH	WHH	K&C, QEQM	WHH, K&C	QEQM	BSUH, TWH	QEH, PRUH, DVH	-

SOURCE: Public Health England 2015/16; ONS Mid-2015 population estimates

It is estimated that across Kent and Medway there are currently nearly 1.2 million adults who have two or more unhealthy lifestyle behaviours such as smoking and obesity[14] which increase their risk of avoidable disease and disability such as stroke:

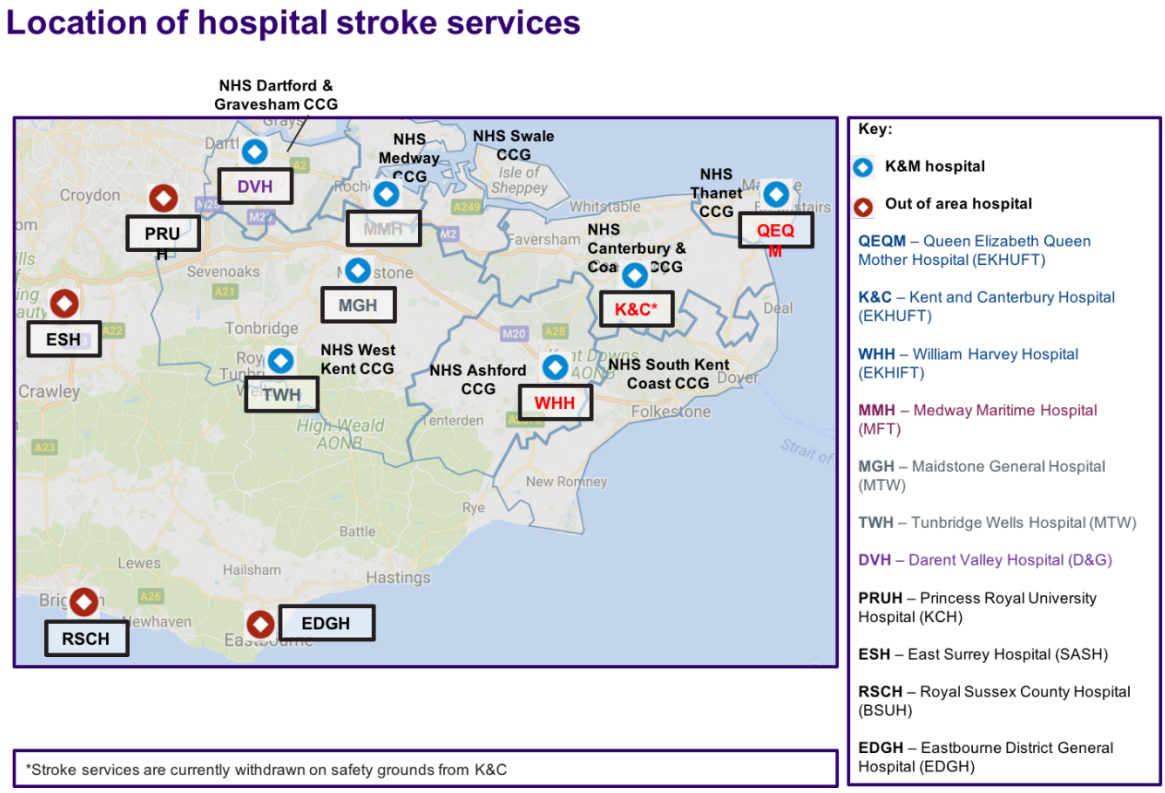
- **Smoking:** despite the decline in the number of people who smoke, smoking remains the main cause of preventable disease in the UK, accountable for 1 in 6 of all deaths in England. Smoking is a key risk factor for stroke. Mortality rates due to smoking are three times higher in the most deprived areas than in the most affluent areas. Smoking prevalence has decreased nationally from 18.4% in 2013 to 18% in 2014 but Kent and Medway prevalence rates have not decreased proportionately and are above the national average[15].
- **Obesity:** obesity is a major cause of many diseases including stroke and, on average, obesity deprives people of an extra nine years of life[16]. Obesity is a serious and growing problem and the number of people admitted to hospital because of obesity tripled from 2006/7 to 2011/12[17].

Over the next five years in Kent and Medway the number of people with major health problems are projected to increase significantly, and, if there were no further lifestyle changes or interventions from public health and primary care, the number of people living with cardio vascular disease would increase by 24,000 (from 176,000 to 200,000)[18]. However, evidence shows that the incidence of stroke is reducing nationally[19] and it is expected that improved public health and prevention will reduce this number significantly. Recently published evidence shows that optimal anti-hypertensive treatment of diagnosed hypertensives could avert 330 heart attacks and 500 strokes within 3 years, and that optimally treating high risk atrial fibrillation patients could avert 470 strokes within 3 years[20]. Initiatives already underway in Kent and Medway are shown in Section 6.4 and have been aligned with the Joint Strategic Needs Assessments.

5.3 Providers of hospital stroke services in Kent and Medway

In Kent and Medway, hospital stroke services are provided on all seven acute hospital sites (although they are currently withdrawn on safety grounds from Kent and Canterbury Hospital)[21]. An average total of 3,010 strokes are treated for patients in the Kent and Medway catchment area (defined as people for whom a Kent and Medway acute hospital site is the closest site in terms of travel time) each year[22]. This is shown in Figure 5. There are also variable rehabilitation provision and early supported discharge services available.

Figure 5: providers of hospital stroke service in Kent and Medway



There are four hospital trusts providing hospital stroke services across the seven sites. The trusts are:

- **Dartford and Gravesham NHS Trust** which provides hospital stroke services in Dartford (Darent Valley Hospital).
- **East Kent Hospitals University NHS Foundation Trust** which provides hospital stroke services from two sites in Ashford (William Harvey Hospital) and Margate (Queen Elizabeth, the Queen Mother Hospital). Kent and Canterbury Hospital does not currently provide hospital stroke services due to the withdrawal of training doctors by Health Education England in March 2017. This was because of insufficient consultant supervision of junior doctors. Following the withdrawal of junior doctors, the Trust carried out a temporary emergency transfer of services on the grounds of patient safety.
- **Medway NHS Foundation Trust** which provides hospital stroke services in Gillingham (Medway Hospital).
- **Maidstone and Tunbridge Wells NHS Trust** which provides hospital stroke services from two sites, in Maidstone (Maidstone General Hospital) and Tunbridge Wells (Tunbridge Wells Hospital).

People in Kent and Medway also use stroke services provided by hospitals outside Kent and Medway. This includes the Princess Royal University Hospital in Orpington (part of Kings College Hospital NHS Foundation Trust), East Surrey Hospital in Redhill (part of Surrey and Sussex Healthcare NHS Trust) and Eastbourne District General Hospital (part of East Sussex Healthcare NHS Trust). Further detail of the hospital stroke services provided by each site can be found at Appendix H.

There are 154 beds for stroke patients in Kent and Medway. The breakdown of these beds by site is shown in Figure 6 **Error! Reference source not found.**.

Figure 6: stroke beds in Kent and Medway, by site

Number of stroke beds available to K&M patients

2016/17 actual stroke beds

Site	HASU beds	ASU beds	Total
Darent Valley Hospital	0	23	23
Maidstone General Hospital	0	11.5	11.5
Tunbridge Wells Hospital	0	13.6	13.6
Medway Maritime Hospital	0	26	26
William Harvey Hospital	0	24	24
Queen Elizabeth Queen Mother	0	22	22
Kent and Canterbury Hospital	0	24	24
Princess Royal University Hospital	3	7	10
Total	**3**	**151**	**154**

SOURCE: Trust returns 16/17
*Modelled beds based on DVH catchment area patient activity using 13-day method (20% of stroke patients are discharged after 2-day HASU stay, 13% of patients of stroke patients are discharged after 3-day HASU stay , with remaining two-thirds staying a further 15 days in ASU. Includes TIA uplift (10% activity, one-day HASU stay) and Mimic uplift (25% activity, two-day HASU stay).

For Kent and Medway hospitals, these figures represent the actual beds physically available for stroke at each site. However, it should be noted that Kent and Canterbury Hospital does not currently provide hospital stroke services due to the withdrawal of training doctors by Health Education England in March 2017, so these beds are therefore temporarily unavailable to the population.

Ten beds have been included at the Princess Royal University Hospital (PRUH), however this figure has been modelled based on the Kent and Medway activity seen at the PRUH and is therefore representative of capacity being used currently, rather than confirmed ringfenced stroke beds available to Kent and Medway patients.

Due to these complexities, and in order to best understand current capacity on an accurate and consistent basis, the required beds have been modelled based on activity, using current average length of stay and bed occupancy levels. This approach indicates a starting point of 134 beds for stroke patients in Kent and Medway – 20 beds fewer than the 154 beds that are identified as physically available.

Stroke rehabilitation beds are provided in many sites across Kent and Medway, predominantly by Kent Community Health Foundation Trust, Medway Community Healthcare, Maidstone and Tunbridge Wells NHS Trust, Kent and Medway Partnership Trust and Virgin Health. The referral and care pathways for these beds is variable and not all are dedicated to stroke patients. The multi-disciplinary team approach also differs across the sites.

5.4 Key challenges

There is a wealth of evidence that the way hospital stroke services are organised can have a major impact on outcomes after stroke. Specifically,[23]:

- That the most important care for people with any form of stroke is **prompt admission to a specialist stroke unit**; in Kent and Medway there are currently no hyper acute stroke units (there are acute stroke services but none that provide the 24/7 cover and access to specialist skills that are required for a hyper acute stroke unit).
- That a stroke unit undertakes **adequate volumes of activity** to maintain clinical quality and outcomes; in Kent and Medway, only one hospital sees the minimum number of stroke patients required.
- That hyper acute stroke services enable patients to have **rapid access to the right skills and equipment and be treated 24/7** on a dedicated stroke unit, staffed by specialist, multi-disciplinary teams; in Kent and Medway there are insufficient stroke consultants and other specialist staff.
- For **brain imaging to be urgently available** with access to other imaging and good interpretation; over one third of patients in Kent and Medway do not have a scan within the recommended 1 hour of admission to hospital.
- That following a brain scan, **suitable patients should have thrombolysis** (an injection to help dissolve the blood clot) as soon as possible and within 2 hours of arriving at hospital[1].
- That **patients are transferred home as soon as possible** with no gaps (early supported discharge where appropriate).

Kent and Medway providers have struggled to meet the quality standards of the national Stroke Sentinel National Audit Programme (which measure whether services are delivering quality standards)[24] for many years with a range of achievement across the region (see Appendix I for a full list of the stroke quality standards). Most scores are below average and although there have been some improvements since June 2014, this has been slow and is inconsistent. This is shown in Figure 7.

[1] Kent and Medway have adopted a standard of 120 minutes call to needle (thrombolysis) per the guidance in NHS South East Clinical Networks, Stroke and TIA Service and Quality Core Standards, 2016

Figure 7: Kent and Medway provider performance against SSNAP standards[25]

Performance against targets

Below Top Quartile | Equivalent to Top Quartile | Above Top Quartile

Aims	National recommendation/Target	DVH	MMH	MGH	TWH	WHH	KCH	QEQM	National	Top Quartile
Rapid and accurate diagnosis	Imaging within one hour of admission	53%	50%	58%	59%	63%	54%	62%	51%	61.5%
Direct admission	Patients admitted directly onto a specialist stroke unit within four hours	30%	34%	58%	49%	52%	43%	49%	57%	67.9%
	Patients stay in the stroke unit for 90% of the inpatient episode	67%	75%	87%	81%	83%	81%	79%	84%	92.9%
Immediate access to treatment	Thrombolysis within 60 mins	76%	22%	38%	67%	53%	55%	53%	62%	77.8%
	Applicable patients assessed by speech and language therapist within 72 hours	67%	94%	90%	90%	90%	80%	71%	88%	93.7%
Specialist centres with sufficient numbers of patients and expert staff	Assess patients by specialist stroke consultant and within 24 hours.	64%	51%	66%	70%	89%	80%	85%	81%	88.8%
	Assess patients by stroke trained nurse and therapist within 24 hours.	84%	88%	92%	90%	92%	86%	85%	90%	94.9%
Multidisciplinary teams	MDT assessment, to include specialist physicians, nurses , therapists. A wider group of specialist is increasingly advised including clinical psychology, dietetics.	Partial	Partial	Partial	Partial	N [1]	N [1]	N [1]		
24 hour access, 7 days a week	7 day stroke consultant ward rounds	N	N	N	N	N	N	N[2]		
	OOH access to consultant assessment for thrombolysis	Y	Y	Y	Y	Y	Y	Y		
	7 day stroke trained nurse and therapist cover	Partial	Partial	N	N	N [3]	N [3]	N [3]		
Patient volumes that deliver clinical sustainability	> 500 confirmed stroke admissions	N	Y	N	N	N	N	N		
SSNAP performance Dec 2016-Mar 2017	Target: A	D	D	A	C	C	E	D		

Notes:

[1] Only available 5 days a week
[2] OOH rota is networked across 3 sites with the use of telemedicine; rota is fragile given combined contribution to HCOOP rota simultaneously
[3] Do not meet national guidelines

SOURCE: South East Coast Clinical and Quality standards for stroke, SSNAP audit (April 2016-Mar 2017)

The evidence[26] shows that compliance with the quality standards delivers an improvement in:

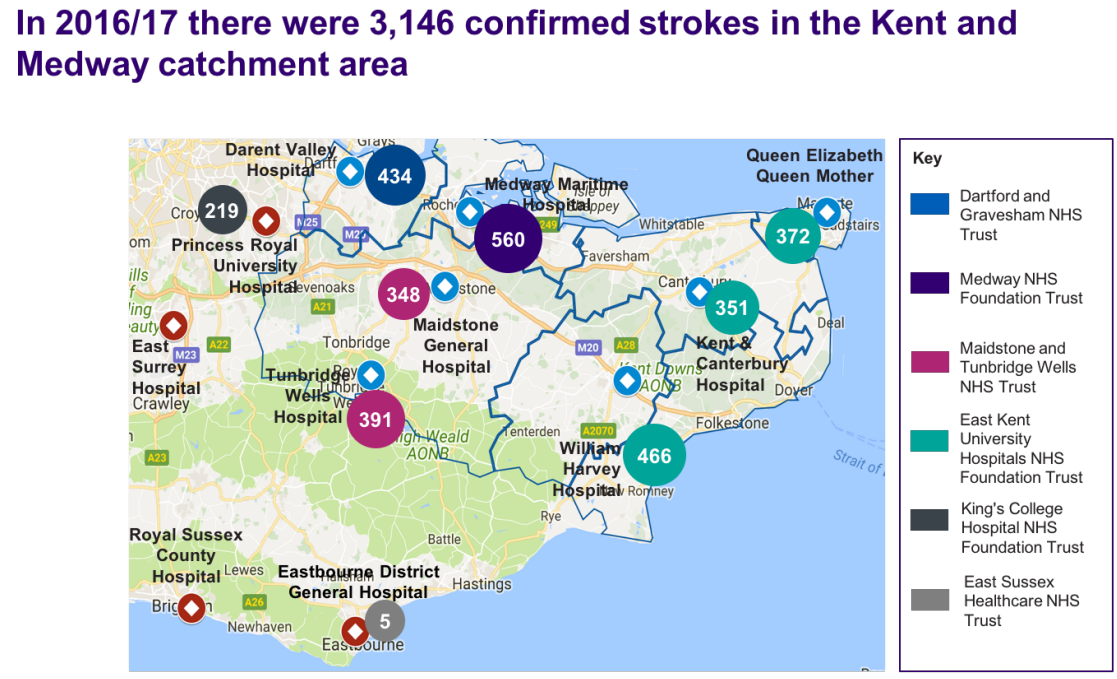
- 6 and 12 month modified Rankin scale outcomes (the Rankin scale is used to measure the degree of disability or dependence in the daily activities of people who have suffered a stroke or other causes of neurological disability).
- The percentage of stroke patients returning home.
- Reducing the percentage of patients being discharged to a residential / nursing home.
- Increasing the percentage of patients returning to work.
- Patients and carers outcomes relating to quality of life scores such as Euro-QOL, SF-36, the Stroke Impact Scale, and the Stroke Carer Burden Scale.

The current poor performance against quality standards means that no hospital stroke service in Kent and Medway receives the full Best Practice Tariff (an additional payment for meeting a sub-set of the targets). This leads to a cost pressure for providers if they try to deliver 7-day services.

5.4.1. Volumes of clinical activity

Only one of the Kent and Medway stroke units (Medway Hospital) currently sees the recommended minimum levels of stroke patients required to deliver the highest quality clinical care and the quality standards. This recommendation is for over 500 confirmed stroke patients a year[27]. Six of the seven hospital stroke services currently see, on average, fewer than 500 confirmed stroke patients per year, as shown in Figure 8.

Figure 8: hospital stroke activity in hospitals in Kent and Medway[28]



SOURCE: Provider data returns (16/17) for K&M sites; PRUH SUS data 2016/17; Carnall Farrar analysis (September 2017); ONS population data (2015), IMD deprivation data (2015), Basemap travel time data (car, off-peak); ONS
NOTE: PRUH patients identified as patients who accessed the PRUH but have a shorter travel time to DVH from home LSOA); EDGH patients identified by assessing the catchment LSOAs (those closest by travel time to a K&M site) and assessing age and deprivation for average incidence

5.4.2. Access to specialists

Workforce is the key limiting factor in delivering the quality standards and providing services 24 hours a day, 7 days a week. This is particularly relevant for stroke consultants and the total number of stroke consultants across Kent and Medway is 70% below the recommended level. In Kent and Medway on 31st March 2017 there were 10 WTE stroke consultants in post; to meet the required standards in the existing configuration of services, an additional 32 consultants would be required. This is shown in Figure 9.

Figure 9: gap in stroke consultants required to run a 24/7 consultant-led service on 7 sites[29]

Consultant workforce

Site	Number of WTE consultants	Funded number of WTE consultants	WTE consultants required to deliver a 1:6 rota	Shortfall in consultants in post
Maidstone General Hospital	0.9	2	6	5.1
Tunbridge Wells Hospital	0.7	2	6	5.3
Medway Maritime Hospital	2.5	2.5	6	3.5
Kent & Canterbury Hospital	0.6	1.8	6	5.4
Queen Elizabeth Queen Mother Hospital	1.8	1.8	6	4.2
William Harvey Hospital	1.8	1.8	6	4.2
Darent Valley Hospital	1.6	1.7	6	4.4
Total	**9.9**	**13.6**	**42**	**32.1**

Notes: 1 WTE = 10 Pas, 1:6 rota required to deliver 24/7 service

SOURCE: Provider data returns March 2017

In Kent and Medway, the required standards for minimum staffing levels for other clinical staff (such as stroke nurses) are also not being met. For a HASU/ASU, an additional 51 WTE would be required in total to meet these standards on all of the seven sites. There is a shortage of skilled staff in some areas including speech and language therapists, clinical psychologists and occupational therapists for stroke services and there will not be enough skilled staff to meet future demand. It is not possible to simply recruit more staff. There is a national shortage of stroke consultants with the most recent SSNAP data[30] showing 40% of all stroke consultant posts across the country are vacant.

5.4.3. Length of stay

Getting people out of hospital and into rehabilitation as quickly as possible is crucial in delivering high quality care and better outcomes. It is also expensive to keep people in hospital if they can be safely cared for elsewhere. In Kent and Medway, the length of stay for people who have had a stroke is an average 15.6 days[31]. This is higher than has been achieved in areas which developed hyper acute stroke units[32].

5.4.4. Financial considerations

An estimated £13.6m was spent by CCGs on acute stroke activity in the Kent and Medway catchment area in 2016/17. Hospital stroke services are currently running at an estimated £7.8 million deficit.

5.5 Conclusion

The challenges facing hospital stroke services in Kent and Medway mean that patients and carers are experiencing:

- poorer health outcomes
- longer lengths of stay
- poorer long-term quality of life
- increased likelihood of admission to residential or nursing homes
- overwhelmed staff who are struggling to deliver services
- financially unsustainable services

The case for change is overwhelming and services need to change as quickly as possible.

6. Vision for the future

The vision is to deliver high quality stroke services 24 hours a day, seven days a week through the development of new, co-located hyper acute and acute stroke units alongside 7-day specialist TIA clinics for high risk patients. These units will be staffed by specialists all day, every day and will make sure that patients receive diagnosis and care within national quality standards. Each unit will see the minimum number of patients required by national guidelines. This will reduce the number of deaths from stroke and reduce disability and improve quality of life for people who have had a stroke.

6.1 Overall vision

Our aspiration for health and social care in Kent and Medway is a model which prevents ill-health, intervenes earlier and delivers excellent, integrated care closer to home. Our vision is that patients in Kent and Medway:

- Are supported to self-care where appropriate
- Have easy access to advice when needed in person and using technology
- Can access care through most appropriate pathway
- Are rapidly triaged to the most appropriate provider
- Consistently receive care which is in line with best practice
- Have optimised experience and outcomes 7 days a week

6.2 Ambition for stroke services

For hospital stroke services, our ambition is to deliver clinically sustainable, high quality stroke services that are accessible to Kent and Medway residents 24 hours a day, seven days a week. The new model of care will:

1. Fulfil the best practice recommendations as set out in the National Stroke Strategy 2007[33];
2. Deliver improved quality of care, patient experience and patient outcomes; and
3. Support the sustainability of Kent and Medway stroke services by consolidating hospital stroke care, as required.

It will deliver a number of benefits for patients, as shown in Section 7 including:

- Fewer deaths from stroke
- Reduced disability and improved quality of life for people who have had a stroke
- Greater number of people being able to return home rather than go into residential or nursing care after a stroke
- Reduced length of stay in hospital after a stroke
- Better access to high quality services and expertise

The issues with urgent stroke care identified in the case for change (see Section 5.4) will be addressed including:

- The development of hyper acute stroke units to which patients can be directly admitted within a maximum of four hours of arriving at hospital
- An increase in the number of stroke patients seen at each unit to meet national quality guidelines on minimum throughput
- Increasing access to specialist staff and equipment all day every day

- Ensuring eligible patients receive thrombolysis within 120 minutes of calling an ambulance with a suspected stroke
- Enabling the vast majority of patients to access brain imaging within one hour of admission to hospital
- Delivering assessment by a multi-disciplinary team for 7 days a week in all units
- Supporting hospitals to achieve an overall A grade for SSNAP performance

Ultimately the ambition is to reduce the number of people who have a stroke, provide the best possible care to those who do, reduce the number of deaths from a stroke and improve the outlook for those who survive.

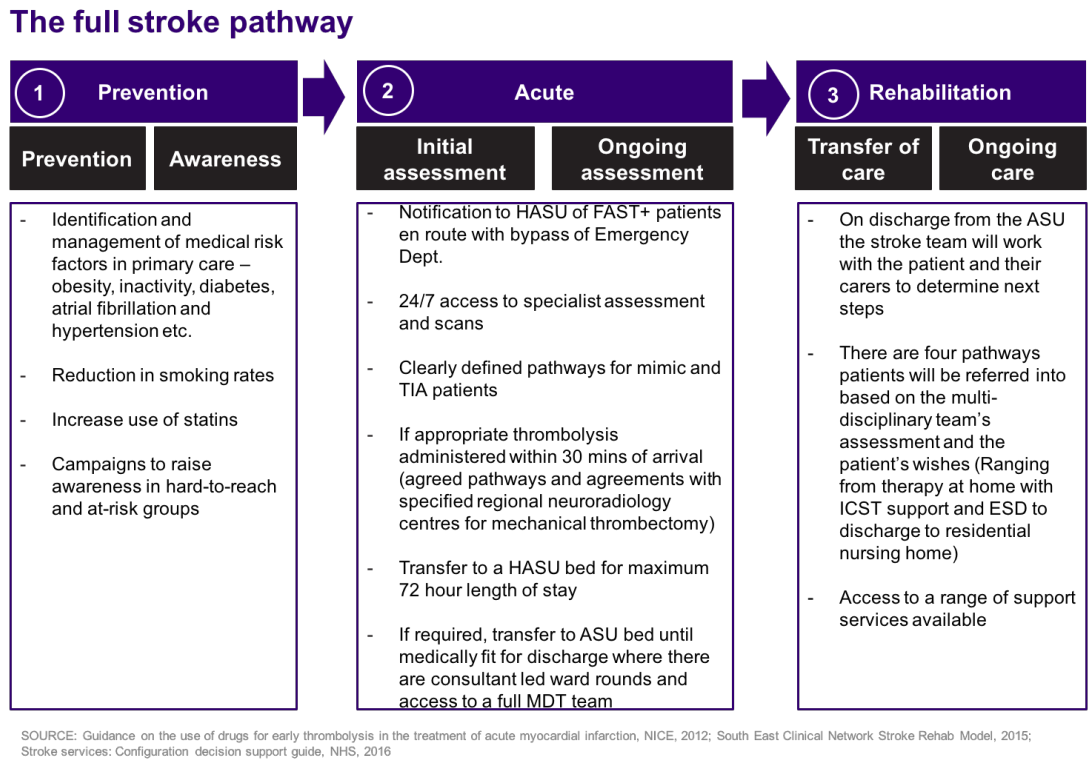
6.3 The stroke pathway

The stroke pathway can be separated into three sections, as shown in Figure 10:

1. **Prevention:** supporting people to follow healthy lifestyles and reducing the numbers of people who are at risk of, or experience, a stroke.
2. **Urgent (acute):** care whilst a person is experiencing a stroke, mainly focusing on getting a person to urgent care services as quickly as possible and then providing the highest quality care.
3. **Rehabilitation:** rehabilitation following a stroke to give the highest quality of life possible in a setting of care as close to home as possible.

The focus of this PCBC is on the urgent (acute) part of the stroke pathway and the most detail is given on this.

Figure 10: the full stroke pathway



SOURCE: Guidance on the use of drugs for early thrombolysis in the treatment of acute myocardial infarction, NICE, 2012; South East Clinical Network Stroke Rehab Model, 2015; Stroke services: Configuration decision support guide, NHS, 2016

6.4 Prevention

Although the focus of this PCBC is on hospital stroke services, it is acknowledged that the prevention of stroke is a key priority for local services. Our vision is that every part of the health and social care system will view prevention as their business. Staff will take every opportunity to offer advice, guidance, and support to people so that they can improve their lifestyles and their health outcomes. The system will be equipped with appropriate tools and resources to make this happen.

Clinicians have identified the following factors as crucial to improving stroke prevention:

- Reduction in smoking rates
- Improvements in diabetes detection and care
- Better identification and management of high blood pressure and atrial fibrillation
- More widespread use of statins
- A focused strategy on the identification and prophylactic anticoagulation of patients with atrial fibrillation
- Primary prevention initiatives to address obesity and increase physical activity

In Kent and Medway, there are plans to deliver a number of initiatives to improve public health and help prevent strokes, particularly by targeting smoking and obesity. These initiatives include:

- Smoking advisors located in each of the acute hospitals in Kent and Medway to provide direct stop smoking support which will continue after discharge.
- Developing tailored support for people with mental health conditions.
- Encouraging GPs and other frontline workers to encourage patients to stop smoking.
- Ensuring all pregnant women are referred into the stop smoking service, if appropriate.
- Training youth workers and designated support staff in schools to Stop Smoking Advisor Training level 2 to become Quit Coaches.
- Offering “very brief advice” delivered by health care professionals (VBA): this will have three core components, ASK and record smoking status, ADVICE on the best way of quitting and ACT by offering referral to specialist support and prescribing medication if appropriate.
- Implementing “Stop before the op” programmes: as part of any treatment to increase its clinical effectiveness, as many drugs are adversely affected by chemicals in tobacco smoke and many conditions are aggravated by continued smoking.
- Promote Smoke Free environments, particularly in areas where children congregate (e.g. developing smoke free school gates policies in schools).
- Support health and social care settings to have a healthy food environment.
- Health and social care staff receive training in Making Every Contact Count, which enables health and care staff to give very brief advice and signposting to support local people to improve their health and lifestyle.
- Adapting all long-term treatment pathways to include routine discussion and recording of conversations relating to healthy weight.

Staff and organisations across health and social care will need to work together to deliver these initiatives and embed prevention in all aspects of service delivery.

6.5 Urgent stroke services

Although there is no national specification in place for stroke services, the National Stroke Strategy 2007 and more recent 2016 edition provides guidance on recommended best practice[34]. This shows that key to successful outcomes for stroke patients is a high-quality stroke unit with rapid access to

diagnostics, specialist assessment and intervention. Evidence shows that rapid specialist assessment and intervention in the hyper acute phase (the first 72 hours after a stroke) reduces mortality and improve long term outcomes for stroke patients. For example, a meta-analysis of stroke studies showed that treatment with thrombolysis had an average absolute increase in disability-free survival of about 10% for patients treated within 3 hours and that thrombolysis increased the odds of a good stroke outcome, with earlier treatment associated with bigger proportional benefit. Treatment within 3 hours resulted in a good outcome (32.9%) versus (23.1%) who didn't receive this[35]. Centralising acute stroke services also supports a reduction in mortality and improved outcomes for patients; a 2014 study evaluating the centralisation of acute stroke services reported decreases in unadjusted mortality at 30 days of between 1.6% and 2.8% for the two areas studied, as well as an absolute decline in risk adjusted length of hospital stay of between -2.0 days and -1.4 days[36].

It is possible to have separate hyper acute stroke units (HASUs - first 72 hours) and acute stroke units (ASUs - 72+ hours) on different hospital sites. However, a similar workforce is required to cover each type of unit and therefore it is sensible to co-locate HASUs and ASUs to support the consolidation of the workforce into fewer units. Co-locating HASUs and ASUs also significantly reduces the need to transfer patients. Clinicians therefore agreed that hyper acute stroke units and acute stroke units would be co-located in Kent and Medway.

The key requirements of 'good' hyper acute and acute stroke units that delivers the best outcomes for patient are[37]:

- Access 24 hours, seven days a week
- Rapid and accurate diagnosis
- Clinical expertise
- Access to imaging and good interpretation
- Direct admission to a specialist stroke unit
- Immediate access to treatment
- Specialist centres with sufficient numbers of patients and expert staff
- High quality information and support for patients and carers
- Inpatient care through a specialist unit with co-ordinated assessment and plans for discharge to continued rehabilitation
- The service measures what it does, publishes data and constantly looks for improvements.

In order to meet these requirements, Kent and Medway hyper acute and acute stroke units will adhere to the following national recommendations for hyper acute and acute stroke units[38]:

- Be a seven-day dedicated specialist unit with more than 500 confirmed stroke admissions
- Achieve rapid assessment and imagery; imaging within one hour and call to needle (thrombolysis) times of two hours[2]
- Have patients admitted directly onto a specialist stroke unit within four hours
- Have patients stay in the stroke unit for 90% of the inpatient episode
- Assess patients by specialist stroke consultant and stroke trained nurse and therapist within 24 hours
- Have seven-day stroke consultant cover
- Have seven-day stroke trained nurse and therapist cover.

[2] Kent and Medway have adopted a standard of 120 minutes call to needle (thrombolysis) per the guidance in NHS South East Clinical Networks, Stroke and TIA Service and Quality Core Standards, 2016

In addition, the South East Strategic Clinical Network Stroke and TIA Service and Quality Core Standards 2016 set out that the care of people with suspected stroke should aim to minimise time from call to needle to a recommended standard of within 120 minutes. This requires:

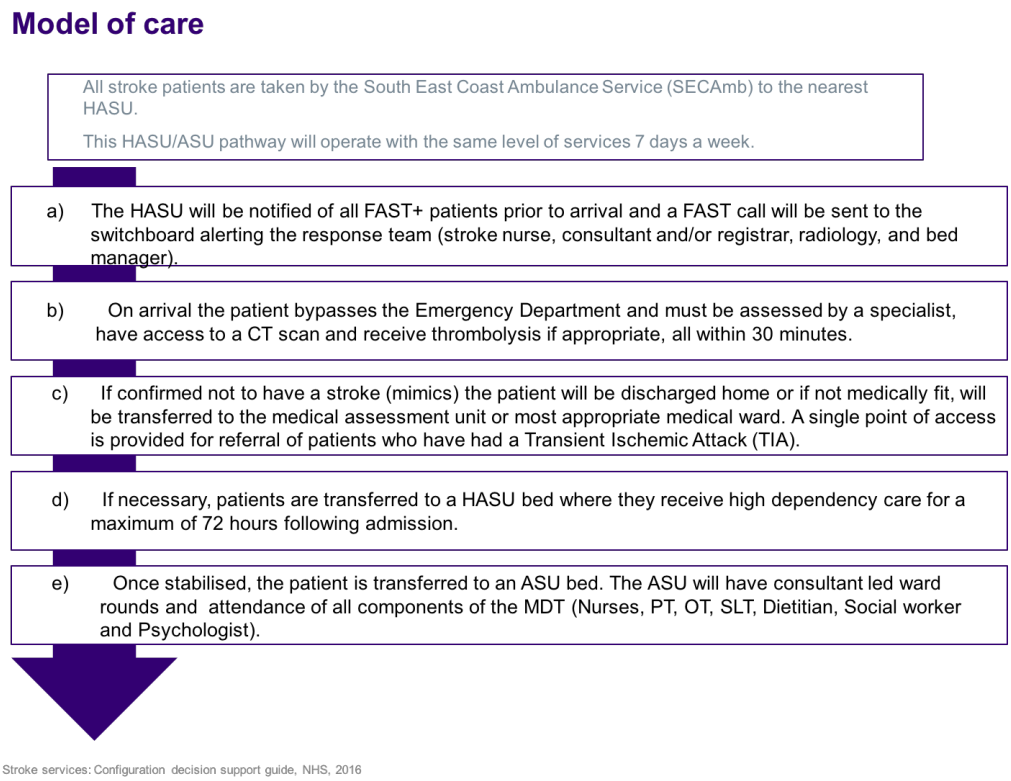
- Call to (hospital) door time as soon as possible < 60 minutes
- Door to needle time for those appropriate for in licence use of IV thrombolysis as soon as possible <60 mins[39].

Clinicians are clear that hyper acute and acute stroke units should be delivered to a high standard regardless of the day of the week. Hospitals need to provide 7-day services such as diagnostics and therapies where they have traditionally been a Monday to Friday service or on call for emergency patients. A 7-day service supports the development of co-located hyper acute and acute stroke units which will enable TIA clinics to be accessed 7 days a week and the urgent pathway to be accessed 24 hours a day. The national guidance and the Stroke National Clinical Director note that the quality of the hyper acute and acute stroke unit is the single biggest factor that can improve a person's outcomes following a stroke[40]. Successful stroke units are built around a stroke-skilled multi-disciplinary team that can meet the needs of individuals.

6.5.1. Hospital stroke pathway

Clinicians have agreed an hospital stroke patient pathway for Kent and Medway, which is shown in Figure 11.

Figure 11: hospital stroke pathway for Kent and Medway



SOURCE: Stroke services: Configuration decision support guide, NHS, 2016

In more detail:

A. **Pre-hospital:** evidence shows that the more rapidly thrombolysis is administered, the better the outcomes for stroke patients. The ambulance service will work to minimise the amount of time taken to assess and stabilise the person and then convey them to the nearest hyper

acute stroke unit (HASU). The HASU will be notified of all FAST+[3] patients (people with stroke symptoms) prior to arrival and a FAST+ call will be sent to the switchboard alerting the response team (stroke nurse, consultant and/or registrar, radiology and bed manger). Where appropriate, the HASU will have designated ambulance bays, so, on arrival, patients will bypass the Emergency Department avoiding delays in treatment.

B. **Thrombolysis:** thrombolysis with alteplase is administered to around 10% of patients experiencing a stroke in Kent and Medway, and it is expected that this would continue to be administered to the same or more people under the new model of care[41]. Thrombolysis with alteplase is a treatment administered to stroke patients which can break down and disperse a clot that is preventing blood from reaching the brain. Breaking down a blood clot can restore blood flow to the brain, and, if given early enough, can save brain cells from damage and reduce disability. All thrombolysis decisions are made by a consultant. If, following a CT scan, thrombolysis is indicated, it will be administered within 4 hours from symptom onset and within 30 minutes of arrival at the HASU[4]. Mechanical thrombectomy is an emergency procedure to remove a blood clot using surgery. Currently, mechanical thrombectomy is only offered in full neurosciences centres (there are no neurosciences centres in Kent and Medway and therefore currently patients must travel to London). Due to the geographical remoteness of some places in Kent and Medway, this service may be developed locally in the future. In the interim, there are agreed pathways and agreements in place with specified regional neuroradiology centres for mechanical thrombectomy.

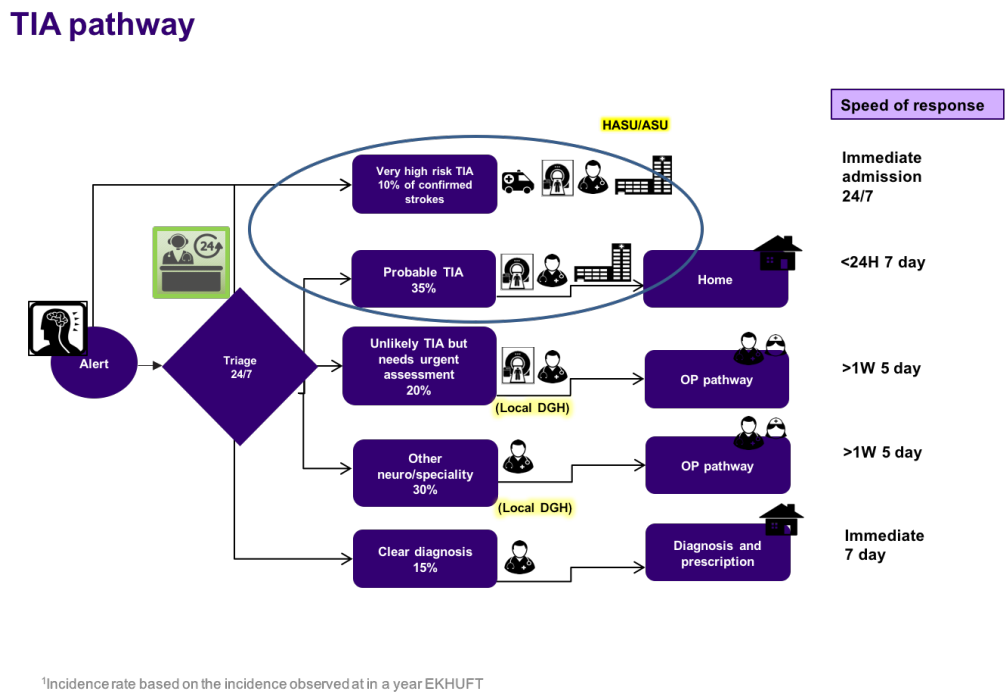
C. **Mimic and transient ischemic attack (TIA) pathways:** some patients who are brought to hospital with a suspected stroke have not actually had a stroke but may still require follow-up care. This includes patients with mimic symptoms, some of whom may require neurology input, and people with a TIA, which may be a precursor to a stroke. If the condition does not require further hospital care, the patient will be discharged with appropriate community hospital follow-up in the patient's local hospital. If the condition is primarily neurological and would benefit from supervision of a neurology team, the patient will be transferred to the ASU for ongoing care. If the condition requires further general hospital care, the patient will be quickly transferred to the general team within the HASU hospital if the predicted length of stay is 2 days or less or to the general team at their local hospital site if the predicted length of stay is more than 2 days. Clinicians in Kent and Medway have also agreed a TIA pathway based on National Institute of Clinical Excellence (NICE) guidelines[42]. The full TIA patient pathway is shown in Figure 12. A single point of access will be provided for the referral of patients who have had a suspected transient ischemic attack (TIA) – it is anticipated that this would equate to around 8,863 patients in total across the Kent and Medway catchment area per year. TIA clinics will be held 7 days a week for high risk and probable TIA patients at each of the HASU/ASU sites – around 3,298 patients per year across all three sites. It is intended that the 7 day TIA clinics will be located on the same sites as the HASU/ASUs due to workforce constraints, and this has been factored into the consultant rota job plans. A small increase in nursing support (c.1.5 WTE in total across all sites in each option) and admin time would be required to supplement this. Very high risk TIA patients will be admitted to their closest HASU/ASU site. An uplift has been applied to the confirmed stroke activity modelling to account for this increase to overall bed requirements. At the HASU/ASU sites there will be daily time slots available for CT; CT Angiograms; MRI; MRA;

[3] **FAST** is an acronym used as a mnemonic to help detect and enhance responsiveness to stroke victim needs. The acronym stands for **F**acial drooping, **A**rm weakness, **S**peech difficulties and **T**ime to call emergency services.

[4] Kent and Medway have adopted a standard of 120 minutes call to needle (thrombolysis) per the guidance in NHS South East Clinical Networks, Stroke and TIA Service and Quality Core Standards, 2016

carotid dopplers; bloods tests including cholesterol and lipids; and provision for non urgent cases (around 5,500 patients per year) will be kept under review during consultation and as part of implementation planning. It is anticipated that under this model, the clinicians at local non-HASU/ASU hospitals would be able to link into stroke physicians at the HASU/ASU sites, leveraging advances in technology and telemedicine. In addition, GPs and other healthcare professionals will be able to contact a stroke specialist at the HASU/ASU sites 24 hours a day 7 days a week for advice.

Figure 12: transient ischemic attack (TIA) pathway



[1]Incidence rate based on the incidence observed at in a year EKHUFT

D. **Hyper acute stroke unit (HASU):** patients with an identified stroke will be admitted to a hyper acute stroke unit (HASU) bed where they will stay for a maximum of 72 hours. A HASU is similar to a critical care unit with typically 4-6 beds. In line with national guidance, patients on the hyper acute stroke unit will have immediate access to[43]:

- specialist medical staff trained in the hyper acute and acute management of people with stroke, including the diagnostic and administrative procedures needed for the safe and timely delivery of emergency stroke treatments;
- specialist nursing staff trained in the hyper acute and acute management of people with stroke, covering neurological, general medical and rehabilitation aspects;
- stroke specialist rehabilitation staff;
- timely diagnostic, imaging and cardiology services; and
- tertiary services for endovascular therapy, neurosurgery and vascular surgery (in the case where these are networked services, clearly defined referral pathways will be in place)

The HASU will have continuous access to a consultant with expertise in stroke medicine, with consultant review 7 days per week[44]. Scans will be staged according to clinical priority with stroke a prioritised service for scanning. Stroke nurses will be trained to request scans to

eliminate any delays. The CTA (CT angiography) service will be provided by a stroke consultant in the first instance followed by radiology report next working day.

E. **Acute stroke unit (ASU):** once stabilised and if continuing urgent care is required, patients will be transferred from a hyper acute stroke unit (HASU) bed to an acute stroke unit (ASU) bed. An ASU is similar to a ward with access to rehabilitation space. In line with the national guidance the acute stroke unit will provide[45]:

- specialist medical staff trained in the urgent management of people with stroke;
- specialist nursing staff trained in the urgent management of people with stroke, covering neurological, general medical and rehabilitation aspects;
- stroke specialist rehabilitation staff;
- access to diagnostic, imaging and cardiology services
- access to tertiary services for neurosurgery and vascular surgery

Patients on the ASU will have continuous access to a consultant with expertise in stroke medicine, with consultant review 7 days per week. There will be attendance of all components of the multi-disciplinary team (nurses, physiotherapists, occupational therapists, speech and language therapists, dietitians, social workers and psychologists) as patient rehabilitation will start here. If a patient requires continued intensive rehab and more support than they could receive at home, they will move to a stroke rehabilitation unit. This may be co-located with the acute stroke unit or provided elsewhere in community hospitals.

6.5.2. Co-dependencies with other hospital services

The hyper acute and acute stroke units will provide high quality emergency stroke care 24 hours a day, 7 days a week. As set out by the South East Coast Clinical Senate, these dedicated units will need to be supported by other services including acute medicine, critical care, urgent diagnostics and therapies[46]. This is shown in Figure 13.

Figure 13: co-dependencies for a hyper acute and acute stroke unit

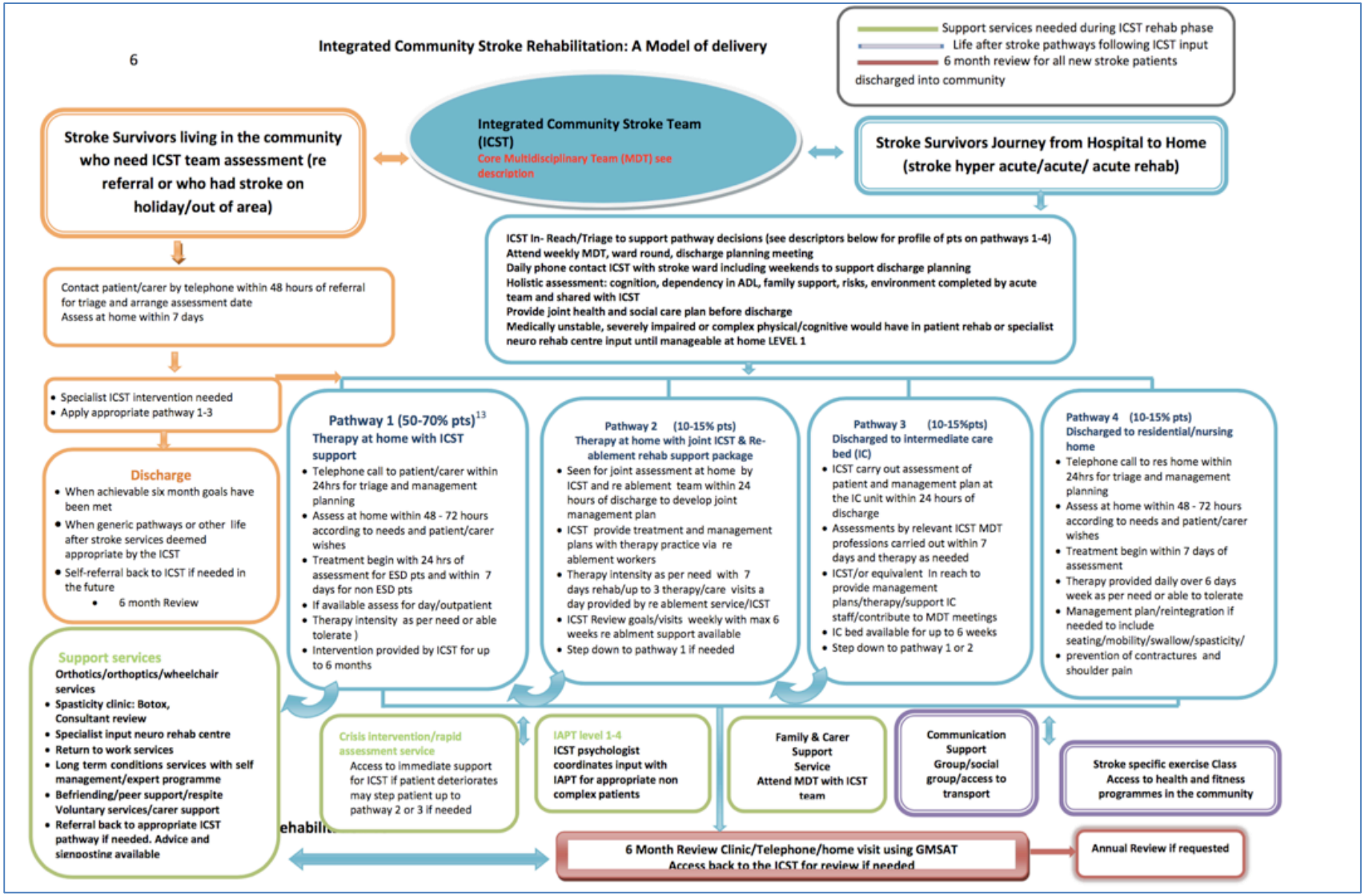
SOURCE: The Clinical Co-Dependencies of Acute Hospital Services: Clinical co-dependency grid, South East Coast (2014)

If patients on hospital sites which do not have a HASU/ASU have a stroke whilst at hospital, they will be transferred to the HASU/ASU site by ambulance.

6.6 Community stroke rehabilitation

It has been recommended by the South East Coast Clinical Senate and agreed by the Kent and Medway Clinical Reference Group that the South East Cardiovascular Clinical Network stroke rehabilitation model (shown in Figure 14) will be used in Kent and Medway[47]. The model is the product of reviews of rehabilitation stroke services across Kent, Medway, Surrey and Sussex.

Figure 14: integrated stroke rehabilitation model



6.6.1. Integrated community support team

Stroke patients will be referred to an integrated community stroke team (ICST) following the urgent part of their care. Crucially, this represents a single point of entry to the service. The ICST will continue the patient's rehabilitation until they have either reached their agreed goals or their maximal level of function. The ICST will engage in in-reach/triage to determine which of the pathways is best suited to the patient:

1. Therapy at home with Integrated Community Stroke Team (ICST) support
2. Therapy at home with joint ICST and re-ablement rehabilitation support package
3. Discharge to intermediate care bed
4. Discharge to residential/nursing home

Integrated Community Stroke Team (ICST)

Post-hospital stroke rehabilitation will be provided by the ICST, a multidisciplinary team (MDT) which may include:

- Clinical Psychologist/ Neuropsychology
- Occupational Therapist
- Physiotherapist
- Speech and Language Therapist
- Nurse
- Dietician
- Social worker
- Rehabilitation support workers/assistant practitioner
- Access to consultant stroke/GP for medical support post discharge

This team will support all rehabilitation pathways and early supported discharge.

6.6.2. Pathways

Patients will move between pathways depending on ability and attainment of rehabilitation goals. Rehabilitation will be guided by the pathways and directed by agreed goals structured, where appropriate, as components of ongoing management plans.

1. **Pathway 1 - Therapy at home with Integrated Community Stroke Team (ICST) support:** for high functioning patients who can be discharged home with community stroke team input over six days per week or weekends if needed. Daily visits will be made by therapists and rehabilitation support workers as needed. Day hospital outpatient therapy may be offered where appropriate and available. Additionally, these patients will be considered for early supported discharge (ESD).

2. **Pathway 2 - Therapy at home with joint ICST and re-ablement rehabilitation support package:** as pathway 1, treatment at home with ICST support and additional and re-ablement service support up to four times a day. Support will run for six weeks to enable safe management and rehabilitation at the patient's place of residence.

3. **Pathway 3 - Discharge to intermediate care bed:** patients will be stepped down from hospital into an intermediate care bed. The patient may be under the care of a general rehabilitation multi-disciplinary team but with specialist stroke rehabilitation input for a maximum of six weeks. The patient is then able to step down to pathway 2 or 1 depending on ability following rehabilitation in the intermediate care unit.

4. **Pathway 4 - Discharge to residential/nursing home:** discharged into a residential or nursing home setting with support from the ICST as per need. This pathway is for patients who are discharged into residential/nursing home care to ensure they have timely access to specialist rehabilitation and management post discharge.

Any patient with residual impairment after the end of initial rehabilitation will be offered a formal review at least every six months, to consider whether further interventions are warranted, and will be referred for specialist assessment if new problems, not present when last seen by the specialist service, are now present or the patient's physical state or social environment has changed.

6.6.3. Early supported discharge (ESD)

The purpose of early supported discharge (ESD) is to provide a structured rehabilitation programme, suited to the needs of each individual stroke patient, deemed suitable for this part of the pathway. ESD will be an integral part of the ICST which will allow for flexible working and clear oversight of the patient pathway in the community and specialist stroke and neuro rehabilitation expertise. Patients may be discharged to the service directly from a hospital setting. The intention is to deliver a seamless transition from ward to home, maintaining both quality and continuity of care for the patient.

ESD has been shown to improve the rehabilitation outcomes of stroke patients and reduce the use of hospital bed resources. It is anticipated that the patients with mild to moderate disability following their stroke will be referred into the ESD service.

The length of time patients remain part of the ESD service will depend upon their overall progress, progress towards agreed active rehabilitation goals and potential to restore the patient to maximal function. When the period of ESD rehabilitation comes to an end, the patient will be transferred to other services. The receiving service will be dependent upon the patient's assessed needs. This could include:

- Community and voluntary services (e.g. The Stroke Association)
- Community stroke rehabilitation service
- Stroke nurse specialist
- GP

6.6.4. Further work and implementation

Whilst the work on the stroke rehabilitation model is on-going, the current model of care will continue to be delivered. Stroke rehabilitation services are currently provided across Kent and Medway by providers including Kent Community Health Foundation Trust, Medway Community Healthcare, Maidstone and Tunbridge Wells NHS Trust, Kent and Medway Partnership Trust and Virgin Health. There are approximately 111 stroke rehabilitation beds provided in several different wards across the county; most of which (65%) are not dedicated to stroke patients. Some stroke rehabilitation beds are provided within acute hospitals, but most are provided in the community. Supported discharge to home or nursing/residential care is provided by multi-disciplinary teams.

The stroke rehabilitation referral and care pathway, as well as the composition of the core multi-disciplinary team, varies across Kent and Medway. Early Supported Discharge (ESD) is offered and utilised across the whole of Kent and Medway but access to therapists and support services is generally not available at the weekend. This is also the case for people who are in stroke rehabilitation beds. There is also limited access to some specialists within the multi-disciplinary teams, particularly medical support post-discharge.

There are currently no plans to change the number or location of stroke rehabilitation beds. The work on rehabilitation is on-going and at a high level will involve agreeing commissioning principles, developing an agreed service specification, and developing a business case for the implementation of the new model of care for rehabilitation. There will then be consultation on the detailed model of care, service specification and number and location of stroke rehabilitation beds in Kent and Medway, if required.

6.7 Enablers

In order to deliver the vision for hospital stroke services in Kent and Medway, a number of key enablers will be required. This includes a skilled workforce in sufficient numbers and fit-for-purpose estates with a supporting digital infrastructure.

6.7.1. Workforce

The vision is to have a *workforce fit to deliver sustainable high quality person-centred care*. For stroke services, this will mean:

- an improved multi-disciplinary team and multi-disciplinary way of working providing improvements in patient care through an enhanced service and improved integration across primary, community and secondary care,
- increased opportunities for staff to maintain and enhance their skills
- improved development opportunities for staff through multidisciplinary education and development
- improved career opportunities for staff to improve attraction and retention
- consolidation of staff on fewer sites to provide improved sustainability of services, 7 days a week

To achieve the changes required, a collective approach is being developed to address these challenges, alongside new ways of working that will support the workforce to lead and work across pathways to deliver improved outcomes for the people in Kent and Medway. The workforce will be equipped with the skills to lead service improvement and transformation with a greater use of technology, working in partnership with patients and carers in the delivery of their care. Examples of initiatives include:

- Stroke roles will be promoted using recruitment activities including the use of targeted campaigns and the Kent and Medway recruitment website, specifically developed for hard to recruit roles.
- Using the stroke-specific education framework, a multidisciplinary education programme will be provided to ensure all stroke staff are provided with the adequate speciality training.
- New and enhanced roles will be introduced as part of the new service model including Clinical Assistants (providing administrative support for the clinicians).
- Development opportunities will be provided for staff to develop their knowledge and clinical skills therefore working towards becoming multi skilled professionals working in an interdisciplinary way and reducing duplication of time and effort. We will also explore the possibility of rotating roles to give clinical staff the opportunity to work across clinical pathways/setting
- Investment in team development focused on multidisciplinary working will be provided to support the formation and embedding of new teams.
- An improved career structure will be provided within the stroke service, with attractive roles for all staff with opportunities and support to develop.

There are workforce capacity pressures which have significant implications for the effective functioning of local services. Rather than competing against each other for a limited pool, local organisations need to work together to address the more fundamental questions of how to encourage people to join the workforce in Kent and Medway and how people can be supported to enjoy a rewarding career.

6.7.2. Estates

The estate to deliver stroke services needs to be well-maintained and fit for purpose. Implementation of the new service model will seek to make the best use of available space. This will include using currently available space that has been refurbished with new build used only if required. Opportunities for disposing of old estate, increasing co-location and occupancy rates and reducing leasehold costs will be explored where possible. There is a commitment from providers to ring fence stroke beds, to protect them for stroke patients.

6.7.3. Digital

Technology will be used to improve outcomes through robust, secure and seamless use of information and systems. This will

- facilitate and encourage local people in improvement of their health and care
- support self-care and support carers
- join up health and social care and other providers of care services by transforming the way care professionals record information, transact and communicate with patients and staff
- enable more informed decision making

Service user empowerment will be encouraged through technology and will drive the use of familiar consumer technology (such as texts, social media and apps) to support greater self-care, improvements in health and wellbeing, and access to services. This includes the use of real-time and historic data to support predictive modelling and improvements in clinical service delivery at point of care. Population health analysis and management will also support effective commissioning.

To support the new models of care, the Sustainability and Transformation Partnership will develop:

- an integrated shared care record providing all health and care professionals with immediate access to all relevant patient information.
- eNavigation systems to support health and care professionals with a common directory of services and referral processes to access common pathways.
- infrastructure to support universal access to the relevant digital systems and services.
- online patient services to facilitate access for local people to care records and other online services such as appointment booking.
- use of expert systems to provide local people and care professionals with access to expert knowledge to support care processes.
- use of telemedicine and telecare services to support remote monitoring of patients and to provide remote access to diagnostic services and clinical expertise.

6.8 Patient stories

6.8.1. Prevention

Before
Joe Higgs is a 59 year old bus driver. He is overweight and has mild diabetes and is not very active. He gets invited to his GP surgery for a routine blood pressure check, but as the nurse uses a digital blood pressure machine without pulse record his irregular heart beat is not detected.

A week later he wakes having been watching TV and his right arm feels numb. He assumes that he must have slept awkwardly and ignores this. The arm is much better in the morning and back to normal by lunchtime so he forgets all about this.

A week later he is driving his bus when he feels unwell and loses all sensation and strength in his arm. Luckily, he is in traffic and travelling slowly and is able to stop safely. One of his passengers calls 999 and ambulance takes him to the local hospital where it is confirmed that he has had a stroke caused by a blood clot from his irregular heart (atrial fibrillation).

He has rehabilitation, but doesn't get enough strength back in his arm to return to driving and so he has to retire on health grounds.

After
Joe gets called to his GP for a blood pressure check where the nurse, using a blood pressure machine that shows the pulse rhythm notices that his pulse is irregular. The GP does an ECG and confirms that he has atrial fibrillation (the 'loading chamber of the heart' is not emptying efficiently putting him at risk of getting blood clots).

He is enlisted in a stop smoking class and encouraged to start exercise.

Following counselling it is agreed that he should be treated with anticoagulants ('blood thinning medication') that greatly reduce the risk of getting blood clots.

He informs the DVLA and has to stop driving the bus, but his company are able to find him alternative work, while he has hospital investigation and then treatment to cure his fibrillation.

Having realised how dangerous this could have been he has stopped smoking and lost weight. He spends more time being active and enjoys getting out for country walks.

6.8.2. Thrombotic stroke (blood clot)

Before
Josephine Murray is a 63 year old lady who has just returned from holiday – a trip to Florida with her grandchildren.

A couple of days later while she is looking after her granddaughter when her speech becomes confused, she has difficulty finding words, and she realises that her face has become lop-sided.

She has seen the FAST adverts (Facial Drooping, Arm weakness, Speech difficulties, Time) and calls her son back from his work but it is a couple of hours before he is back home and calls the ambulance. She had forgotten that T meant she needed to act quickly.

She is taken to the local hospital, where she has a brain scan, which confirms that she has a blood clot, possibly related to her recent flights. When the specialist comes to see her, it is too late to be considered for any urgent treatment. Over the next few hours her swallowing becomes more difficult and she develops a chest infection.

She spends a long time in hospital and has intermittent speech therapy and physiotherapy. She makes a reasonable recovery, but never regains confidence to fly for holidays again.

After
When Josephine phones her son he knows that FAST needs an urgent response and he calls 999 before immediately heading back to help.

When he arrives the ambulance crew have already arrived and having assessed Josephine they are getting her into the ambulance and explain they are taking her to the specialist stroke unit. Despite being further away than he local hospital she will get faster specialist care.

When she gets to the hospital she is taken straight to the stroke entrance where she is seen rapidly and fast tracked for a brain scan. This confirms that her stroke is caused by a blood clot. The consultant attends quickly and after explaining what the problems are she is given an injection which helps the blood clot dissolve.

She rapidly starts feeling better and her speech and face return to normal. She is admitted for a very short spell but is sent home within 3 days having fully recovered.

She is given advice about exercise and moving during flights so next year her trip back to the States is uneventful.

6.8.3. Haemorrhagic stroke (bleeding)

Before
Jack Scott is an 83 year old man with high blood pressure. He has stopped smoking a few years ago. His blood pressure tablets make him feel dizzy when he stands up quickly so he doesn't always take them.

On Sunday afternoon he is watching the TV when his wife, Amy, notices that he has dropped his mug of tea and can't talk properly. She realises that he may have had a stroke and calls the ambulance who take him to his local hospital.

He gets to the hospital quite quickly and has a scan, but this shows that his stroke is caused by a bleed so that there is no active treatment necessary other than getting his blood pressure under control.

He becomes less well over the next day, which is not unusual with this sort of stroke, but then stabilises. The physiotherapists come to see him each day, but are not available at weekends. His swallowing is poor but the speech therapist is only able to see home once a week and the dieticians advise to thicken his drinks is not consistently followed. He has a long stay in hospital and with limited rehabilitation he has difficulty getting home and has a couple of falls and a chest infection, but luckily doesn't break any bones. In the end he is discharged to a nursing home as his wife can't manage to help getting him in and out of bed and he can't manage stairs.

After
When Jack has a stroke, he is taken to the specialist stroke unit.

Following his scan, the Multidisciplinary Team get involved quickly. As they are working together in a specialist unit the team has become a great place to work and they don't have the problems with getting staff that they used to have.

They work with Jack and his wife and prepare a care plan. They visit regularly, working as a team – physio, dietician, speech therapist and occupational therapist (OT). Jack is frustrated and gets depressed so they arrange for the team psychologist to help as well.

The OT visits Jacks home and arranges adaptations which are put in place quickly.

The team explain the advantage of Early Supported Discharge. Amy is a bit nervous about Jack coming home while he is still weak, but the team promise that they will be able to help.

Jack is sent home and the team come and see him that afternoon. Amy is able to help Jack do his exercises and the pharmacist visits with his medicines and fluid thickener.

Jack gradually gains confidence and strength. His arm remains weak, but he can get to his local pub.

7. Benefits of implementing the vision

Achieving the vision will change the way hyper acute and acute stroke units are delivered. It will improve health and deliver a sustainable future for the urgent stroke healthcare system. Successfully implementing these changes will be beneficial across Kent and Medway, both to people using services and those working hard to deliver them.

Benefits will be realised from all aspects of the proposals. Benefits will also be delivered throughout the period of change, not only at the end of the Stroke Review.

7.1 Developing the benefits framework

The benefits framework enables the quantification and monitoring of the successful delivery of benefits from the changes that are implemented. The benefits framework:

- provides a framework through which the Stroke Review can monitor and demonstrate its value and achievements
- addresses the challenges the case for change identifies and supports the options appraisal process by aligning with the evaluation criteria.

It is important to translate the proposals into specific benefits, so the public can have a better understanding of what will be achieved and so improvements from the Stroke Review can be measured. Setting out the benefits framework has also demonstrated that clear benefits can be realised through the Stroke Review and that consideration has been given to how this will be achieved.

7.2 Approach to defining the benefits framework

The benefits framework has been developed by clinicians and tested with patient representatives. Patient and clinical benefits have been informed by:

- Stroke Programme Board
- Stroke Clinical Reference Group
- Sustainability and Transformation Partnership (STP) Clinical Board
- Patient and Public Advisory Group

Operational benefits (including workforce and estates) have been informed by:

- STP Finance Group
- Stroke Programme Board
- STP workforce workstream
- STP estates workstream
- STP digital workstream

The benefits framework is presented in a format to clearly link improvements in delivery of hyper acute and acute stroke units to expected benefits.

7.3 Expected areas of benefit

The main areas of benefit from the proposals will be:

- Improved clinical outcomes for patients
- Improved experiences for patients and their carers
- Improved experiences for staff, due not only to improvements in patient care, but also improved team and multi-disciplinary working and increased opportunities to maintain and enhance skills
- Supporting the delivery of financially sustainable services.

Some benefits from achieving the vision have been quantified, and are set out in Figure 15.

Figure 15: expected benefits from the proposals

Category	Desired benefit	Primary stakeholder impacted	Service required to realise	Outcomes displayed if realised	Baseline measure
Prevention	Increased awareness of stroke prevention measures	Patient	• General practice • Public Health • Community	• Reduction in smoking • Reduced incidence of TIA and Stroke	ONS Smoking statistics 2017 SSNAP 16/17
	Daily access to TIA clinics, consultant review and diagnostics	Patient	• Consistent clinic service • Augmented workforce	• Reduced TIA access delays	Trust information systems
Quality	Increased patient survival rate (reduced premature/avoidable deaths) / increased years of life	Patient	• 120 min door to needle • 24/7 MDT supported unit • Consultant led service – 7 day • 24/7 access to diagnostics	• Reduced deaths on stroke care pathway • Reduced deaths within 6 months of admission	SSNAP 16/17 HES HES mortality data
	Reduced disability	Patient		• Reduced length of stay • Reduced discharge to supported care • Reduced discharge to care homes	SSNAP 16/17
	Reduced dependence	Patient			
	Improved patient experience	Patient		• Friends and family	Trust satisfaction data (16/17)
	Consistent service delivery	Patient		• Increase in patients admitted onto a stroke specialist ward within 4 hours • Increase in percentage of patients who spent at least 90% of their inpatient stay on stroke unit	SSNAP 16/17
Access	Consistent access to HASU service, rapid diagnosis and a door to needle time of <120mins	Patient		• Increase in imaging within one hour of admission • Increase in thrombolysis within 60 mins of arrival • Travel times <60mins	SSNAP 16/17 Ambulance Service statistics
Workforce	Improved workforce experience/quality (attractiveness for employment)	Workforce	• Best in class model with team working • Increase in training and development opportunities	• Reduced vacancy rates • Reduced staff turnover • Reduced use of locums and agency staff	Trust workforce statistics (16/17)
	Increased, appropriate and effectively utilised capacity (key staff / workforce, beds)	Providers		• Increase in staff productivity measures	Trust workforce statistics (16/17)
Digital	Reduction in risk and variation of service by providing a common pathway for care	Patient	• Optimal use of digital technology • Sharing of patient records	• Reduced prescribing errors • Reduced serious incidences • Reduced length of stay	Hospital significant events reporting
Financial	Cost savings	Commissioners Providers	• Efficient service model	• Reduced length of stay • Reduced locum requirements • Reduced need for residential and nursing care	SSNAP 16/17 Trust workforce statistics (16/17) Social care statistics (16/17)
Rehab	Consistent access to MDT, ESD and community care	Patient	• Consistent service model • Augmented workforce	• Reduced length of stay • Reduced dependency	SSNAP 16/17

7.4 Benefits realisation

Benefits realisation needs careful management and close measurement. Benefits measures should focus on and record both outputs (e.g. reduced average lengths of stay) and expected outcomes (e.g. reduced disability) to demonstrate the success of delivery. A pragmatic list of measurable performance indicators will sit alongside the benefits outlined in the benefits framework. It is recognised that there can sometimes be a 'dip' in performance during implementation and that some changes will not always be viewed positively by individual patients or staff. However, patient safety remains paramount.

Benefits realisation is part of the commissioning cycle and benefits tracking is firmly embedded within performance management arrangements under 'business as usual'. Strong clinical leadership of benefits realisation will support successful delivery of the Stroke Review. Providers within Kent and Medway will use a variety of methodologies to deliver improvements.

After consultation, decisions will be made about which specific areas to measure. Wherever possible existing mechanisms and systems will be used to monitor the realisation of benefits, rather than creating an additional data burden.

7.5 When benefits can be expected to be realised

Draft implementation plans have been included in this PCBC (see Section 12.2) and are part of the public consultation process. While different elements of the proposals have differing associated timescales, changes to hospital stroke services will start as soon possible following consultation, and realisation of benefits should follow. All benefits are likely to be maximised after the plans are fully implemented.

It is sometimes difficult to isolate benefits from specific changes, but measuring benefits alongside the implementation plans will help. Some improvements may be attributable to a range of factors but also not seeing improvements against a particular measure may not necessarily mean that the changes have been unsuccessful. Other factors may have arisen which means improvements are not seen but the benefits framework allows investigation and rectification.

7.6 Monitoring of benefits realisation

Clear benefits realisation will be part of implementation, with:

- Clear and comprehensive implementation plans that have been developed with clinicians
- A pragmatic benefits realisation framework, with associated governance arrangements and processes to:
    - Identify the top two or three benefits of the change for additional focus
    - Track progress of benefits realisation formally
    - Identify actions that are required in response to any benefits not being realised
    - Define reporting requirements visible to all organisations involved, patients and the public, to monitor benefits realisation.

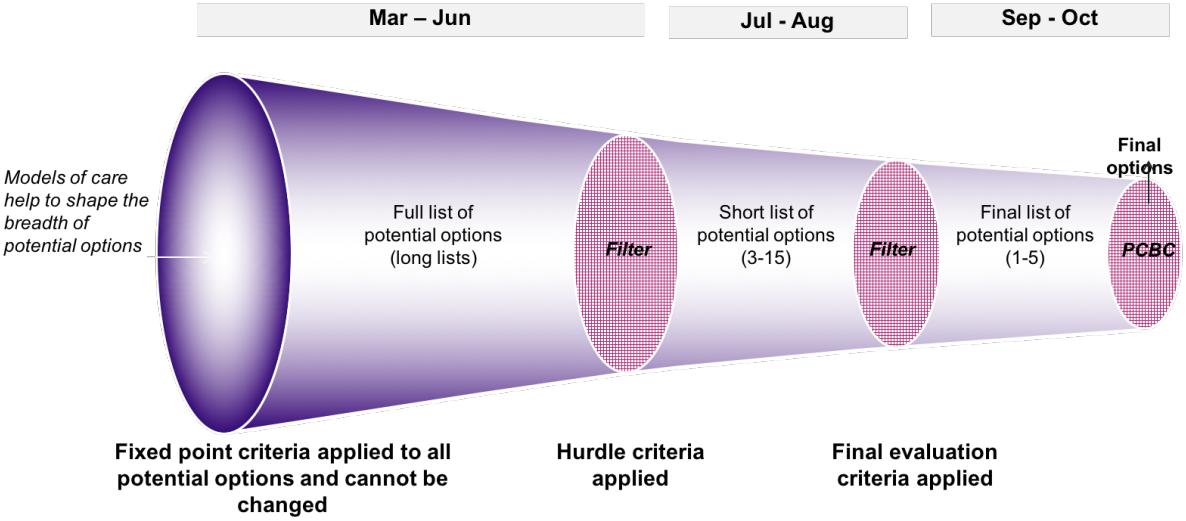
Further work to develop the approach to benefits realisation will be required after consultation. This would be likely to include reviewing potential metrics to be used to support benefits realisation and would focus on the final set of proposals being put to the Joint Committee of Clinical Commissioning Groups for a final decision about service change.

8. Development of options

8.1 Options evaluation process

An options evaluation process was designed that enabled the Stroke Review to move through a 'funnel' from an initial possibility of a significant number of options down to a small number of options to undergo further analysis, before agreeing the options that would go to consultation, as shown in Figure 16.

Figure 16: overview of process for developing and evaluating options



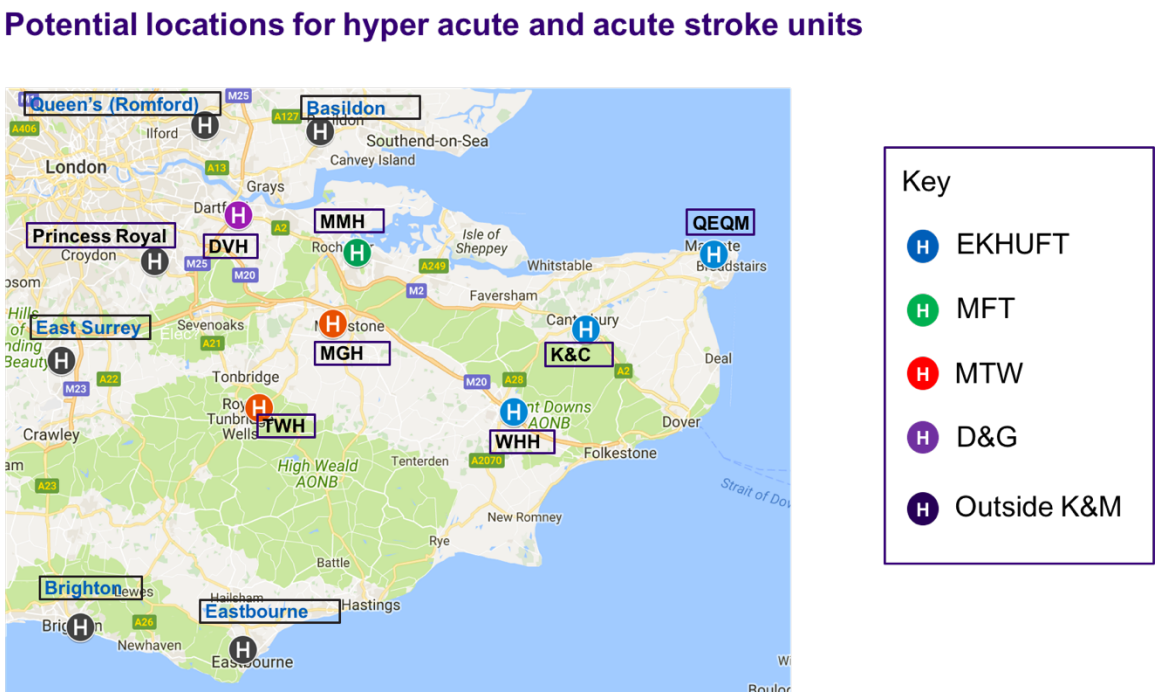
8.2 Starting the process to determine options

If every possible combination of reconfiguration options were considered, the 'exhaustive' list would be too long to be meaningful due to the significant number of combinations of all the service delivery models on all the existing sites and, theoretically, on any number of new sites.

Local clinicians considered clinical co-dependencies, cost and timescales of building hyper acute hospital stroke services on a "greenfield" site or a site without other urgent services and concluded that this would not be possible due to the co-dependencies between hyper acute hospital stroke services and other urgent services (see Section 6.5.2). These other urgent services include acute medicine, critical care, urgent diagnostics and therapies. Therefore, the options development process was constrained to developing hospital stroke services on the current locations of the acute hospitals in Kent and Medway. These sites are Darent Valley Hospital, Kent and Canterbury Hospital, Maidstone Hospital, Medway Hospital, Queen Elizabeth the Queen Mother Hospital, Tunbridge Wells Hospital and William Harvey Hospital. These hospitals are shown in

Figure 17.

Figure 17: current acute hospital sites in Kent and Medway



A theoretical long list of consultation options was then developed that described how hyper acute hospital stroke services could be located on any of the existing acute hospital sites in Kent and Medway. The next stage was to filter these options to a manageable list of options that was realistic and understandable, for detailed consideration.

8.3 Stakeholder engagement in options development

The development and evaluation of options has been clinically led, with recommendations coming from the stroke Clinical Reference Group supported by the STP Clinical Board. The proposals have also been reviewed by the South East Coast Clinical Senate, which has provided external challenge to help test and refine the proposals. Further testing and refinement has taken place based on discussions with patient representatives, patient representative groups, local authorities and local HOSCs.

9. Options appraisal (shortlisting)

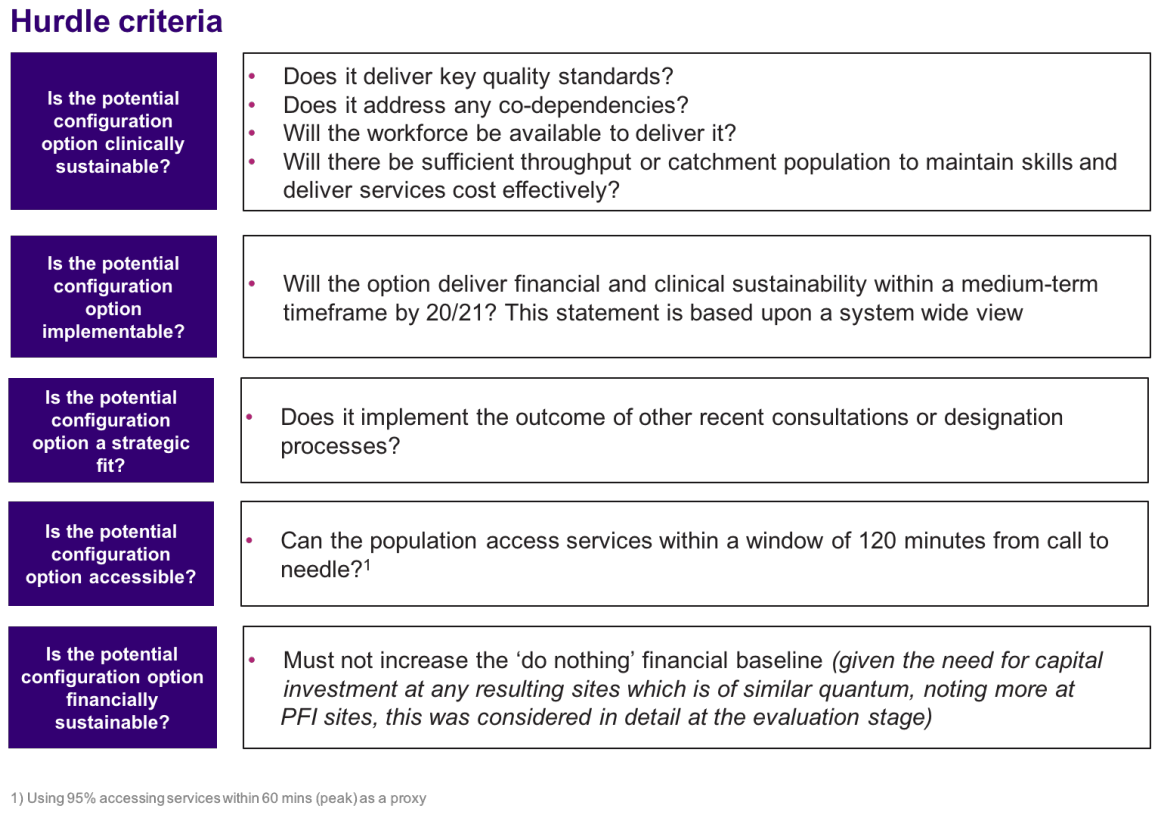
9.1 Determining a shortlist of options for detailed evaluation

Clinicians used a set of hurdle criteria to establish a shortlist of options for the location of hyper acute and acute stroke units alongside 7-day TIA clinics for high risk patients across the acute hospital sites in Kent and Medway. Each option needed to:

- Deliver the key standards and co-dependencies with a sustainable workforce
- Be implementable within a reasonable timeframe
- Be in line with other consultation and designation processes
- Be accessible to patients and carers
- Demonstrate high level affordability

This meant defining and applying an agreed set of hurdle criteria and eliminating options where these were not met. Five criteria were used to determine the shortlist for further detailed evaluation, as shown in Figure 18.

Figure 18: hurdle criteria to determine the shortlist for further detailed evaluation



A detailed explanation of the baseline data, methodology and assumptions used in applying the hurdle criteria is available at Appendix M. A detailed explanation of the baseline data, methodology and assumptions used in calculating the capacity and bed numbers is available at Appendix L.

9.2 Determining clinical sustainability

To determine the number of hyper acute and acute stroke units required in Kent and Medway, clinicians reviewed:

- the evidence around the total volumes of activity required to maximise clinical quality and efficiency;
- the ability of services and the availability of workforce to deliver quality standards; and
- the required clinical co-dependencies.

Clinicians recommended that there should be three hyper acute and acute stroke units alongside 7-day TIA clinics for high risk patients in Kent and Medway because:

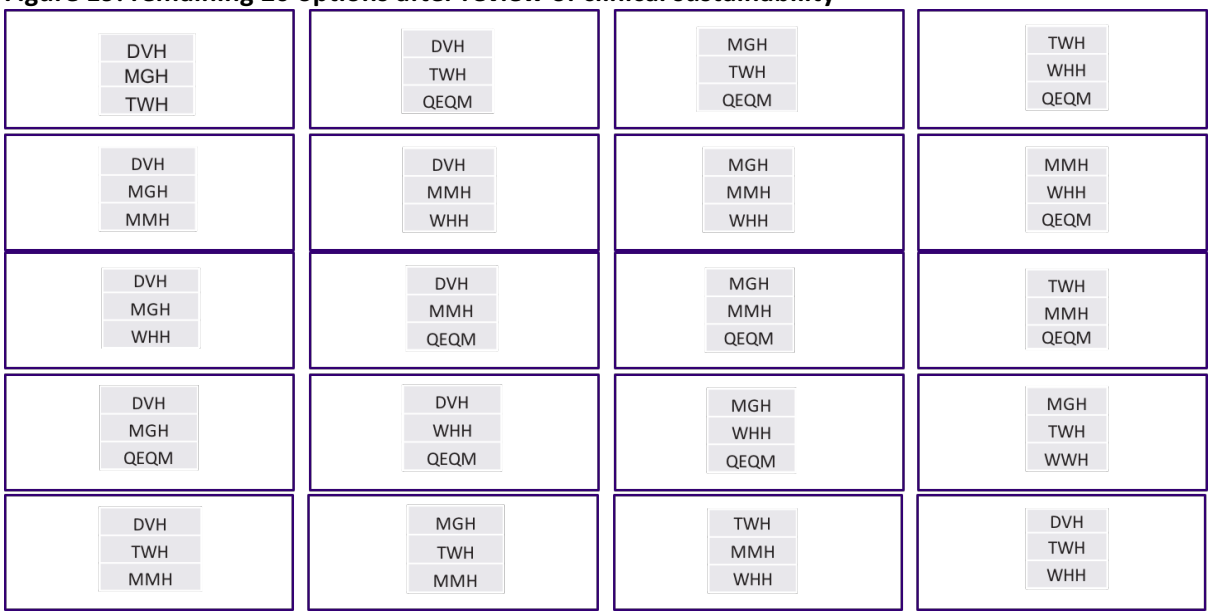
- Units must treat a large enough volume of patients for staff to retain their skills and for services to be cost effective. National guidance is that there needs to be a minimum of 500 and a maximum of 1,500 stroke patients per year in each unit[48]. There are around 3,000 strokes per year in Kent and Medway which means there is too many stroke patients for there to be a single unit in Kent and Medway (2-site options were retained at this stage as the numbers of strokes per unit were less than 10% above 1,500). **Therefore, clinicians recommended options with 1 site should be excluded.**
- Clinicians determined that the national guidance around the need for 7-day consultant cover for hyper acute and acute stroke units means that at least 6 consultants are required to staff units with up to 40 beds (even with fewer beds, at least 6 consultants are still required to meet the requirements for 7-day emergency cover). The c.3,000 strokes per year in Kent and Medway will require an estimated 127 beds by 2020/21 (assuming average length of stay and average bed occupancy levels across Kent and Medway remain at current levels) and this means that options with more than three units will have under-utilised consultants (i.e. some or all of the unit sizes will be under 40 beds). In addition, there are currently only 10 WTE stroke consultants in Kent and Medway. There are national shortages in stroke consultants (for example, in 2016, 40% of hospital sites had at least one unfilled post for a stroke consultant) and it would not be possible to recruit the additional consultants required to staff more than 3 units (it would require at least an additional 14 consultants to staff four or more units). **Therefore, clinicians recommended options with 4, 5, 6 or 7 sites should be excluded.**
- The consensus across stakeholders including clinicians and the public has been that 2-site options should not be taken forward for evaluation due to concerns about the size of the units, system resilience and the ability of sites to move to 2 units in the short term. **Therefore, clinicians recommended options with 2 sites should be excluded.**

The need to address the outcomes in stroke services across Kent and Medway is urgent, as outlined in the case for change and reiterated by Professor Tony Rudd, National Clinical Director for Stroke, NHS England. Kent and Canterbury Hospital does not currently meet the co-dependency requirements for a HASU because it is lacking acute medicine and critical care, due to the withdrawal of training doctors by Health Education England as a result of insufficient consultant supervision of junior doctors. Following the withdrawal of junior doctors, the Trust carried out an emergency transfer of services on the grounds of patient safety. Work is underway to review services and develop options for a clinically and financially sustainable model for East Kent University Hospitals NHS Foundation Trust. The outputs of this work will in time be subject to public consultation. It is noted this will need to be kept under review, but given Kent and Canterbury Hospital cannot currently provide a HASU and a model for improved care is urgent, **it is recommended that Kent and**

Canterbury Hospital should not be considered as a potential hyper acute and acute stroke unit at this time.

Following the review of the clinical sustainability of options, the remaining 20 options are those with three sites located on current acute hospital sites excluding Kent and Canterbury Hospital. These are shown in Figure 19.

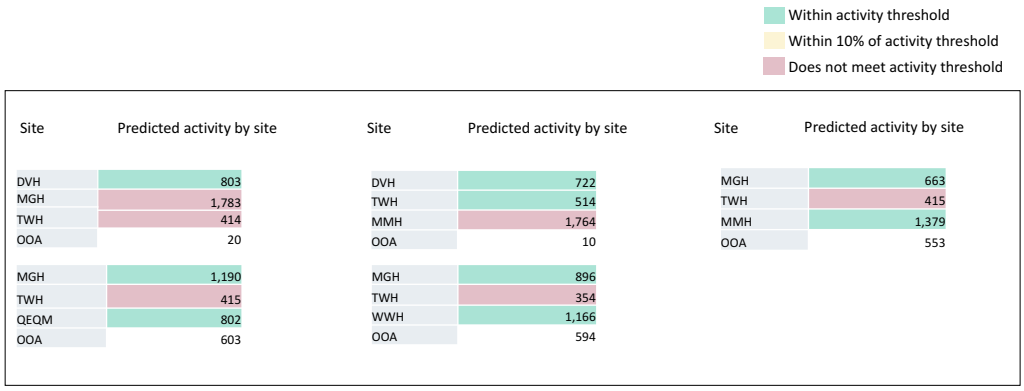
Figure 19: remaining 20 options after review of clinical sustainability



9.3 Determining clinical sustainability of the remaining options

As discussed in section 5.4.1, national guidance is that there needs to be a minimum of 500 and a maximum of 1,500 stroke patients per year in each unit. The remaining options were assessed using peak travel time to predict future stroke activity at each site under each option. Options with units that fell outside 10% of the minimum and maximum number of stroke patients were excluded from further consideration. These are shown in Figure 20.

Figure 20: options excluded after further review of clinical sustainability



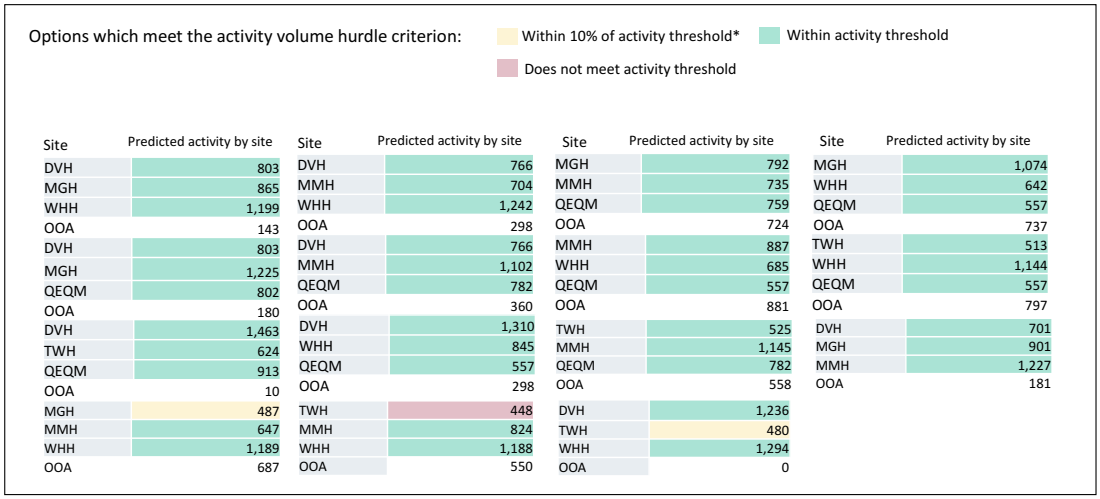
- Notes: Volume of stroke activity based on 3 years of provider data (2014/15 – 2016/17), applying age- and deprivation-weighted incidence rates and assuming patients all access the site offering stroke services with the shortest travel time (car, off-peak).
- Source: Provider data returns (2014/15 - 2016/17), Basemap travel time data (car, off-peak), ONS population data (2015), IMD deprivation data (2015)

One site (Tunbridge Wells Hospital) in one option (Tunbridge Wells Hospital, Medway Maritime Hospital and William Harvey Hospital) fell just outside the 10% tolerance but was agreed to be taken through this hurdle criterion. This was on the basis of:

- improvements to the road network, increasing access to Tunbridge Wells Hospital from the Sevenoaks area;
- evidence from historic activity data showing higher than expected attendance at Tunbridge Wells Hospital; and
- the clinical co-adjacencies offered at the Tunbridge Wells site resulting in a high HASU/ASU quality offering.

Further detail on this rationale can be found in Appendix M. **Clinicians therefore recommended that 15 options should be considered further**, as shown in Figure 21.

Figure 21: remaining 15 options after further review of clinical sustainability



Site	Predicted activity by site
DVH	803
MGH	865
WHH	1,199
OOA	143
DVH	803
MGH	1,225
QEQM	802
OOA	180
DVH	1,463
TWH	624
QEQM	913
OOA	10
MGH	487
MMH	647
WHH	1,189
OOA	687

Site	Predicted activity by site
DVH	766
MMH	704
WHH	1,242
OOA	298
DVH	766
MMH	1,102
QEQM	782
OOA	360
DVH	1,310
WHH	845
QEQM	557
OOA	298
TWH	448
MMH	824
WHH	1,188
OOA	550

Site	Predicted activity by site
MGH	792
MMH	735
QEQM	759
OOA	724
MMH	887
WHH	685
QEQM	557
OOA	881
TWH	525
MMH	1,145
QEQM	782
OOA	558
DVH	1,236
TWH	480
WHH	1,294
OOA	0

Site	Predicted activity by site
MGH	1,074
WHH	642
QEQM	557
OOA	737
TWH	513
WHH	1,144
QEQM	557
OOA	797
DVH	701
MGH	901
MMH	1,227
OOA	181

- Notes: Volume of stroke activity based on 3 years of provider data (2014/15 – 2016/17), applying age- and deprivation-weighted incidence rates and assuming patients all access the site offering stroke services with the shortest travel time (car, off-peak).
- Source: Provider data returns (2014/15 - 2016/17), Basemap travel time data (car, off-peak), ONS population data (2015), IMD deprivation data (2015).

9.4 Determining implementability

Some of the remaining options divert substantial activity and bed requirements out of Kent and Medway and clinicians agreed that these options should be excluded from further consideration as they would:

- put a substantial extra workload into southeast London, where hyper acute stroke units are already at full capacity; and
- require capital investment at hospital sites outside of Kent and Medway which would be substantially more difficult to implement.

Clinicians agreed that options which would result in a transfer of a significant number of beds (about one ward) to a single hospital site outside Kent and Medway would be excluded from further consideration. Two options resulted in the transfer of a significant number of beds to the Princess Royal University Hospital in Orpington, as shown in Figure 22.

Figure 22: options with a transfer of a significant number of beds to a single site outside Kent and Medway

MMH, WHH, QEQM	Basildon Hospital	Brighton (Royal Sussex County Hospital)	East Surrey Hospital	Eastbourne Hospital	Princess Royal University Hospital	Queen's Hospital (Romford)	Total net change
Net change stroke activity	10	21	7	75	511	11	634
Net change stroke beds	0	1	0	3	20	0	24

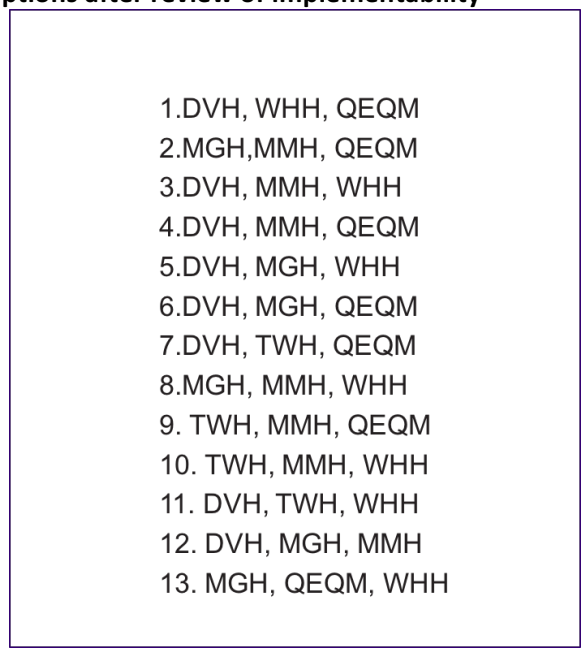
TWH, WHH, QEQM	Basildon Hospital	Brighton (Royal Sussex County Hospital)	East Surrey Hospital	Eastbourne Hospital	Princess Royal University Hospital	Queen's Hospital (Romford)	Total net change
Net change stroke activity	10	0	0	0	530	11	550
Net change stroke beds	0	0	0	0	21	0	21

Volume of stroke activity based on 3 years of provider data (2014/15 – 2016/17), applying age- and deprivation-weighted incidence rates and assuming patients all access the site offering stroke services with the shortest travel time (car, off-peak). Bed requirements calculated at 80% HASU occupancy and 90% ASU occupancy, based on 20% stroke activity having a 2-day HASU stay and 80% 3-day HASU stay. Two-thirds of stroke patients have an additional ASU stay of 15 days with the remaining third discharged after the initial HASU stay. Bed requirements include activity uplifts for TIA (@10%, with 1-day HASU stay) and Mimics (25%, with 2-day HASU stay).

SOURCE: Provider data returns (2014/15 - 2016/17), Basemap travel time data (car, off-peak), ONS population data (2015), IMD deprivation data (2015), Carnall Farrar analysis

Clinicians therefore recommended that 13 options should be considered further as shown in Figure 23 and that a more detailed analysis of flows out of Kent and Medway should be undertaken as part of the detailed evaluation of remaining options; this was done as part of the evaluation of options shown in Section 10.3.

Figure 23: remaining 13 options after review of implementability



9.5 Determining strategic fit

Future options for changes to services need to be aligned with existing commitments, in particular to ensure that they do not challenge or unpick past decisions around configuration of services. Clinicians defined existing commitments as:

- Designation processes where existing sites have designation for service provision which has gone through a nationally-led rigorous process
- Local consultations to ensure that the options do not revisit agreed decisions in previous consultations

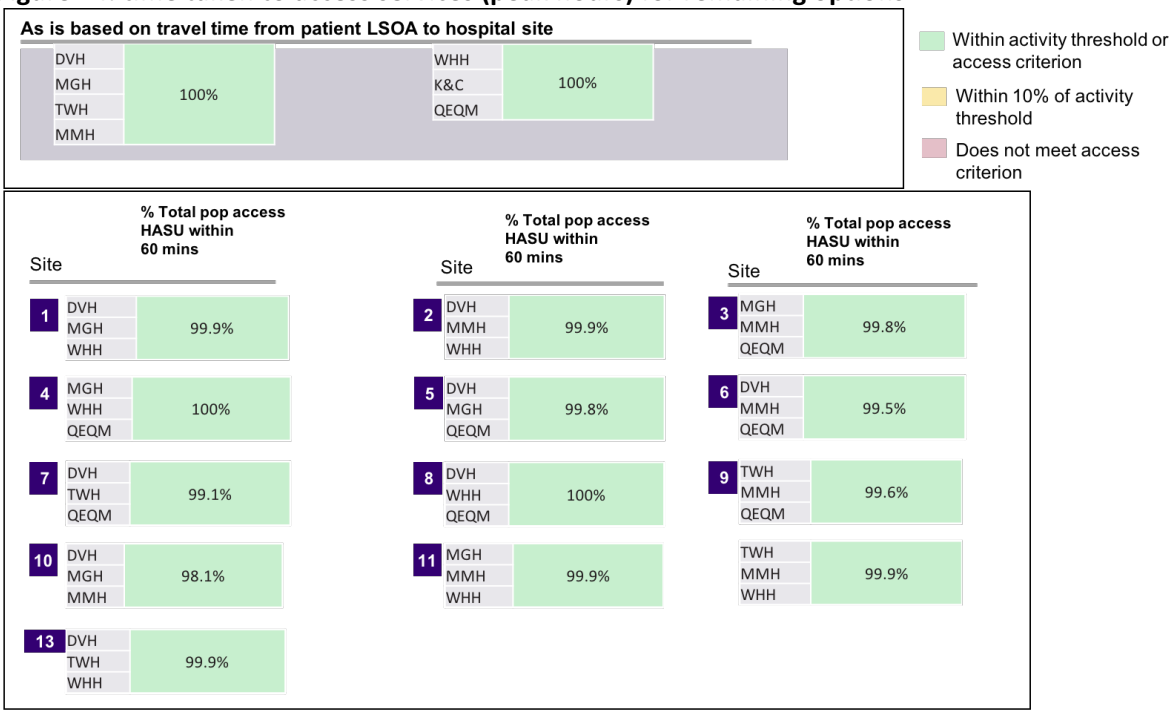
Analysis was carried out to test the options against these existing commitments and there have not been any consultation or designation processes in Kent and Medway that are relevant. **Clinicians therefore recommended that all remaining options meet this hurdle criterion.**

9.6 Determining accessibility

It is important that services are accessible to patients and to carers. Local guidance recommends a best practice window of 120 minutes from call to needle for the stroke pathway[49] and travel time to hospital of no more than 60 minutes in rural areas[50]. It is not possible to measure against a 120-minute call to needle time as data is not currently collected in this way. As a proxy, and in discussion with stakeholders, clinicians agreed to use a measure of "95% of the confirmed stroke total population can access a HASU within a maximum of 60 minutes at peak travel time" (this means looking at the door-to-door travel time specifically, rather than the call to response time or door to needle time) to assess accessibility.

The assessment was done by looking at the time taken during peak hours to access the nearest urgent care hospital (door-to-door) for people who would no longer be able to access their current nearest hospital (the impacted population). This analysis showed that 95% of the confirmed stroke total population can access a HASU within a maximum of 60 minutes at peak travel time for the impacted population for all remaining options, as shown in Figure 24. **Clinicians therefore recommended that all remaining options meet this hurdle criterion.**

Figure 24: time taken to access services (peak hours) for remaining options



SOURCE: Basemap off- peak travel times, 2015/16; Carnall Farrar analysis, 2016

9.7 Determining financial sustainability

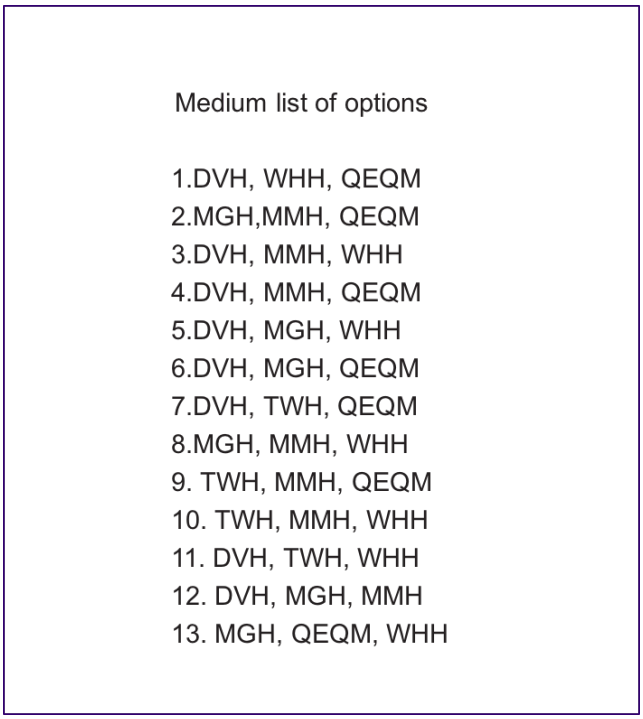
The high-level financial implications of the remaining options were assessed to eliminate any options that would not contribute to a financially sustainable solution.

All options are likely to require additional investment (capital and/or revenue) in stroke services, which will be funded through savings elsewhere and longer term positive return on investment (further detail on this is shown in Section 11.9). All remaining 13 options will result in an increase in beds required at the relevant sites; however, none of these increases are greater than 39 additional beds (around 2 wards) which the Finance Working Group agreed is not sufficiently large to rule out options at this stage. **The Finance Working Group therefore recommended that all remaining options meet this hurdle criterion** and that a detailed analysis of financial sustainability would be undertaken as part of the detailed evaluation of remaining options. This was done as part of the evaluation of options shown in section 10.3.5.

9.8 Shortlist of options for further evaluation

Following the application of this hurdle criteria, clinicians recommended that 13 options go forward for further evaluation, as shown in Figure 25.

Figure 25: list of options for further evaluation



10. Evaluation of options

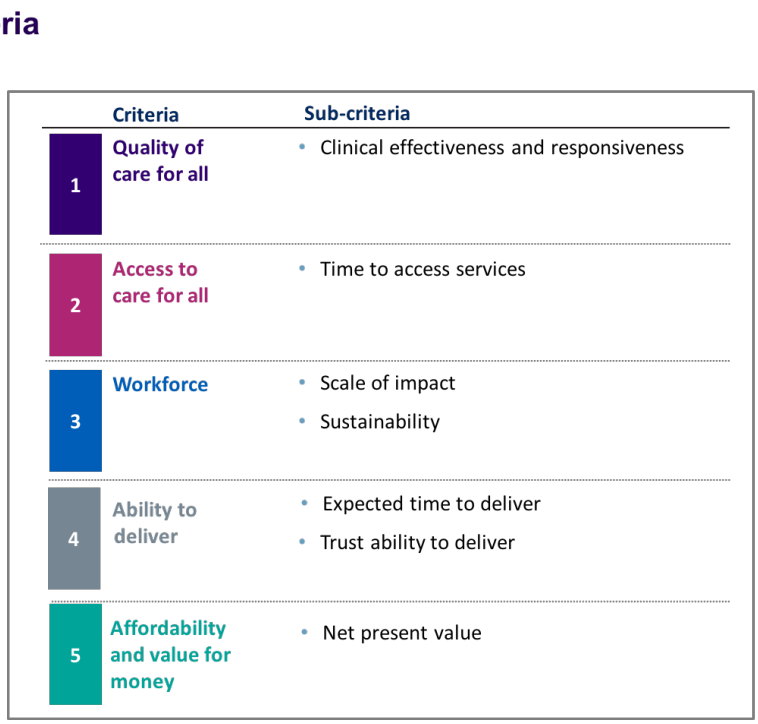
10.1 Evaluation criteria and process

Further analysis of the potential options for consultation was done using an agreed set of evaluation criteria, developed by clinicians with involvement from patients and their representatives, the public and providers. These evaluation criteria were:

- Quality of care for all
- Access to care for all
- Workforce
- Ability to deliver
- Affordability and value for money

Each criterion had a number of sub-criteria that were used to support the evaluation of each option, as shown in Figure 26.

Figure 26: evaluation criteria and sub-criteria



All the remaining 13 options were considered to be acceptable as they had met the hurdle criteria as detailed in Section 9. The evaluation of the remaining options therefore sought to weigh the pros and cons of each option in order to decide which are most favourable overall and should therefore be put forward for consultation.

A detailed explanation of the baseline data, methodology and assumptions used in evaluating the options is available at Appendix N.

10.2 Stakeholder input

The evaluation criteria were developed by clinicians with involvement from patients and their representatives, the public and providers. An initial set of draft evaluation criteria were developed and then tested in July and August 2017 with 8 focus groups with support groups run by the Stroke Association, an online (and paper) survey and a stakeholder event with open invitation to people across Kent and Medway. Participants were asked to prioritise the criteria that were most important in determining how options should be evaluated. The most common ordering of the criteria was (quality, access and workforce were the top three across all vents and the survey):

1. Quality
2. Access
3. Workforce
4. Deliverability
5. Affordability and value for money
6. Research and education
7. Choice

Discussions raised issues which stakeholders and the public felt were important in decision making but which did not differentiate between the options and were therefore not used in the evaluation of options. These include the ease for family to travel to the chosen sites to visit, parking and public transport for visitors. Information is captured within the report from these focus groups and was shared with the Stroke Programme Board as the evaluation criteria were being scrutinised and applied:

Area	**How it has been considered**
Availability of ambulances, including the need for extra ambulances	Work with the South East Coast Ambulance Service has shown that a similar number of ambulances will be needed under all of the options and this therefore does not differentiate between the options. £1m per year has been included in the financial costing to account for increased costs for the ambulance service (see Section 11.9.3). The additional cost to the ambulance service will be finalised as part of implementation planning.
Consideration of disadvantaged and elderly people	The impact on disadvantaged and elderly people is being considered as part of the integrated impact assessment (see Section 13.3). This shows that everyone will be advantaged by the improvements in quality of the new service. Impacts raised by the assessment are being reviewed by the Clinical Reference Group and a dedicated Integrated Impact Assessment Group and mitigations will be developed in more detail as part of the Decision Making Business Case and implementation phase of work.
Training and motivation of staff	The training and motivation of staff is key to a high quality service. Specialist staff will be available 24/7 under all options and it is therefore not differentiating between options.

Area	How it has been considered
	Plans are being developed to deliver increased training, as detailed in Section 6.7.1)
Communication between services using technology	A robust strategy is in place to develop the ability of services to communicate using technology. This is detailed in Section 6.7.3. This strategy will be implemented under all options and therefore does not differentiate between the options.
Support provided to families and carers (including travel and parking)	In discussion with the Stroke Association and stroke ambassadors at the initial evaluation workshop it was agreed that this was not a differentiator that could be reliably assessed in each option, but that the issues were important and should be considered following consultation as part of the development of the DMBC when a preferred option had been chosen and should then consider parking, public transport and other issues. The Stroke Association was supportive of this and noted that during the urgent phase of stroke care, most relatives could find ways of getting to hospitals, but that they often needed to provide support if patients had longer-term rehabilitation.
Access to rehabilitation	A new rehabilitation model has been agreed and further work is being developed to review rehabilitation services. The focus of this PCBC is hospital stroke services and therefore this does not differentiate between options.
Impact on workforce including cost/impact of travelling further to work	This is considered an important issue but not a predictable differentiator between options at this stage. Further work will be required to understand the impact at the implementation planning stage. The staff involved are relatively small in number and implementation would require individual discussions with affected people, rather than a presumption they will move with the service. All clinical staff can expect a future role as they will either move with the service or be redeployed in their current trust. Most staff currently looking after stroke patients are junior nurses on general wards. They may well decide to stay at their Trust and continue general nursing, though there will be opportunities for some to move and develop

Area	How it has been considered
	specialisation within the new HASU/ASU setting. Most consultants similarly provide stroke care alongside other medical interests. Some may decide to move, others stay at their current site and increase their other interests. This will vary by individual opportunities and constraints. An individual discussion will be required for each person involved after the consultation period when the outcome is confirmed. The staff groups who are currently dedicated to stroke care are the hospital based rehab schemes and Stroke Specialist Nurses. HR estimate that most of these will opt to move to the new service – but some may decide to stay locally and move to community rehab rather than move hospitals.
Population and housing growth	Work has been undertaken to assess the impact of population and housing growth alongside advances in prevention and technology which reduce the number of people who have a stroke. The predicted number of strokes needing hospital care is the same under all options and therefore this does not differentiate between options.
Relevance of including level 3 NICU as part of the co-adjacencies evaluation	Although the Keogh Model recommends the presence of a level 3 NICU on site for a Major Emergency Centre, it was agreed by the Clinical Reference Group that this is not relevant to the provision of a HASU and was therefore removed from the evaluation assessment.
Choice is not relevant as a specific evaluation criterion, as high quality care is more important	In response to this feedback, choice was removed as a specific evaluation criterion. In the evaluation of the options, quality and access were felt to be most important. Choice will be considered as part of the design of post-acute and rehabilitation care, including as part of this enabling patients to receive care in their own home.

The detailed feedback report from the stakeholder events is shown in Appendix O.

10.3 Evaluating the medium list

Each of the hurdle criterion were considered in turn before an overall evaluation across all criteria was undertaken.

10.3.1. Quality of care for all

Clinical quality is of paramount importance and was the highest priority criteria for patients and the public. Through the application of the hurdle criteria, clinicians have ensured that each option being evaluated will deliver key standards and co-dependencies with the first hurdle criterion (clinical sustainability) designed to test this and remove any options that would not be clinically sustainable (see Section 9.2). In order to evaluate the remaining options, clinicians asked the evaluation question:

Does the option provide improved delivery against clinical and constitutional standards, and access to skilled staff and specialist equipment?

This question is designed to test whether any options are likely to deliver clinical sustainability more easily or more quickly than others. The areas chosen for review were around **clinical effectiveness and responsiveness**:

- Current co-location with other co-dependent services for a HASU (based on guidance from the South East Coast Clinical Senate[51]), including provision of inpatient rehabilitation.
- Ability of sites to provide optimal clinical co-adjacencies for mechanical thrombectomy (this service is currently not provided in Kent and Medway but there is an agreed local ambition for it to be provided in the future).
- Ability of sites to provide those services required for a Medical Emergency Centre as defined by the Keogh model[52].

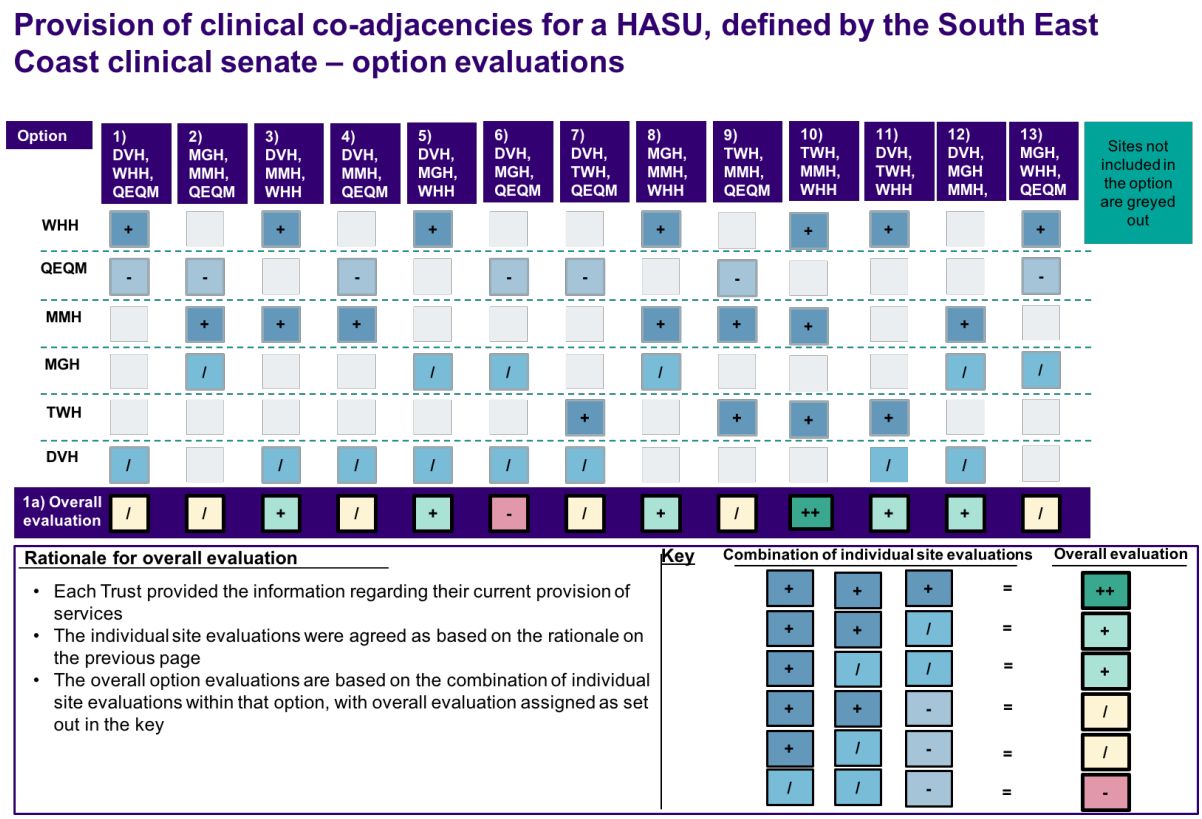
Clinicians agreed that **safety** and **patient experience** would be improved similarly for all options under the new model of care and therefore assessing this would not differentiate between options. Improved patient experience and safety is an important benefit from the proposed changes.

Co-location with co-adjacent services

The South East Coast Clinical Senate has set out the clinical co-dependencies required for a HASU. Those that must be co-located, such as emergency medicine, critical care and physiotherapy are already available on all sites under all options. However, as described by the South East Coast Clinical Senate and recent national guidelines[53], there are some services that would benefit from co-location. Clinicians agreed that co-location with the trauma unit and/or hub vascular surgery is very beneficial as this supports access to interventional radiology and angiographic CT scanning 24 hours a day, 7 days a week. There are also some efficiencies to co-location with inpatient dialysis, neurology, nephrology and neurosurgery.

Some sites already have many of these services available on-site, whereas other sites do not. Given the cost and time of developing these services on sites that do not already have them, clinicians agreed that options with sites that already had these services would be evaluated more highly, as shown in Figure 27.

Figure 27: evaluation of provision of clinical co-adjacencies for a HASU



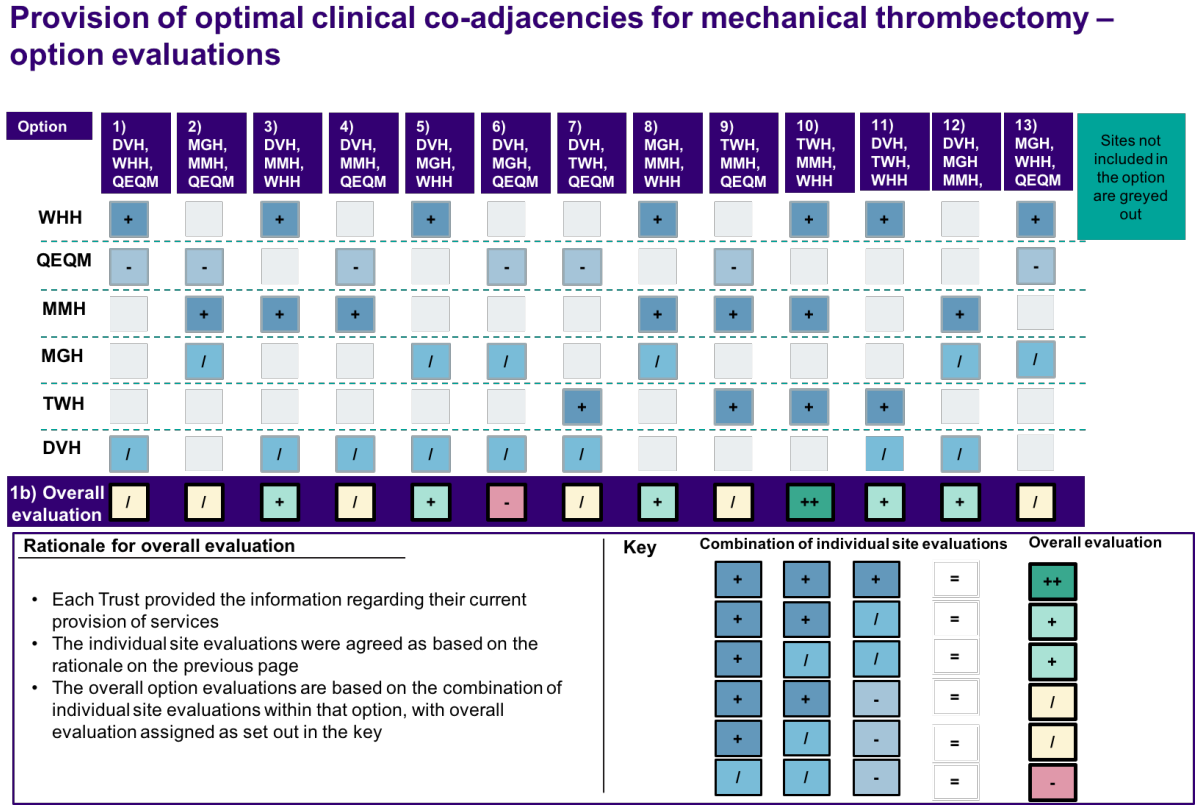
The provision of inpatient rehabilitation was also agreed to be an important co-adjacency but this is provided at all sites under consideration and was therefore agreed not to differentiate between options.

Ability to provide clinical co-adjacencies for mechanical thrombectomy

Mechanical thrombectomy is an emergency procedure used to remove a blood clot from a blood vessel (vein or artery). It requires advanced imaging to identify and support the removal of the clot in the brain (interventional radiology). Currently only a few sites in the country do mechanical thrombectomy (because of the requirements for specialist equipment and staff) and no units in Kent and Medway fulfil the current criteria for consideration as a mechanical thrombectomy service; currently patients must travel to Kings College Hospital or St George's Hospital in London. However, the South East Coast Clinical Senate said, "future planning [of stroke services in Kent and Medway] should take account of the potential implications of this significant development [mechanical thrombectomy][54]". It is the ambition in Kent and Medway to provide mechanical thrombectomy locally in the future from one of the proposed new hyper acute stroke units. Therefore, clinicians agreed that options including sites that could quickly develop the clinical co-adjacencies for mechanical thrombectomy would be evaluated more highly.

Clinicians agreed the key clinical co-adjacency for mechanical thrombectomy is interventional radiology, although similar skills and equipment are required to support pPCI. Other important clinical co-adjacencies are CT, CT angiogram and MR angiogram (which requires an interventional radiology suite) and trauma unit. Therefore, options including Medway Hospital, William Harvey Hospital and/or Tunbridge Wells Hospital were evaluated more highly mainly because they are all trauma units. This evaluation is shown in Figure 28.

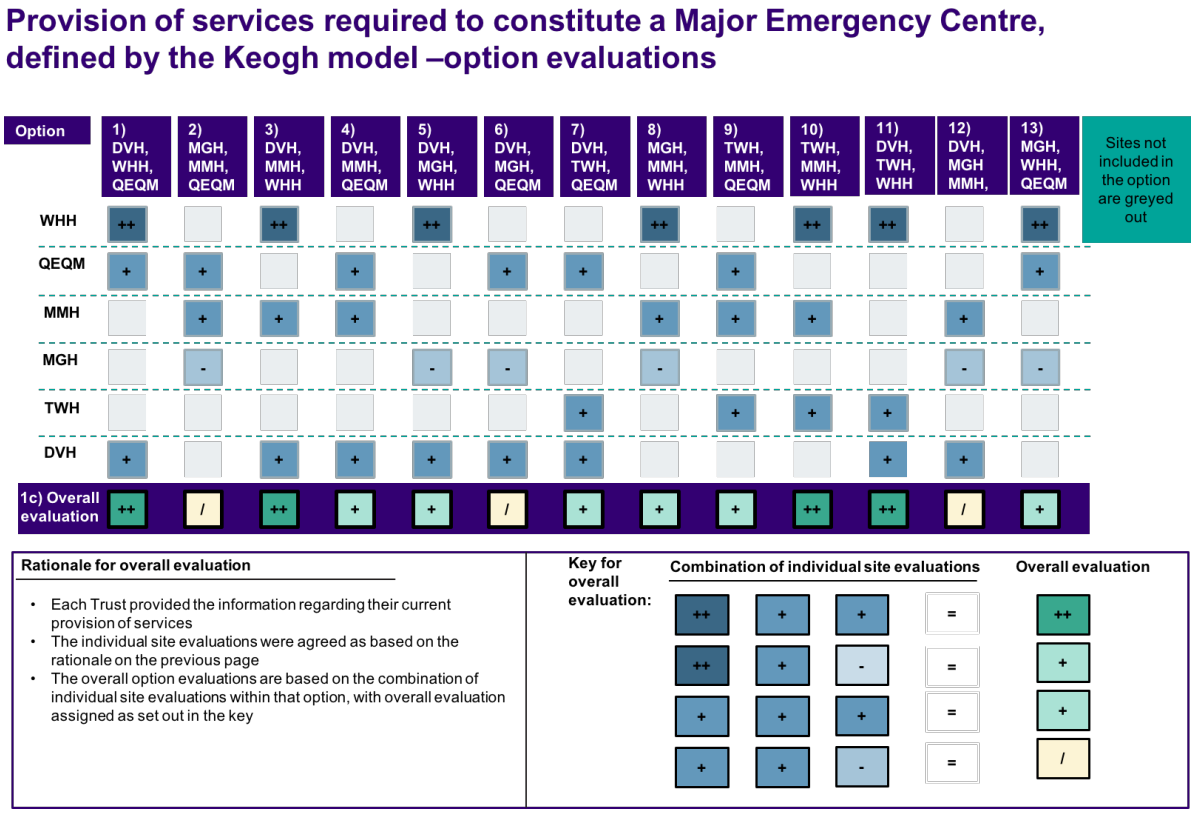
Figure 28: evaluation of clinical co-adjacencies for mechanical thrombectomy



Provision of services required to constitute a major emergency centre

The 2014 Keogh report set out a range of delivery models for urgent and emergency services. This included the major emergency centre with specialist services which has an unselected Emergency Department supported by on-site emergency surgery and a full obstetrics service. It also has specialist services including interventional cardiology and a hyper acute stroke unit. Major emergency centres are expected to serve populations are around 1 to 1.5 million people. As there are around 1.8 million people in Kent and Medway, it would be expected that there would be at least two major emergency centres. As major emergency centres are expected to host hyper acute stroke units, clinicians agreed that options including sites that already have the clinical co-adjacencies for a major emergency centre would be evaluated more highly. Therefore, options including William Harvey Hospital (which has all of the major emergency centre services) were evaluated more highly and options including Maidstone General Hospital (which does not have emergency surgery or a full obstetrics service) were evaluated more poorly. This evaluation is shown in Figure 29.

Figure 29: evaluation of clinical co-adjacencies for major emergency centre



10.3.2. Access to care for all

Access to services is very important and was consistently mentioned during pre-consultation events with clinicians, patients and the public. It was in the top three highest priority criteria for patients and the public. Through the application of the hurdle criteria, clinicians have ensured that each option being evaluated will deliver acceptable access with the fourth hurdle criterion (accessibility) designed to test this and remove any options that would not be accessible (see Section 9.6). In order to evaluate the remaining options, clinicians asked the evaluation question:

Do any options keep to a minimum the increase in the total time it takes people to get to hospital (door-to-door) by ambulance, car (at off-peak and peak times) and public transport?

This question is designed to test whether any options are likely to deliver better access than others. The areas chosen for review were around **distance and time to access services**:

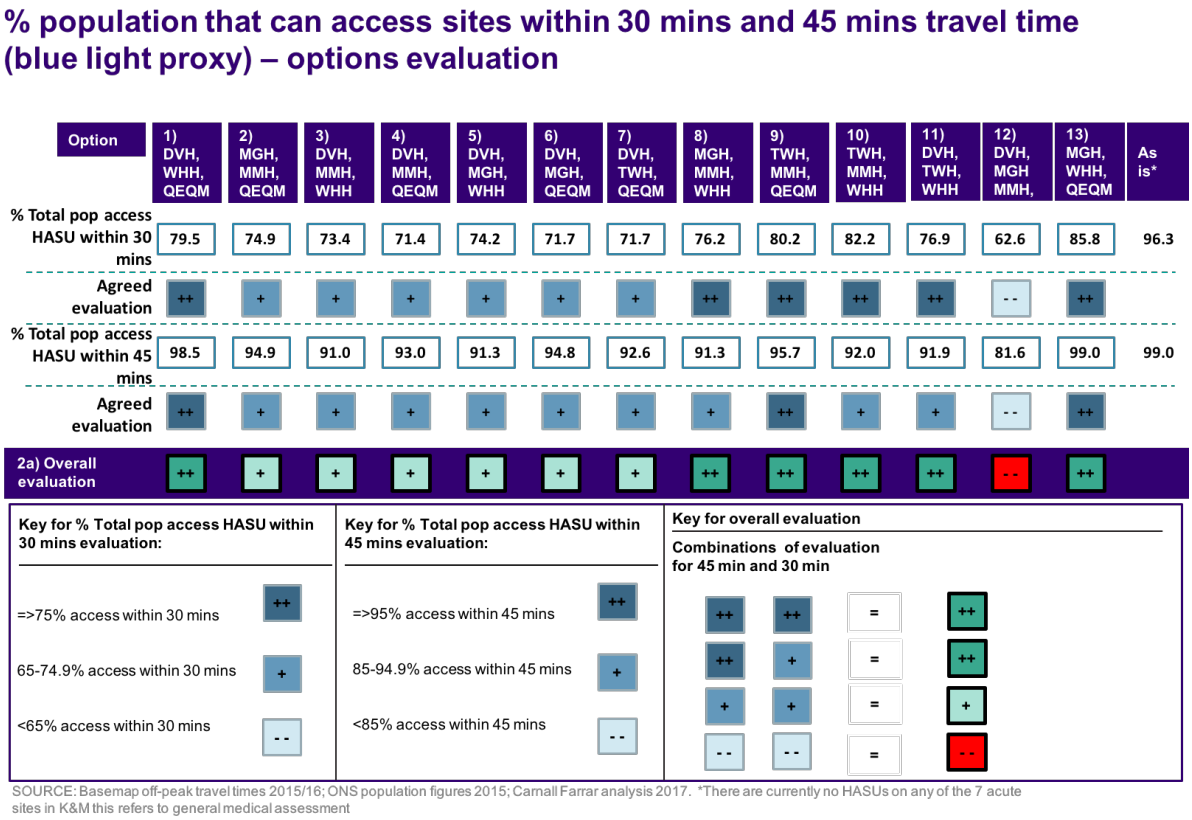
- Ambulance (using car off-peak as a proxy) access to nearest hyper acute and acute stroke units – maximum travel time and percentage of population that can access services within 30 and 45 minutes by ambulance (door-to-door).
- Private car access to nearest hyper acute and acute stroke units – maximum travel time and percentage of population that can access services within 30 and 45 minutes at peak times by private car (door-to-door).
- Public transport access to nearest hyper acute and acute stroke units – percentage of population that can access services within 2 hours at peak times by public transport (to hospital door).

A full explanation of the baseline data, methodology and assumptions for calculating travel times can be found at Appendix P. Additional maps including travel times isochrones can be found in Appendix Q.

Clinicians agreed that **service operating times** would be improved similarly for all options under the new model of care and therefore assessing this would not differentiate between options. Improved service operating times is an important benefit from the proposed changes.

Ambulance (using car off-peak as a proxy) access to hyper acute and acute stroke units
As there is no data available to robustly measure ambulance travel times for stroke patients, the South East Coast ambulance service advised that car off-peak travel times should be used as a proxy measure. Within all options, over 95% of the confirmed stroke total population can access the nearest HASU within a maximum of 60 minutes by ambulance (door-to-door), as assessed by the hurdle criteria (see section 9.6). Therefore, clinicians agreed that an assessment of the percentage of the population that could access the nearest HASU within 30 minutes and 45 minutes (door-to-door) would be made and that options where a greater percentage of the population could access services more quickly would be evaluated more highly, as this would make it even more likely that people would be able to access services quickly. This evaluation is shown in Figure 30.

Figure 30: evaluation of ambulance access to services



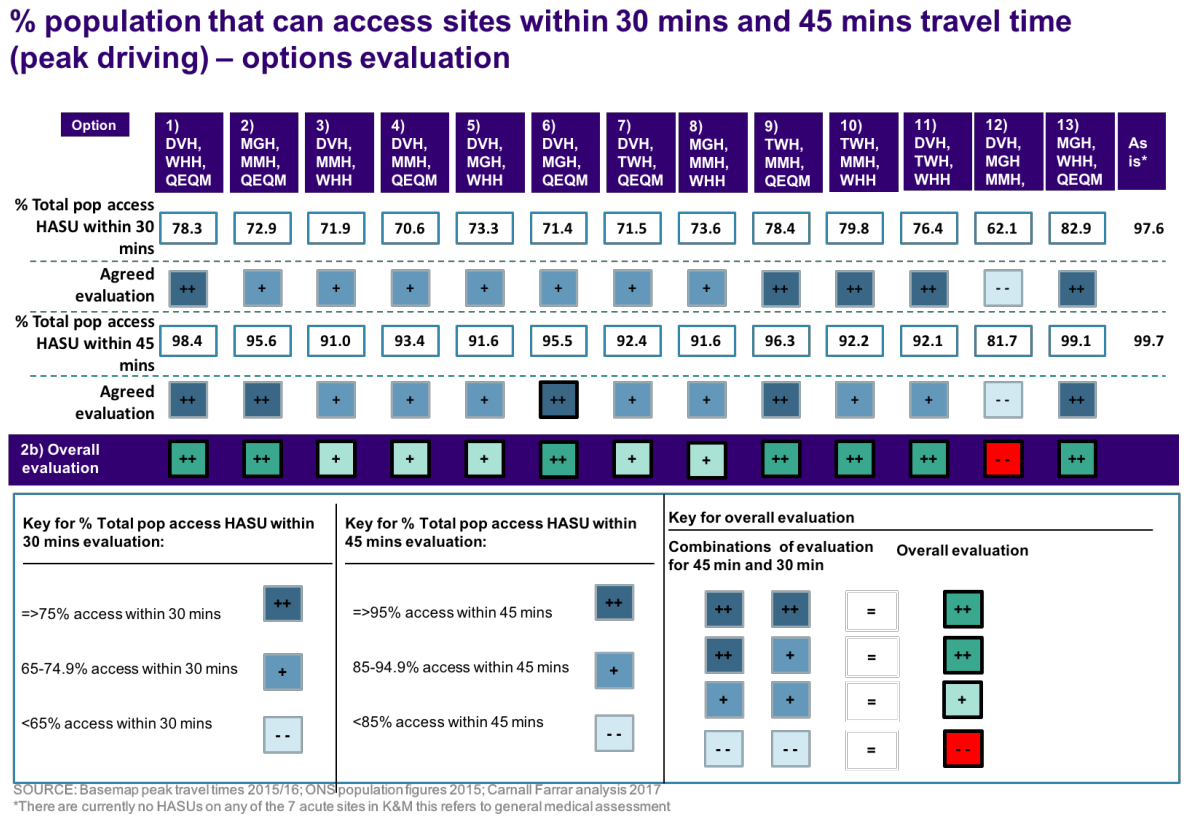
SOURCE: Basemap off-peak travel times 2015/16; ONS population figures 2015; Carnall Farrar analysis 2017. *There are currently no HASUs on any of the 7 acute sites in K&M this refers to general medical assessment

Clinicians also reviewed maximum travel times (door-to-door) but, in all options, this was 70 minutes or less. Given that these travel times over 60 minutes apply to less than 1% of the population, clinicians agreed that these maximum travel times would not differentiate between options.

Peak car access to hyper acute and acute stroke units

Within all options, over 95% of the confirmed stroke total population can access the nearest HASU within a maximum of 60 minutes by private car at peak travel time (door-to-door), as assessed by the hurdle criteria (see section 9.6). Therefore, clinicians agreed that an assessment of the percentage of the population that could access the nearest HASU within 30 minutes and 45 minutes by private car at peak times (door-to-door) would be made and that options where a greater percentage of the population could access services more quickly would be evaluated more highly. This evaluation is shown in Figure 31.

Figure 31: evaluation of peak car access to services



SOURCE: Basemap peak travel times 2015/16; ONS population figures 2015; Carnall Farrar analysis 2017

*There are currently no HASUs on any of the 7 acute sites in K&M this refers to general medical assessment

Clinicians also reviewed maximum travel times (door-to-door) to the nearest hyper acute and acute stroke unit but, in all options, this was 67 minutes or less. Given that these travel times over 60 minutes apply to less than 1% of the population, clinicians agreed that these maximum travel times would not differentiate between options.

Public transport access to hyper acute and acute stroke units

Clinicians agreed that access to public transport is extremely important for friends, relatives and carers. Patients experiencing a stroke would be extremely unlikely to be travelling on public transport to access hyper acute and acute stroke units. Therefore, clinicians agreed that access to public transport was not a differentiator for hyper acute and acute stroke units. However, following consultation, further work will be done to understand cost and availability of public and private transport for the preferred option.

10.3.3. Workforce

The right number of skilled and well-trained staff is key to delivering high quality hyper acute and acute stroke units. Workforce was consistently in the top 3 highest priority areas for evaluation for patients and the public. Through the application of the hurdle criteria, clinicians have ensured that each option being evaluated will have sufficient numbers of stroke consultants, with the first hurdle criterion (clinical sustainability) designed to test this and remove any options that would not be clinically sustainable (see Section 9.2). In order to evaluate the remaining options, clinicians asked the evaluation question:

- What is the potential impact on current medical and non-medical staff?
- Do the options vary in the need to employ extra stroke workforce?
- What is the potential impact on staff attrition due to change?
- Where is it more difficult to recruit and retain staff?

This question is designed to test whether any options are likely to deliver the required workforce more easily than others. The areas chosen for review were around **sustainability**:

- Number of staff required to run hyper acute and acute stroke units
- Vacancy rates (across site)
- Turnover rates (across site)

A full explanation of the baseline data, methodology and assumptions for calculating workforce can be found at Appendix K.

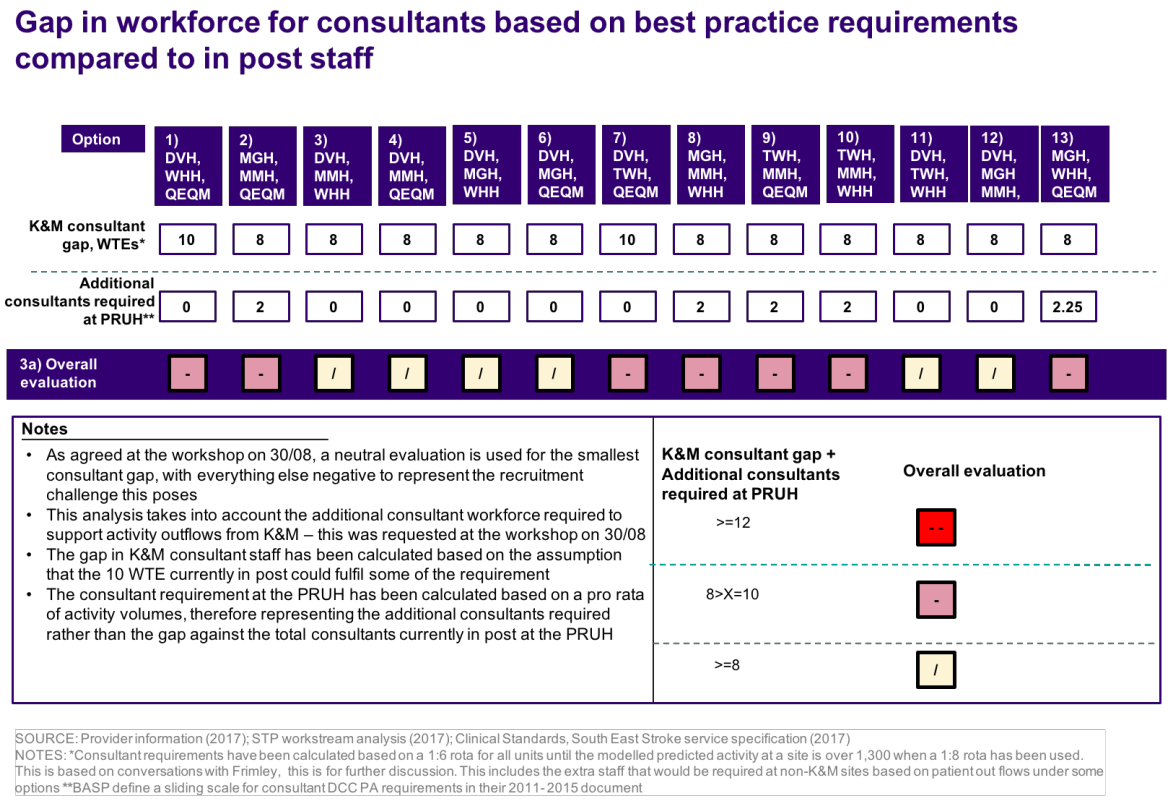
Clinicians agreed that it was not possible to measure the **scale of impact** (number of staff impacted in hospitals not chosen to become a hyper acute and acute stroke unit) and **impact on local workforce** (total number of staff affected by the changes) because many people would be able to stay on the current site in a more general role and because the roles in the new units would be attractive to staff. These sub-criteria were therefore not used in the evaluation.

Number of staff required to run hyper acute and acute stroke units

Clinicians agreed that the number of nurses and allied health professionals required to run hyper acute and acute stroke units varies with the number of beds and, as the total number of beds are the same in all options, this therefore does not differentiate between options. It will, of course, be very important to make sure there are sufficient stroke nurses and allied health professionals, and plans are being developed for this. The number of stroke consultants will be different for different options as sufficient are required to staff a rota for 24 hours a day, seven days a week. Consultant requirements have been calculated based on a 1:6 rota for all units until the modelled predicted activity at a site is over 1,300 when a 1:8 rota has been used[55]. Extra staff that would be required at non-Kent and Medway sites based on patient out flows under some options have also been included.

There are currently 10 WTE stroke consultants in Kent and Medway and options require between 8 and 12 additional WTE stroke consultants. As all options require additional workforce, none have been evaluated positively. Options that require more additional stroke consultants are rated more poorly. This evaluation is shown in Figure 32.

Figure 32: evaluation of additional staff required to run hyper acute and acute stroke units

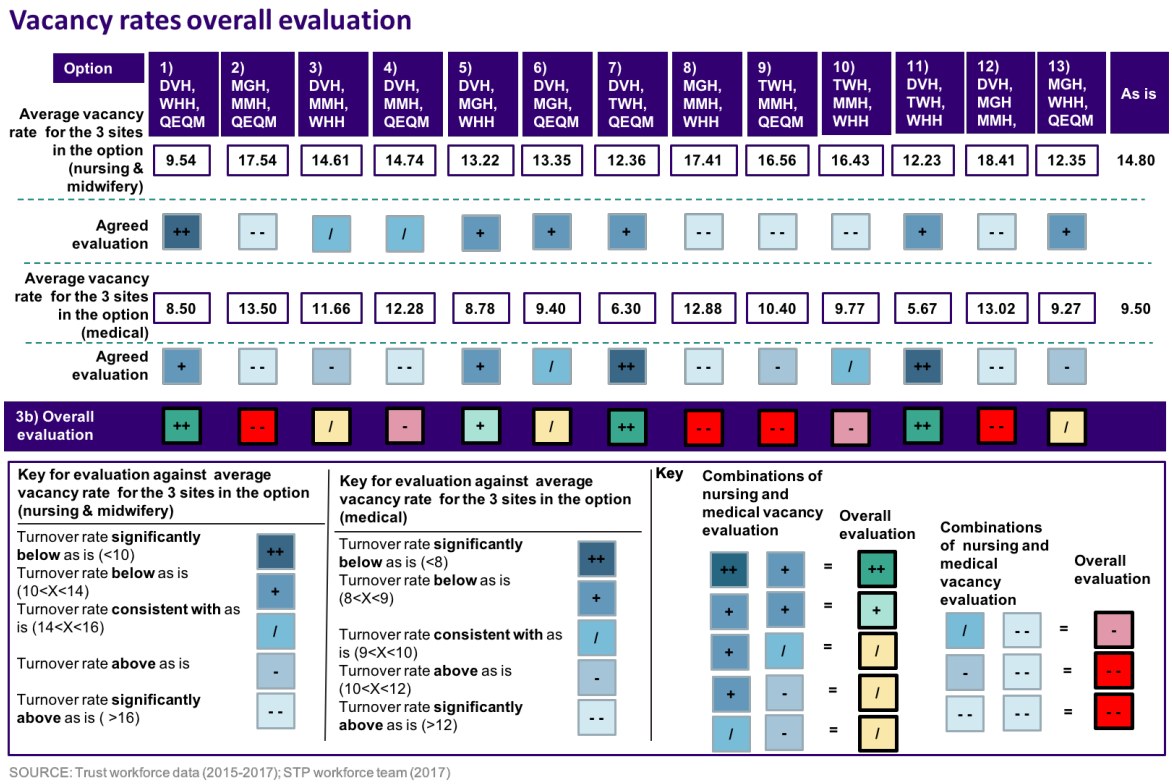


SOURCE: Provider information (2017); STP workstream analysis (2017); Clinical Standards, South East Stroke service specification (2017)
NOTES: *Consultant requirements have been calculated based on a 1:6 rota for all units until the modelled predicted activity at a site is over 1,300 when a 1:8 rota has been used. This is based on conversations with Frimley, this is for further discussion. This includes the extra staff that would be required at non-K&M sites based on patient out flows under some options **BASP define a sliding scale for consultant DCC PA requirements in their 2011-2015 document

Vacancy rates

The ability of individual sites to recruit staff to hyper acute and acute stroke units can be indicated by vacancy rates. Because of the small numbers of people in the urgent stroke workforce, total vacancy rates for medical and nursing staff at each site were reviewed by clinicians. It was acknowledged that total vacancy rates for a site may not be a comprehensive indicator of the ability of sites to recruit staff to a hyper acute and acute stroke unit in future. However, clinicians agreed that it is a useful proxy for consideration as part of the evaluation process. Options including sites with low vacancy rates were evaluated more highly than options including sites with higher vacancy rates. This evaluation is shown in Figure 33.

Figure 33: evaluation of vacancy rates

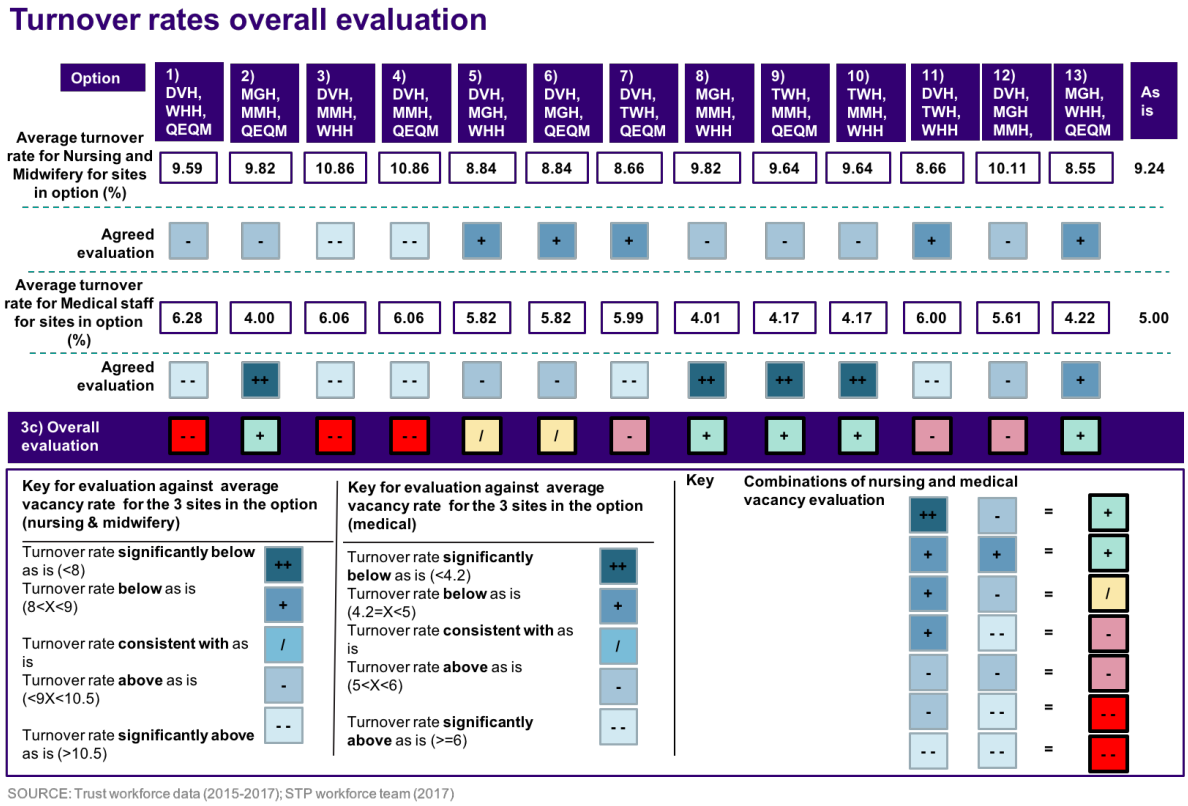


SOURCE: Trust workforce data (2015-2017); STP workforce team (2017)

Turnover rates

The ability of individual sites to retain staff working in hyper acute and acute stroke units can be indicated by turnover rates. Because of the small numbers of people in the urgent stroke workforce, total turnover rates for medical and nursing staff at each site were reviewed by clinicians. It was acknowledged that total turnover rates for a site may not be a comprehensive indicator of the ability of sites to retain staff in a hyper acute and acute stroke unit in future. However, clinicians agreed that it is a useful proxy for consideration as part of the evaluation process. Options including sites with low turnover rates were evaluated more highly than options including sites with higher turnover rates. This evaluation is shown in Figure 34.

Figure 34: evaluation of turnover rates



SOURCE: Trust workforce data (2015-2017); STP workforce team (2017)

10.3.4. Ability to deliver

It is important that change can be delivered as quickly and easily as possible so that the benefits from the change can be gained as soon as possible. Through the application of the hurdle criteria, clinicians have ensured that each option being evaluated is implementable, with the second hurdle criterion (implementability) designed to test this and remove any options that would not be implementable (see Section 9.4). In order to evaluate the remaining options, clinicians asked the evaluation question:

- How easy will it be to deliver change?
- How well does each option align with other strategic changes and provide a flexible platform for the future?
- How able / willing are the Trusts to deliver each option?

These questions are designed to test whether any options are likely to be implemented more quickly and easily than others. The areas chosen for review were around **expected time to deliver** and **Trust ability to deliver**:

- Trust self-assessment of the new capacity required to deliver each option
- Self-certified ability to deliver each option by Trusts

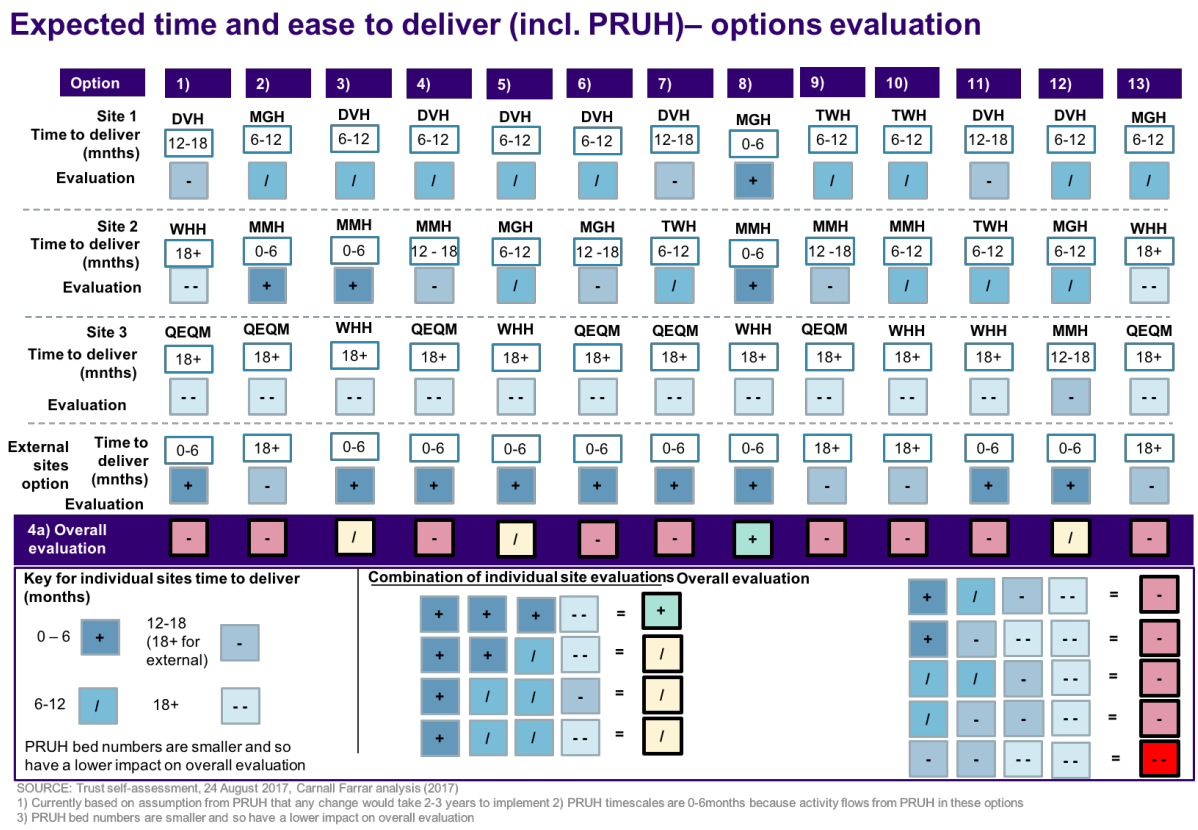
Clinicians agreed that **co-dependencies with other strategies** is not useful for evaluation purposes as trusts are at different stages of formulating their strategies and because the strategies may not align with the requirements of the whole system. The impact on inequalities has been reviewed as part of the integrated impact assessment (see Section 13.3).

Expected time and ease to deliver

Clinicians reviewed the expected time to deliver each of the options (the capital cost of each option was considered as part of the finance evaluation – see section 10.3.5). This timescale was mainly driven by the capital requirements of the option (i.e. how long it would take to either build or refurbish space to provide the new hyper acute and acute stroke units). Trusts undertook a self-assessment for each option and this was validated by the Finance Group. Consideration was also given to sites outside Kent and Medway; the main site impacted under some options is the Princess Royal University Hospital in Orpington. Options that required longer timescales to deliver were evaluated more poorly than those that could be delivered quickly. This evaluation is shown in

Figure **35**.

Figure 35: evaluation of expected time and ease to deliver



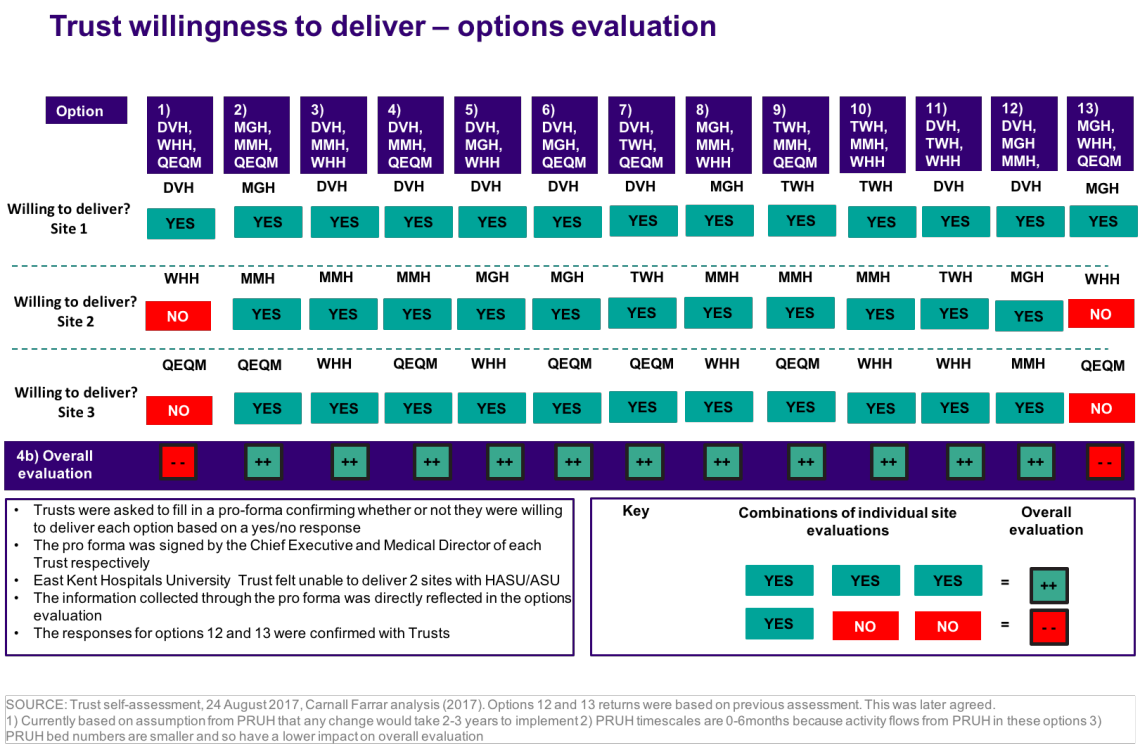
SOURCE: Trust self-assessment, 24 August 2017, Carnall Farrar analysis (2017)
1) Currently based on assumption from PRUH that any change would take 2-3 years to implement 2) PRUH timescales are 0-6months because activity flows from PRUH in these options
3) PRUH bed numbers are smaller and so have a lower impact on overall evaluation

Trust ability to deliver

Trusts undertook a self-assessment as to their ability to deliver each of the options, and the time it would take for them to deliver each of the options. The responses on timescale were largely driven by the size of the unit and the number of beds required at each site under each of the options – where this required new build, the timescale required to implement was generally assessed longer. The self-assessment also took account of the ability of a Trust to run hyper acute and acute stroke units on two sites (where applicable) and ability to attract the workforce from other sites. Two options would see hyper acute and acute stroke units delivered on two sites within the same Trust and East Kent University Hospitals Foundation Trust felt that this would be very difficult to deliver due to recruitment issues and the risks around staff re-location. Therefore, options with a hyper acute and acute stroke unit on both the William Harvey Hospital and the Queen Elizabeth the Queen

Mother hospital (the two sites managed by East Kent University Hospitals Foundation Trust) were evaluated more poorly than the other options. This evaluation is shown in Figure 36.

Figure 36: evaluation of Trust ability to deliver



SOURCE: Trust self-assessment, 24 August 2017, Carnall Farrar analysis (2017). Options 12 and 13 returns were based on previous assessment. This was later agreed.
1) Currently based on assumption from PRUH that any change would take 2-3 years to implement 2) PRUH timescales are 0-6months because activity flows from PRUH in these options 3) PRUH bed numbers are smaller and so have a lower impact on overall evaluation

10.3.5. Finance

It is important that the proposed changes do not create a financial deficit over the medium term. Through the application of the hurdle criteria, Finance Directors have ensured that each option being evaluated is likely to be financially sustainable, with the fifth hurdle criterion (financial sustainability) designed to test this and remove any options that are not likely to be financially sustainable (see Section 9.7). In order to evaluate the remaining options, Finance Directors asked the evaluation question:

- Which options would have the lowest capital costs (cost of buildings and equipment)?
- Which options will have the lowest revenue costs?
- Which options would have the lowest cost of transferring services between hospitals?
- Which options will give the greatest net present value (overall financial benefit) over the next 10 and 20 years?

These questions are designed to test whether any options are likely to be more financially sustainable than others. The area chosen for review was **highest net present value**.

Directors of Finance agreed that:

- Estimated **capital costs** (new or refurbished and with identified necessary infrastructure) is non-differentiating because the main driver of the net present value calculation was capital. Net present value was retained as this "return on investment" calculation is required by the NHS Investment Committee and in capital bid submissions.
- **Revenue costs** calculated by reviewing the increased costs of consultants and nurses under each option was non-differentiating because a similar level of total staffing is required for

each option; the issues with the ability to recruit have been evaluated under the workforce criteria (see Section 10.3.3). Calculating the revenue consequences of new capital was agreed to be duplicative with the net present value calculation.

- Only the cost of double-running would be reviewed for **transition costs** as the cost of moving capital is included in the present value calculation and the cost of training and redundancies would be roughly the same under all options (there would be no plans for redundancies under any option). The difference between options for double-running costs was minimal and given the sensitivity of calculations this was agreed to be non-differentiating between the options at this stage.

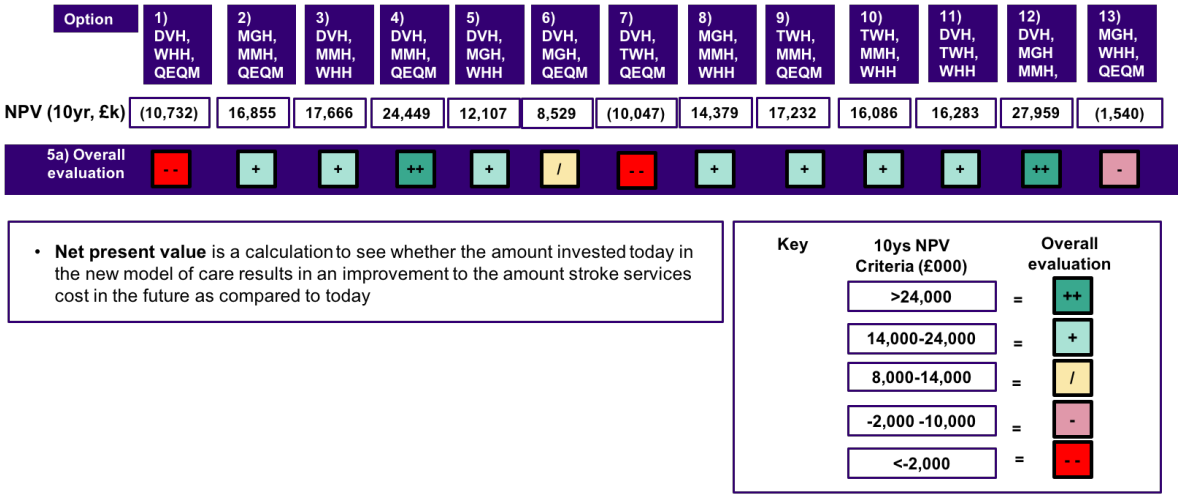
Net present value

The net present value (NPV) calculation seeks to show which options will give the best overall financial benefit over the next 10 years and the next 20 years. This means calculating the total investment requirements for each option from commissioners and providers (including up front capital investment, ongoing replacement capital costs, one-off transition costs and any workforce costs) and setting this against the total potential benefits of each option for commissioners and providers (including consolidation savings, net change to fixed costs and capital receipts). Consideration was also given to sites outside Kent and Medway including the Princess Royal University Hospital in Orpington and Eastbourne District General Hospital. All options for sourcing capital are being explored but, for modelling purposes, it has been assumed that capital will be financed through PDC (public dividend capital – a form of long-term government finance) and capital bids will be submitted through the national process. The full calculations and assumptions used are shown in Appendix R.

The 20-year NPV analysis was agreed to be non-differentiating between the options as it showed at least £37m benefits for all options. The 10-year NPV analysis was used as this is differentiating.

Options that had higher NPVs were evaluated more highly than those with lower or negative NPVs. This evaluation is shown in Figure 37.

Figure 37: evaluation of financial sustainability

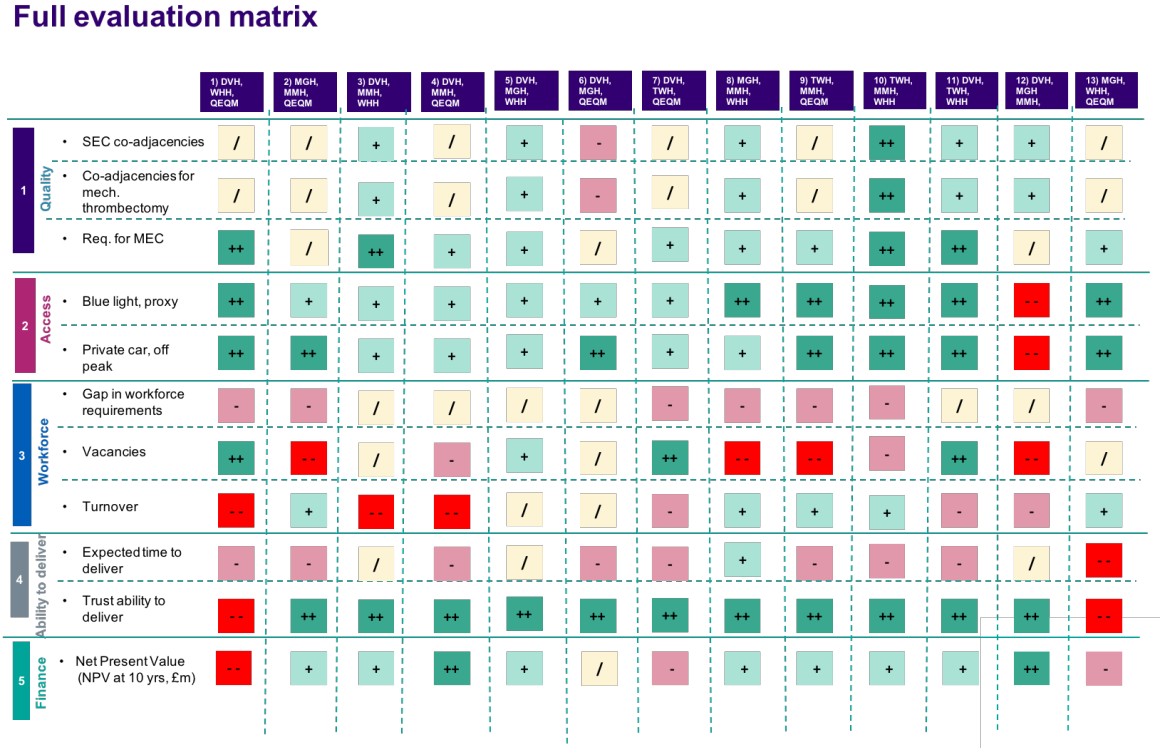


SOURCE: K&M Trust estates returns (September 2017); K&M STP Estates workstream (August 2017); Gleeds analysis (September 2017); Carnall Farrar analysis (September 2017), Cost savings per patient - Hunter, Davie, Rudd et. al. (2013) Delivery/build timeframes: Trust self assessment data (24 August 2017) and Carnall Farrar analysis (2017), Annual activity per site: Provider data returns (2014/15 – 2016/17), Basemap travel time data (car, off peak), ONS population data (2015), IMD deprivation data (2015), Carnall Farrar analysis (2017)

10.4 Summary of evaluation

The assessment across all five evaluation criteria, including their sub-criteria, was brought together onto a single evaluation matrix, shown in Figure 38.

Figure 38: full evaluation matrix



There was extensive evaluation of the options by clinicians, operational managers and public/patient representatives including:

- Two workshops of the stroke Clinical Reference Group
- Two meetings of the Stroke Programme Board
- Two meetings of the STP Clinical Board
- Two meetings of the Finance Group
- A half-day workshop of senior clinicians, managers and finance representatives with patient representatives

These meetings considered feedback from extensive patient and public engagement on the evaluation options which consistently put quality, access and workforce as the highest priority areas for consideration. A meeting of CCG Clinical Chairs and CCG Accountable Officer recommended that the following options should go forward for consultation:

- Option 3 - DVH, MMH, WHH
- Option 5 - DVH, MGH, WHH
- Option 8 - MGH, MMH, WHH
- Option 10 - MMH, TWH, WHH

This is because these options give the highest quality, particularly the potential to provide mechanical thrombectomy, along with good access and are deliverable and affordable. Lower importance was given to vacancies and turnover (due to the concerns about the data and the whether the right thing was being measured).

At the meeting, Option 11 (DVH, TWH, WHH) was originally evaluated poorly on ability to deliver (because it resulted in DVH being a very large unit and as such required additional consultants) and also on affordability (because of the need to build on all three sites, two of which are PFIs). However, as a result of changes to the PRUH base activity data provided by the Bromley CCG, the workforce and capital requirements for this option reduced. As option 11 also gives high quality and good access, it was agreed by the Clinical Reference Group on 9th January, the Stroke Programme Board on 12th January and the Joint Committee of CCGs on 16th January that this option should also go forward for consultation.

Briefly, the other options are not recommended for shortlisting for consultation for the following reasons (see Appendix N for the full analysis):

- Option 1 - DVH, WHH, QEQM: this option was evaluated poorly on quality, affordability and was evaluated very poorly on deliverability (because services are being provided on two sites in a single trust).
- Option 2 - MGH, MMH, QEQM: this option was evaluated very poorly on quality (because only one site currently has a trauma unit or co-adjacencies for mechanical thrombectomy and MGH does not have co-adjacencies for a major emergency centre).
- Option 4 - DVH, MMH, QEQM: this option was evaluated poorly on quality.
- Option 6 - DVH, MGH, QEQM: this option was evaluated very poorly on quality (because no site currently has a trauma unit or co-adjacencies for mechanical thrombectomy and MGH does not have co-adjacencies for a major emergency centre).
- Option 7 - DVH, QEQM, TWH: this option was evaluated poorly on quality and very poorly on affordability (because of the need to build on all three sites, two of which are PFIs).
- Option 9 - TWH, MMH, QEQM: this option was evaluated poorly on quality.
- Option 12 - DVH, MGH, MMH: this option was evaluated very poorly on access.
- Option 13 - MGH, QEQM, WHH: this option was evaluated poorly on quality, very poorly on the ease of delivery (because services are being provided on two sites in a single trust) and very poorly on affordability.

10.5 Shortlist of options

Options 3, 5, 8, 10 and 11 are the recommended shortlist for consultation. These options (re-labelled to avoid confusion) are:

- Option A (formerly option 3) - DVH, MMH, WHH
- Option B (formerly option 5) - DVH, MGH, WHH
- Option C (formerly option 8) - MGH, MMH, WHH
- Option D (formerly option 10) - MMH, TWH, WHH
- Option E (formerly option 11) – DVH, TWH, WHH

William Harvey Hospital is in all options with a choice between Medway Hospital, Darent Valley Hospital, Maidstone General Hospital and Tunbridge Wells Hospital as the second and third site.

11. Impact of options

11.1 Description of options for consultation

This section describes the five options for consultation and sets out what is common about the options (for William Harvey Hospital, Kent and Canterbury Hospital and Queen Elizabeth, the Queen Mother Hospital) and then provides further detail on the differences between the options.

11.2 Description of the proposals which are common across options

After reviewing all the analysis, the Stroke Programme Board recommends that in all options:

- There will be higher quality, more consistent care in hospital for urgent stroke services, particularly with the development of hyper acute and acute stroke units. This will provide greater access to specialist staff and equipment and quicker treatment times. This is detailed in Section 6.2.
- There will be work undertaken to improve stroke prevention and rehabilitation services.
- All options will mean that some patients will have to travel further for the urgent aspects of their stroke care, but no more than 14 minutes longer. However, consolidating hospital stroke services will save lives and reduce disability. Further details on travel time impact are detailed in Appendix Q.
- There will be an increase in specialist stroke staff with an estimated 8 additional consultants and an opportunity for more nurses and allied health professionals to become stroke specialists.

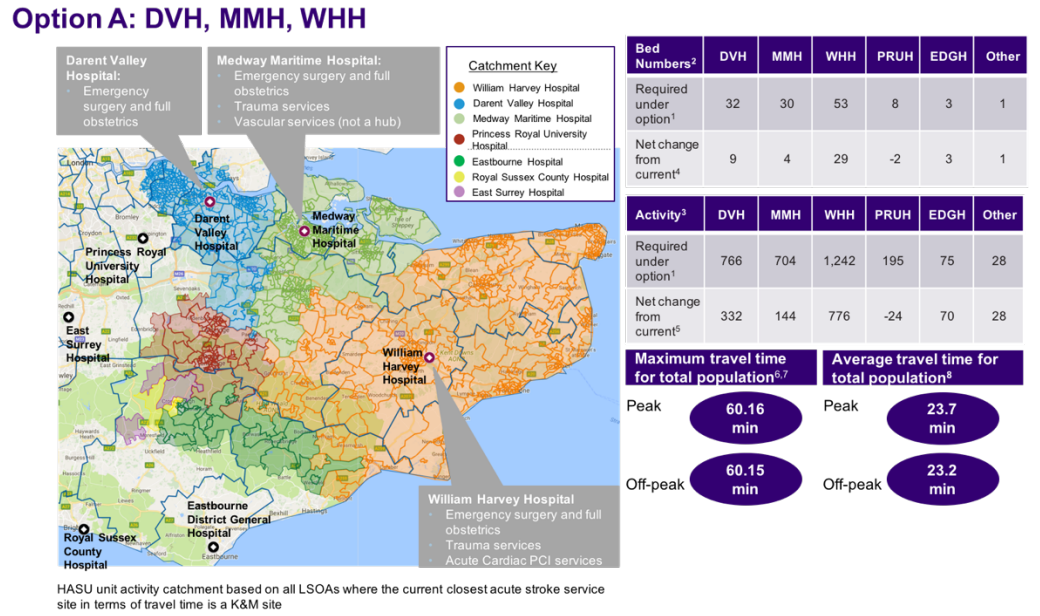
In terms of specific sites, the following proposals are the same across all options:

- A hyper acute and acute stroke unit is developed at the William Harvey Hospital.
- There is no hyper acute and acute stroke unit at Kent and Canterbury Hospital or Queen Elizabeth, the Queen Mother Hospital. However, since this work was undertaken, a potential option has arisen, as a result of an offer from a developer, to build the shell of a hospital at the Kent and Canterbury Hospital site. This will be subject to further assessment but has created a potential option for a major emergency centre with all specialist services at Kent and Canterbury Hospital. Should the work in East Kent identify that the major emergency centre will be at Kent and Canterbury Hospital then, due to key clinical adjacencies, the location of the HASU for East Kent could be at either the William Harvey Hospital or the Kent and Canterbury Hospital in future, subject to consultation.

11.3 Option A

Option A would see a hyper acute and acute stroke unit at Darent Valley Hospital, Medway Hospital and William Harvey Hospital.

Figure 39: Option A activity impact



Bed Numbers[2]	DVH	MMH	WHH	PRUH	EDGH	Other
Required under option[1]	32	30	53	8	3	1
Net change from current[4]	9	4	29	-2	3	1

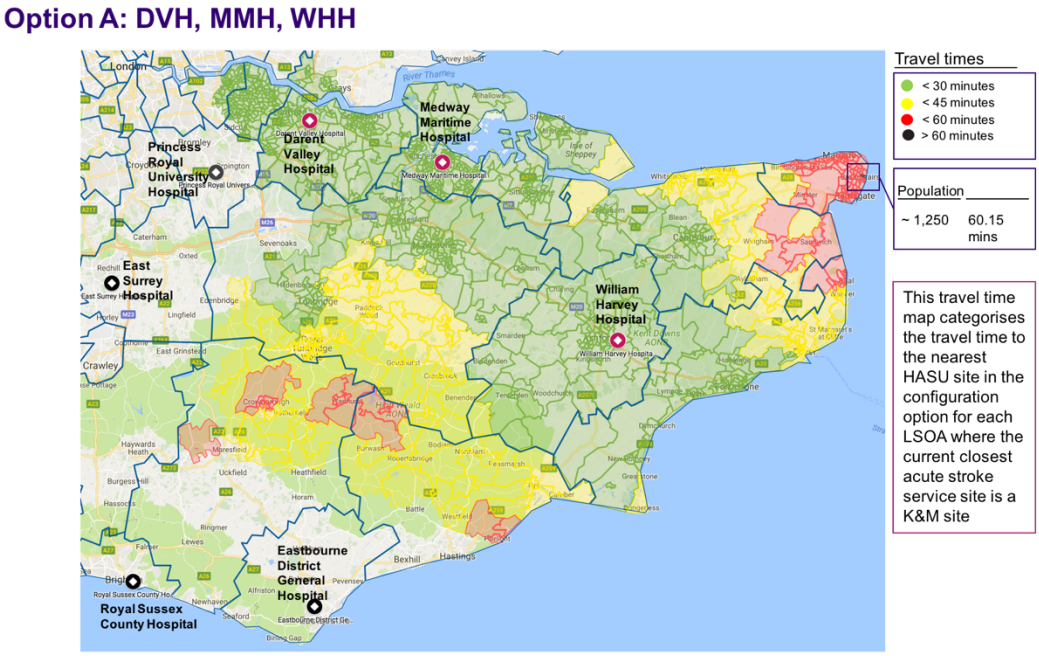
Activity[3]	DVH	MMH	WHH	PRUH	EDGH	Other
Required under option[1]	766	704	1,242	195	75	28
Net change from current[5]	332	144	776	-24	70	28

HASU unit activity catchment based on all LSOAs where the current closest acute stroke service site in terms of travel time is a K&M site

Notes: 1) Future total is based on the total of all activity from LSOAs where the closest site is currently in K&M; 2) Bed numbers include beds required for TIA and Mimic activity; 3) Activity numbers include confirmed strokes only, and activity is based on LSOA's of people who have a K&M site as their closest site; 4) Net change in beds is modelled on stroke beds by site in 2016/17 as reported by Trusts to the Estates workstream; 5) Activity net change is calculated using confirmed stroke activity for 2016/17; 6) Travel time in whole minutes; 7) Current travel time to acute sites offering stroke services (not HASU): Peak- 47.07 minutes and off-peak- 47.24 minutes; 8) The average travel time takes the average of each of the shortest travel times from LOSA to HASU/ASU site under each option

SOURCE: Provider data returns (2016/17), Basemap travel times (car, off-peak and peak), ONS population data (2015), Carnall Farrar analysis

Figure 40: Option A catchment area



SOURCE: Provider data returns (2016/17), Basemap travel times (car, off-peak and on-peak), ONS population data (2015), Carnall Farrar analysis, Mid-2015 LSOA population estimates

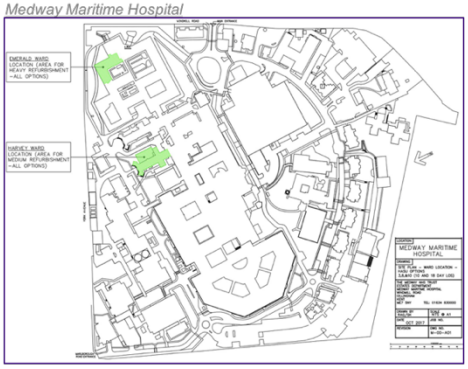
:

Figure 41: Option A activity impact

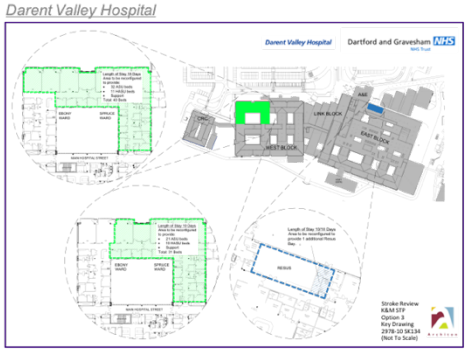
Option A: DVH, MMH, WHH

Site	Capital req (£k)	Detail
Darent Valley	741	Refurbish existing estate to accommodate 33 stroke beds and resuscitation facilities.
Medway	5,318	Refurbish existing 26 bed ward plus additional heavy refurbishment of 13 bed mothballed ward to deliver 30 stroke beds. No resus or CT development required. Accounts for impact on adj wards
William Harvey	22,947	New build to accommodate 29 additional stroke beds. Expansions to existing ITU, MRI, CT and A&E facilities
External	1,814	Costs to accommodate additional stroke beds at Eastbourne (3) and Brighton (1)
Total capital req	30,820	

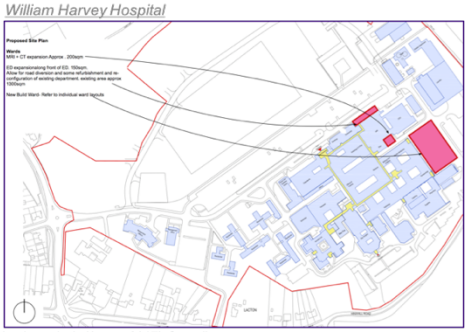
Medway Maritime Hospital



Darent Valley Hospital



William Harvey Hospital



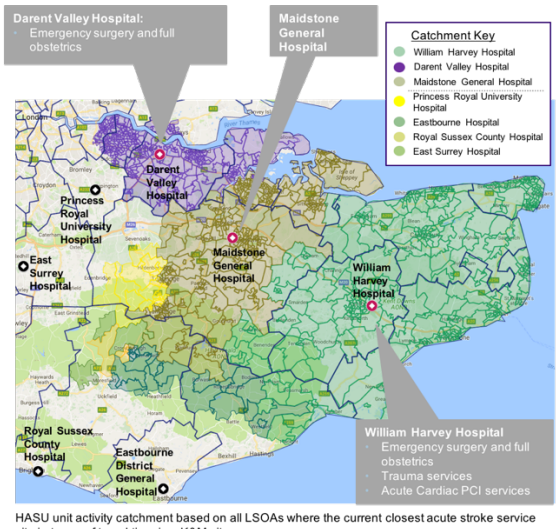
SOURCE: K&M Trust estates returns (August 2017); K&M STP Estates workstream (August 2017); Gleeds analysis (August 2017); Carnall Farrar analysis (September 2017)

11.4 Option B

Option B would see a hyper acute and acute stroke unit at Darent Valley Hospital, Maidstone General Hospital and William Harvey Hospital.

Figure 42: Option B activity impact

Option B: DVH, MGH, WHH



Bed Numbers[2]	DVH	MGH	WHH	PRUH	EDGH	Other
Required under option[1]	33	36	51	3	3	1
Net change from current[4]	10	24	27	-7	3	1

Activity[3]	DVH	MGH	WHH	PRUH	EDGH	Other
Required under option[1]	803	865	1,199	54	17	72
Net change from current[5]	369	517	733	-165	12	72

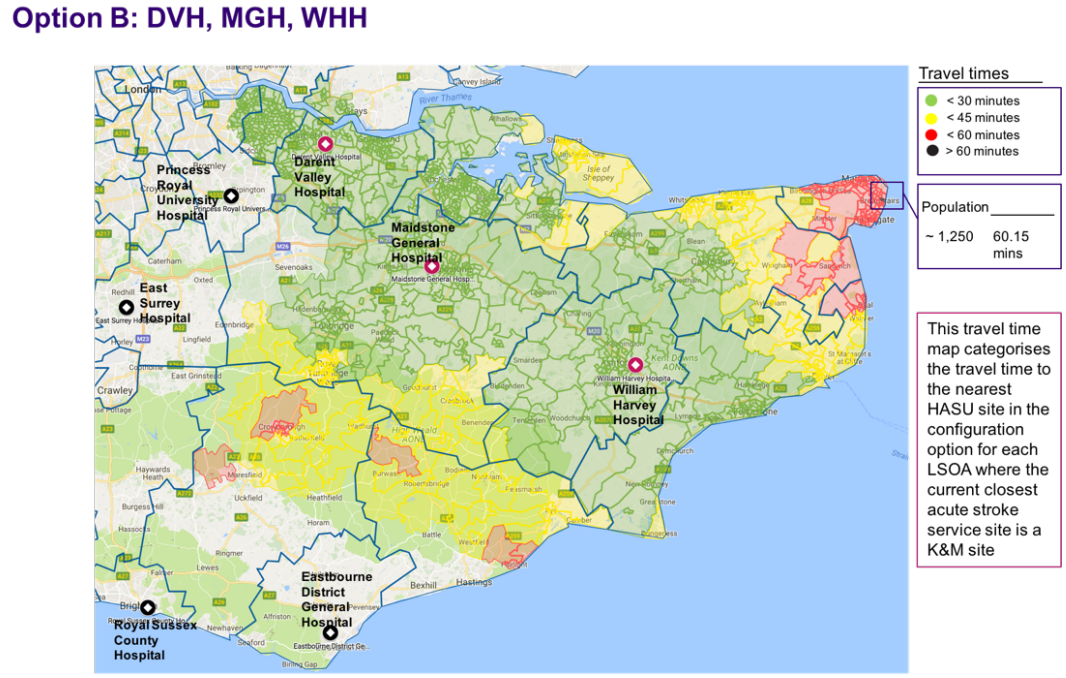
Maximum travel time for total population[6,7]		Average travel time for total population[8]	
Peak	60.53 min	Peak	24.2 min
Off-peak	60.15 min	Off-peak	23.5 min

HASU unit activity catchment based on all LSOAs where the current closest acute stroke service site in terms of travel time is a K&M site

Notes: 1) Future total is based on the total of all activity from LSOAs where the closest site is currently in K&M; 2) Bed numbers include beds required for TIA and Mimic activity; 3) Activity numbers include confirmed strokes only, and activity is based on LSOA's of people who have a K&M site as their closest site; 4) Net change in beds is modelled on stroke beds by site in 2016/17 as reported by Trusts to the Estates workstream; 5) Activity net change is calculated using confirmed stroke activity for 2016/17; 6) Travel time in whole minutes; 7) Current travel time to acute sites offering stroke services (not HASU): Peak- 47.07 minutes and off-peak- 47.24 minutes; 8) The average travel time takes the average of each of the shortest travel times from LOSA to HASU/ASU site under each option

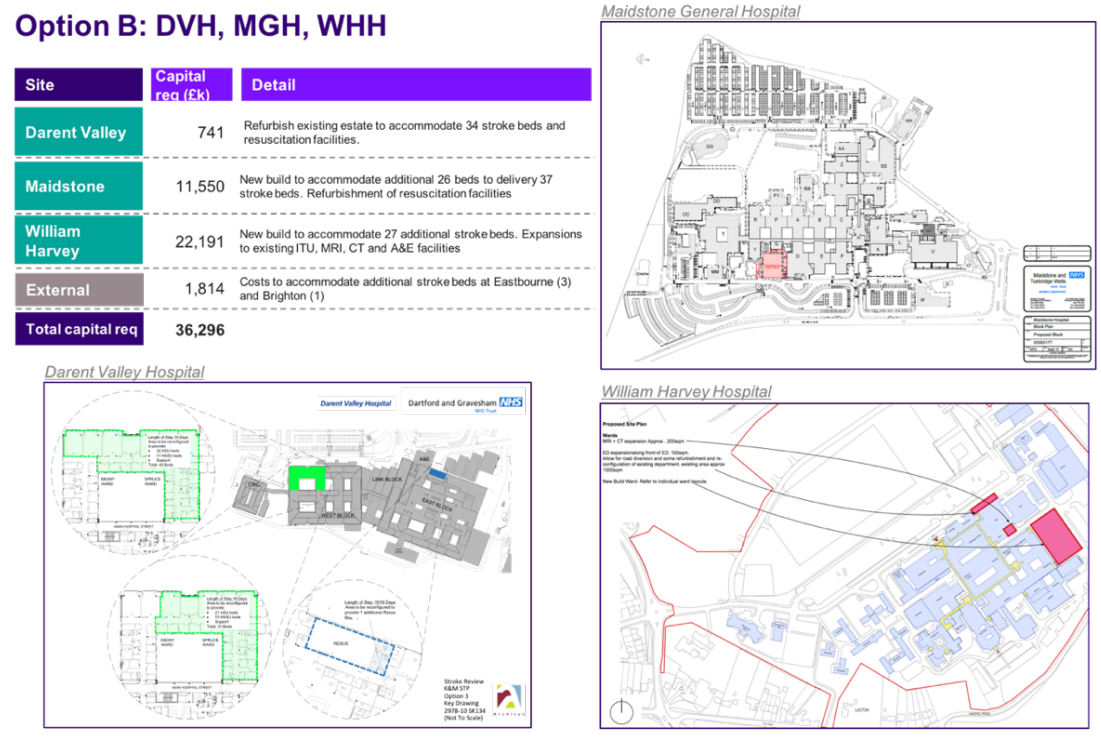
SOURCE: Provider data returns (2016/17), Basemap travel times (car, off-peak and peak), ONS population data (2015), Carnall Farrar analysis

Figure 43: Option B catchment mapping



SOURCE: Provider data returns (2016/17), Basemap travel times (car, off-peak and on-peak), ONS population data (2015), Carnall Farrar analysis, Mid-2015 LSOA population estimates

Figure 44: Option B activity impact



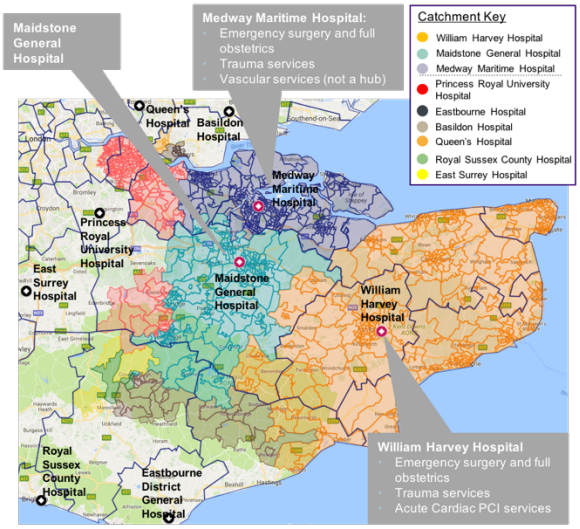
SOURCE: K&M Trust estates returns (August 2017); K&M STP Estates workstream (August 2017); Gleeds analysis (August 2017); Carnall Farrar analysis (September 2017)

11.5 Option C

Option C would see a hyper acute and acute stroke unit at Maidstone General Hospital, Medway Hospital and William Harvey Hospital.

Figure 45: Option C activity impact

Option C: MGH, MMH, WHH



Bed Numbers[2]	MGH	MMH	WHH	PRUH	EDGH	Other
Required under option[1]	21	27	50	25	3	1
Net change from current[4]	9	1	26	15	3	1

Activity[3]	MGH	MMH	WHH	PRUH	EDGH	Other
Required under option[1]	487	647	1,189	577	65	45
Net change from current[5]	139	87	723	358	60	45

Maximum travel time for total population[6,7]		Average travel time for total population[8]	
Peak	60.16 min	Peak	24.7 min
Off-peak	60.15 min	Off-peak	24.1 min

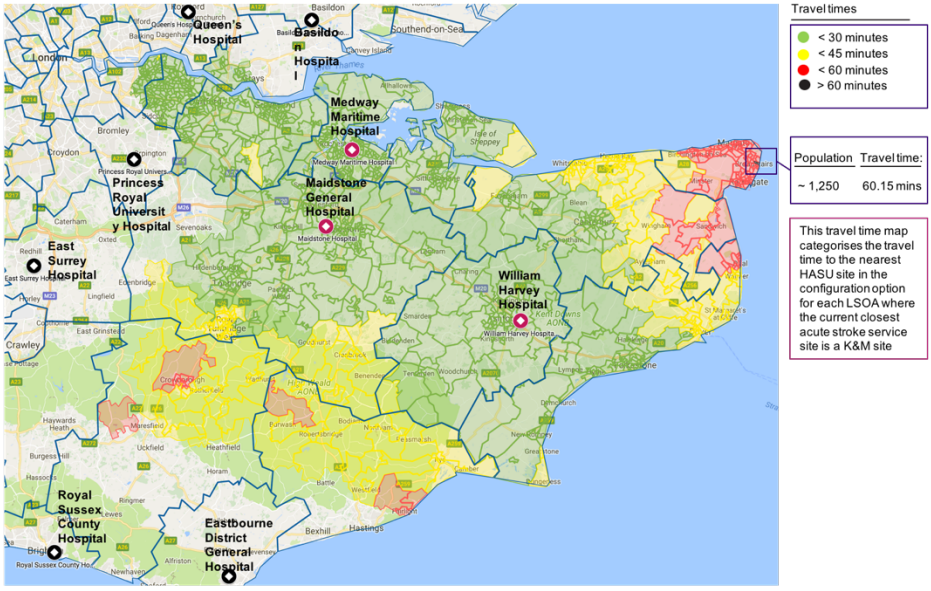
HASU unit activity catchment based on all LSOAs where the current closest acute stroke service site in terms of travel time is a K&M site

Notes: 1) Future total is based on the total of all activity from LSOAs where the closest site is currently in K&M; 2) Bed numbers include beds required for TIA and Mimic activity; 3) Activity numbers include confirmed strokes only, and activity is based on LSOA's of people who have a K&M site as their closest site; 4) Net change in beds is modelled on stroke beds by site in 2016/17 as reported by Trusts to the Estates workstream; 5) Activity net change is calculated using confirmed stroke activity for 2016/17; 6) Travel time in whole minutes; 7) Current travel time to acute sites offering stroke services (not HASU): Peak- 47.07 minutes and off-peak- 47.24 minutes; 8) The average travel time takes the average of each of the shortest travel times from LOSA to HASU/ASU site under each option

SOURCE: Provider data returns (2016/17), Basemap travel times (car, off-peak and peak), ONS population data (2015), Carnall Farrar analysis

Figure 46: Option C catchment area

Option C: MGH, MMH, WHH



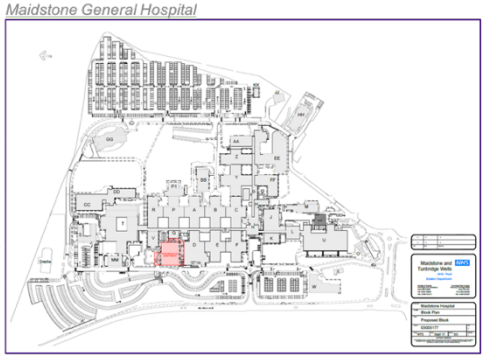
SOURCE: Provider data returns (2016/17), Basemap travel times (car, off-peak and on-peak), ONS population data (2015), Carnall Farrar analysis, Mid-2015 LSOA population estimates

Figure 47: Option C activity impact

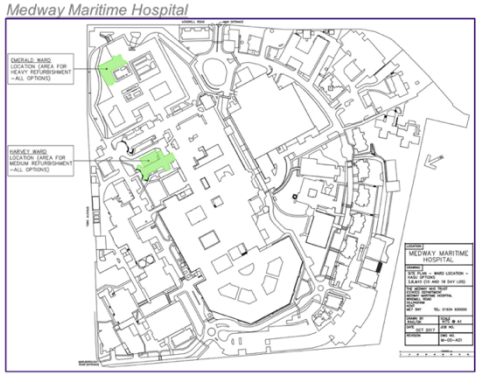
Option C: MGH, MMH, WHH

Site	Capital (£k)	Detail
Maidstone	4,460	New build to accommodate additional 10 beds to deliver 21 beds and refurbishment of resuscitation facilities
Medway	5,318	Refurbish existing 26 bed ward plus additional heavy refurbishment of 13 bed mothballed ward to deliver 39 stroke beds. No resus or CT development required. Accounts for impact on adj wards
William Harvey	22,191	New build to accommodate 27 additional stroke beds. Expansions to existing ITU, MRI, CT and A&E facilities
External	5,892	Costs to accommodate additional stroke beds at PRUH (8), Eastbourne (3), Brighton (1) and Romford (1)
Total capital req	37,861	

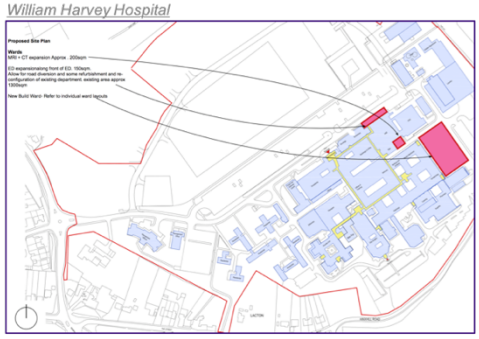
Maidstone General Hospital



Medway Maritime Hospital



William Harvey Hospital



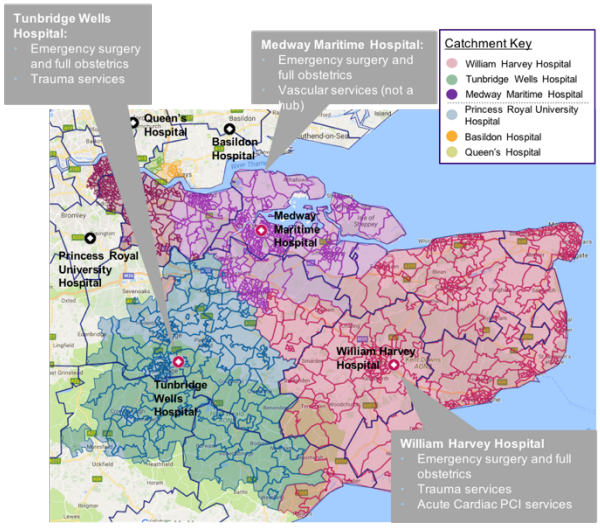
SOURCE: K&M Trust estates returns (August 2017); K&M STP Estates workstream (August 2017); Gleeds analysis (August 2017); Carnall Farrar analysis (September 2017)

11.6 Option D

Option D would see a hyper acute and acute stroke unit at Medway Hospital, Tunbridge Wells Hospital and William Harvey Hospital.

Figure 48: Option D activity impact

Option D: TWH, MMH, WHH



Bed Numbers[2]	TWH	MMH	WHH	PRUH	Other
Required under option[1]	19	35	50	22	1
Net change from current[4]	5	9	26	12	1

Activity[3]	TWH	MMH	WHH	PRUH	Other
Required under option[1]	448	824	1,188	529	21
Net change from current[5]	57	264	722	310	21

Maximum travel time for total population[6,7]		Average travel time for total population[8]	
Peak	60.16 min	Peak	24.1 min
Off-peak	60.15 min	Off-peak	23.5 min

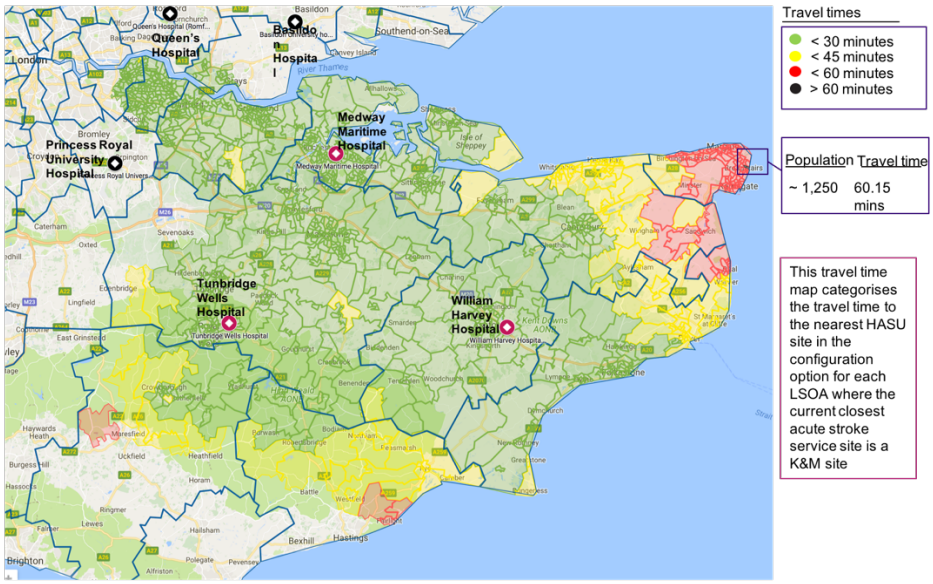
HASU unit activity catchment based on all LSOAs where the current closest acute stroke service site in terms of travel time is a K&M site

Notes: 1) Future total is based on the total of all activity from LSOAs where the closest site is currently in K&M; 2) Bed numbers include beds required for TIA and Mimic activity; 3) Activity numbers include confirmed strokes only, and activity is based on LSOA's of people who have a K&M site as their closest site; 4) Net change in beds is modelled on stroke beds by site in 2016/17 as reported by Trusts to the Estates workstream; 5) Activity net change is calculated using confirmed stroke activity for 2016/17; 6) Travel time in whole minutes; 7) Current travel time to acute sites offering stroke services (not HASU): Peak- 47.07 minutes and off-peak- 47.24 minutes; 8) The average travel time takes the average of each of the shortest travel times from LOSA to HASU/ASU site under each option

SOURCE: Provider data returns (2016/17), Basemap travel times (car, off-peak and peak), ONS population data (2015), Carnall Farrar analysis

Figure 49: Option D catchment area

Option D: TWH, MMH, WHH



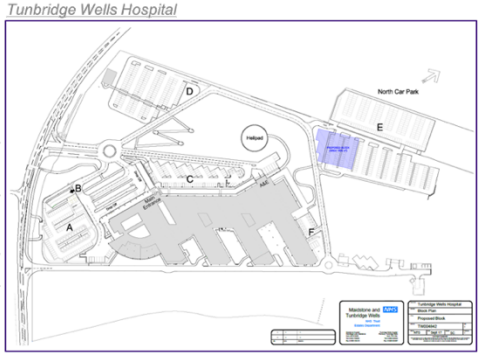
SOURCE: Provider data returns (2016/17), Basemap travel times (car, off-peak and on-peak), ONS population data (2015), Carnall Farrar analysis, Mid-2015 LSOA population estimates

Figure 50: Option D activity impact

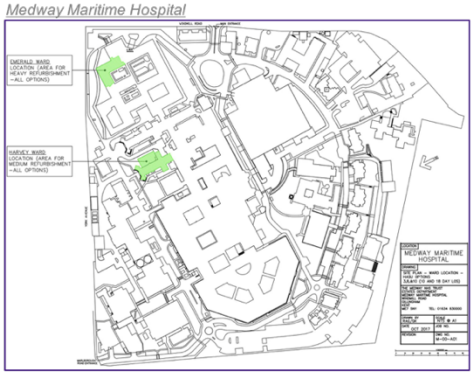
Option D: TWH, MMH, WHH

Site	Capital req (£k)	Detail
Tunbridge Wells	5,269	New build to accommodate additional 5 beds to deliver a total of 19 stroke beds. Refurbishment of resuscitation facilities
Medway	5,318	Refurbish existing 26 bed ward plus additional heavy refurbishment of 13 bed mothballed ward to deliver 35 stroke beds. No resus or CT development required. Accounts for impact on adj wards
William Harvey	22,191	New build to accommodate 27 additional stroke beds. Expansions to existing ITU, MRI, CT and A&E facilities
External	3,173	Costs to accommodate additional stroke beds at PRUH (10) and Romford (1)
Total capital req	35,951	

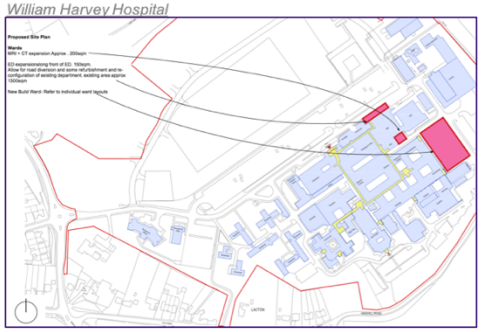
Tunbridge Wells Hospital



Medway Maritime Hospital



William Harvey Hospital

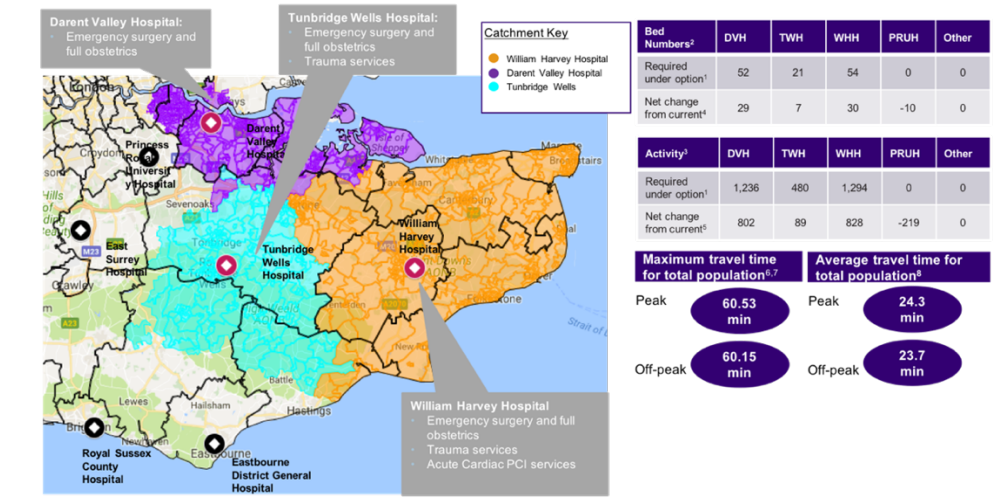


SOURCE: K&M Trust estates returns (August 2017); K&M STP Estates workstream (August 2017); Gleeds analysis (August 2017); Carnall Farrar analysis (September 2017)

11.7 Option E

Option E would see a hyper acute and acute stroke unit at Darent Valley Hospital, Tunbridge Wells Hospital and William Harvey Hospital.

Figure 51: Option E activity impact

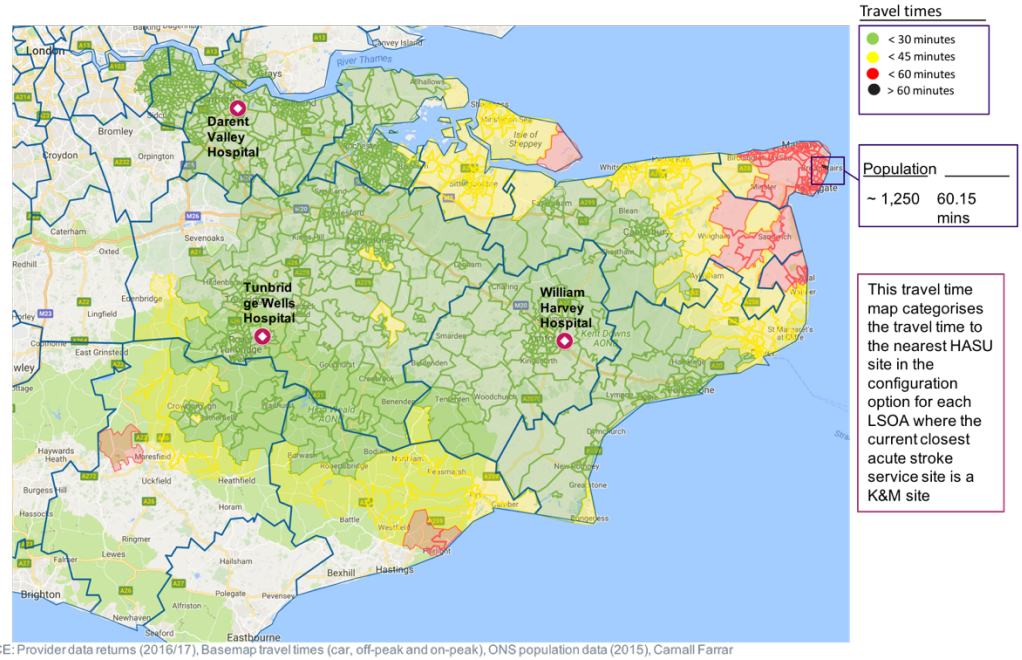


HASU unit activity catchment based on all LSOAs where the current closest acute stroke service site in terms of travel time is a K&M site

Notes: 1) Future total is based on the total of all activity from LSOAs where the closest site is currently in K&M; 2) Bed numbers include beds required for TIA and Mimic activity; 3) Activity numbers include confirmed strokes only, and activity is based on LSOA's of people who have a K&M site as their closest site; 4) Net change in beds is modelled on stroke beds by site in 2016/17 as reported by Trusts to the Estates workstream; 5) Activity net change is calculated using confirmed stroke activity for 2016/17; 6) Travel time in whole minutes; 7) Current travel time to acute sites offering stroke services (not HASU): Peak-47.07 minutes and off-peak-47.24 minutes; 8) The average travel time takes the average of each of the shortest travel times from LOSA to HASU/ASU site under each option

SOURCE: Provider data returns (2016/17), Basemap travel times (car, off-peak and peak), ONS population data (2015), Carnall Farrar analysis

Figure 52: Option E catchment area



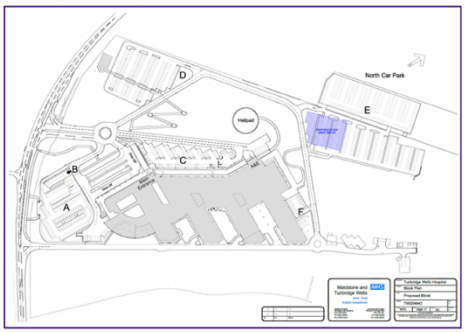
SOURCE: Provider data returns (2016/17), Basemap travel times (car, off-peak and on-peak), ONS population data (2015), Carnall Farrar analysis

Figure 53: Option E activity impact

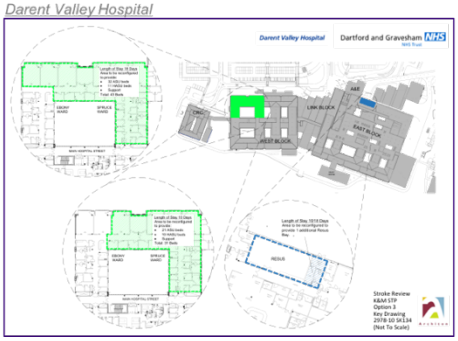
Option E: DVH, TWH, WHH

Site	Capital req (£k)	Detail
Darrent Valley	741	Refurbish existing estate to accommodate 53 stroke beds and resuscitation facilities.
Tunbridge Well	6,190	New build to accommodate additional 7 beds to deliver a total of 21 stroke beds. Refurbishment of resuscitation facilities
William Harvey	23,703	New build to accommodate 31 additional stroke beds. Expansions to existing ITU, MRI, CT and A&E facilities
External	0	
Total capital req	30,634	

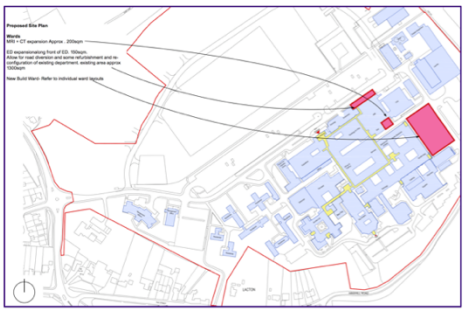
Tunbridge Wells Hospital



Darent Valley Hospital



William Harvey Hospital



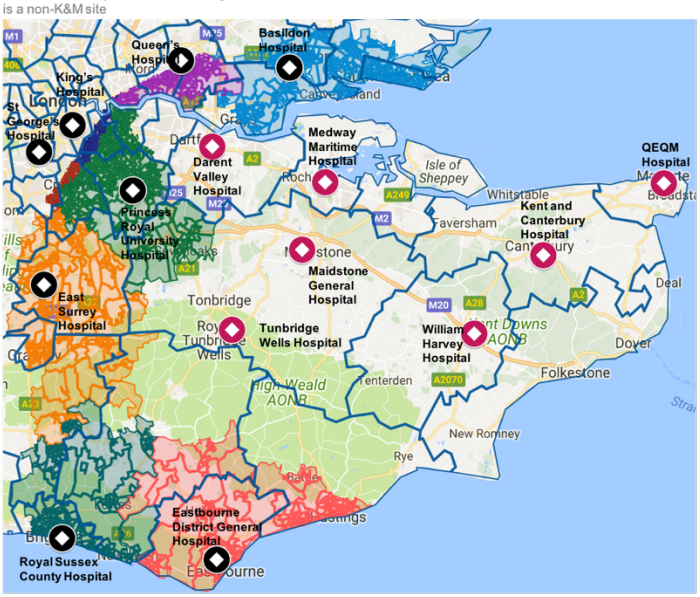
11.8 Activity in providers outside Kent and Medway

Some people who live in Kent and Medway are already closer to a hyper acute stroke unit outside of Kent and Medway (for example, people living in Sevenoaks who currently go to the Princess Royal University Hospital in Orpington). Under all options, these people will continue to travel to their nearest hyper acute stroke unit even if it is outside of Kent and Medway. These populations are shown on Figure 54.

Figure 54: activity catchments for non-Kent and Medway hospital sites

Local activity catchments for non-K&M sites

HASU unit activity catchment showing LSOAs where the current closest acute stroke service site in terms of travel time is a non-K&M site



Key

- Basildon Hospital
- Queen's Hospital
- Princess Royal University Hospital
- King's Hospital
- St George's Hospital
- East Surrey Hospital
- Royal Sussex County Hospital
- Eastbourne Hospital

- This catchment map shows the HASU unit activity catchment for LSOAs where the current closest acute stroke service site in terms of travel time is a non-K&M site
- This map offers explanation as to why certain areas of the configuration option catchment maps do not include some K&M LSOAs

SOURCE: Provider data returns (2016/17), Basemap travel times (car, off-peak and on-peak), ONS population data (2015), Carnall Farrar analysis

11.9 Financial impact

The financial impact of the proposals will be on commissioners and on providers.

11.9.1. Impact on commissioners

The cost to CCGs of implementing this new hospital stroke service model has been estimated at £2m per year (there is slight variation due to different Market Forces Factor for different options), which is the cost of moving to the Best Practice Tariff for providers. This will be offset by an estimated £811 per patient in savings in the first 90 days post stroke for each patient and £3,058 per year in subsequent years (as people who have a stroke have lower disability over the long term). These estimates are based on the evaluation of the impact of similar changes to service in other areas[56] and, for the purposes of modelling, rehabilitation services are assumed to stay as they are. For prudence, 50% of the financial benefit stated in the report has been factored into the modelling for K&M. This gives a total net financial benefit to CCGs of £29.1m to £30.2m after 20 years. This is shown in
Figure 55.

There will also be a one-off transitional cost to commissioners of up to an estimated £2.5m, comprising the costs of re-training the work force and the programme management costs to implement the changes. Impact on commissioners is shown in
Figure 55.

Figure 55: Financial impact on commissioners

Commissioner impact: the model of care will deliver savings to commissioners due to improved outcomes

NHS England stroke reconfiguration support guide references savings realisable based on an independent study in 2013 (Impact on Clinical and Cost Outcomes of a Centralised Approach to Acute Stroke Care in London: A Comparative Effectiveness Before and After Model) assessed the impact of the stroke changes in London and Manchester in respect to the financial savings which have materialised. The following approach has been taken to apply the findings of this report on the financial position of K&M commissioners after the stroke changes:

- Savings split per patient as **£811** in the first quarter and **£3,058** (£3,869 - 811) over the subsequent 9¾ years (£3058/39 per quarter, approx £78.41)
- Activity split over quarters (as ¼ of annual activity) and savings calculated per quarter
- The first quarter in which savings occur for a given site is the quarter following the build period
- Annual savings aggregated from quarters
- For prudence, 50% of the financial benefit stated in the report has been factored into the modelling for K&M

- **The number of patients benefiting from the new model of care increases year on year**
- **The benefits are taken once the model is fully implemented (between 6 and 24 months depending on site build time)**

Option	Non-recurrent transitional costs, £000	Additional spend on BPT over 20 years, £000	Commissioner benefit over 20 years, £000*	Commissioner impact over 20 years, £000
A	(2,537)	(23,430)	55,603	**29,636**
B	(2,545)	(23,453)	55,671	**29,673**
C	(2,578)	(23,790)	56,610	**30,242**
D	(2,493)	(23,703)	56,360	**30,164**
E	(2,460)	(23,017)	54,532	**29,055**

SOURCE: K&M Trust estates returns (September 2017); HM Treasury discount rate; K&M STP Estates workstream (August 2017); Gleeds analysis (September 2017); Carnall Farrar analysis (September 2017), Cost savings per patient - Hunter, Davie, Rudd et. al. (2013); NHS England PbR Tariff (2017/18); 3.5% discount factor taken on all recurrent costs and income

*Sensitivity analysis assessing impact if not all of this benefit is realised is included in the appendix

11.9.2. Impact on providers

Providers will gain an estimated £2m in revenue from commissioners (as shown in Section 11.9.1). The additional workforce required to deliver the new model of care will cost around £14m, £3.2m

less than the 'do minimum'. There will also be a revenue cost of new capital of between £1.8m and £2.4m. This results in a provider deficit of between £4.6m and £4.9m as the increase in income from receiving 100% of the Best Practice Tariff does not fully cover the cost of the workforce and capital requirements. The NHS across K&M has agreed a set of financial principles that look to mitigate the impact of any organisation that has a significant benefit or detriment arising from changes made through the STP and this will be applied in relation to changes to stroke service. However, despite the provider deficit identified, this represents an improvement on the 'do minimum' of between £3.7m and £4.0m. This is shown in Figure 56.

Figure 56: Provider impact of new model of care

Provider impact: the new model of care reduces the loss to providers compared to the baseline and the 'do minimum' by between £3.7m and £4.0m

Single year, 20/21	"do minimum"	Option A	Option B	Option C	Option D	Option E
Future income for providers, £000	13,583	15,647	15,626	15,687	15,671	15,688
Future workforce costs, £000	(17,290)	(14,204)	(14,195)	(14,067)	(14,066)	(14,272)
Future service on costs, £000	(4,939)	(4,135)	(4,138)	(3,939)	(3,938)	(4,229)
Cost of capital, £000	0	(2,001)	(2,196)	(2,404)	(2,289)	(1,856)
Provider position for acute for one year, £000	(8,646)	(4,693)	(4,903)	(4,723)	(4,622)	(4,669)
Difference between options and "do minimum" £000		3,953	3,743	3,923	4,024	3,977

For stroke: HRG4+ 2017/18 Best Practice Tariff 17/18 applied to the modelled stroke activity at each site
For TIA: Average HRG4+ 17/18 TIA tariff applied to modelled activity (10% of confirmed stroke activity)

Stroke workforce required based on national recommendations per HASU/ASU beds (modelled at 18-day LoS, 80% HASU occupancy 90% ASU occupancy). National mid-band WTE salary of each role type, 25% on costs and 11% unsocial hours, 5% high cost area for DVH

Uplift applied to workforce costs of: 15% for clinical; 10% for non-clinical (except DVH) at 14% and 3% for corporate overheads

3.5% PDCD taken from depreciating life of asset
40 years for new build, 20 years for refurb and 10 years for modular -straight line depreciation over the life of the asset

Source: STP Workforce workstream; Carnall Farrar analysis; National average WTE salary of each role type; National average WTE salary of each role type (https://www.rcn.org.uk/employment-and-pay/nhs-pay-scales-2017-18); NHS Improvement Agency Price cap reference tables; HED data SET; Provider data returns (2014/15 – 2016/17), ONS population data (2015), IMD deprivation data (2015), Basemap travel time data (car, off-peak), NHS England PbR Tariff (2017/18); HES data (2016/17); Carnall Farrar analysis

Notes: Workforce costs Include 25% allowance for salary on-costs, 11% allowance for unsocial hours and 5% high cost area supplement for DVH and PRUH, 15/16 income from confirmed strokes (identified by ICD10discharge codes) + income from TIA modelled as 10% activity uplift with average HRG4 TIA tariff applied, Total stroke workforce required based on national recommendations per HASU/ASU beds (13-day method assumes 20% of stroke patients are discharged after 2-day HASU stay, 13% of patients of stroke patients are discharged after 3-day HASU stay , with remaining two-thirds staying a further 15 days in ASU.). Includes TIA uplift (10% activity, one-day HASU stay) and Mimic uplift (25% activity, two-day HASU stay). Service on-costs on workforce costs are: 15% uplift for clinical on-costs;10% uplift for non-clinical on-costs (14% for DVH);3% uplift for corporate overheads. Differences between totals due to minor rounding errors

11.9.3. Net present value assessment of options

The current stroke service in Kent and Medway is making a £7.8m loss each year. The new model of care will reduce that by between £2.9m to £3.2m depending on the option. To implement the new model of care requires between £30.6m and £37.9m of capital investment depending on the option. The new model of care will generate a benefit for commissioners of a minimum £1.5m, rising to £5.8m each year after 10 years. Every option generates a positive NPV compared to the 'do minimum' at 10 and 20 years. At 20 years the NPV is between £62.4m and £68.6m depending on the option. This is shown in Figure 57.

Figure 57: NPV assessment of options

The NPV assessment sees a positive return on investment of between £62.4m and £68.6m after 20 years

do minimum		See slide
20 year "do minimum" shortfall, £000	(147,853)	23

Do something	Option A	Option B	Option C	Option D	Option E	See slide
Capital requirements, £000	(30,820)	(36,296)	(37,861)	(35,951)	(30,634)	29
Commissioner impact over 20 years, £000	29,636	29,673	30,242	30,164	29,055	33
Provider impact over 20 years, £000	83,377	83,200	88,774	88,559	81,525	40
Increased cost for ambulance over 20 years, £000	(14,212)	(14,212)	(14,212)	(14,212)	(14,212)	-
NPV over 20 years, £000	67,981	62,365	66,943	68,560	65,734	

- In 2016/17, stroke services in K&M made a loss of **£7.3m**
- The 20 year 'do minimum' forecasts a loss of **£147.9m** on acute stroke services
- Capital requirements are between **£30.6m** and **£37.9m**
- **£2.5m** transitional costs are estimated to implement the new model of care
- Based on applying the financial savings as published by NHS England in their stroke configuration support guide. The new model of care is assumed to give commissioners a saving of between **£29.1m** and **£30.2m** over the twenty year year period
- Increased income from the best practice tariff (BPT) and savings assumed through the release of stroke beds at non-HASU/ASU sites, cover the provider costs of delivering the new model
- The additional capacity required by the ambulance service costs **£14.2m** over twenty years
- The overall NPV is between **£62.4m** and **£68.6m** after 20 years

SOURCE: K&M trust estates returns (September 2017); HM Treasury discount rate; K&M STP Estates workstream (August 2017); Gleeds analysis (September 2017); Carnall Farrar analysis (September 2017), Cost savings per patient - Hunter, Davie, Rudd et. al. (2013); NHS England PbR Tariff (2017/18); Data returns 2016/17; sSNAP audit 2016
https://www.england.nhs.uk/mids-east/wp-content/uploads/sites/7/2017/07/configuration-decision-support-guide-appendices-2.pdf

11.10 Sensitivity analysis

Throughout the evaluation process, a set of agreed assumptions have been used that have driven the activity, beds and finance modelling. To stress test the base case assumptions and ascertain the degree to which the financial impact of the new model changes in comparison with the base case, sensitivity analysis has been undertaken. Sensitivities have been assessed for the following areas:

1. The level of activity at each site and associated capacity in number of beds needed.
2. The amount of commissioner benefit, based on the economic evaluation of the benefits following the implementation of stroke changes in London and Greater Manchester, and how much of this would be achieved in Kent & Medway, being a more rural geography.
3. The ability to recruit to the workforce required and levels of bank and agency staff needed as the new model is implemented.
4. The level of income the provider Trusts would receive and how quickly the full best practice tariff is payable once the new model is implemented and the corresponding change in the amount commissioners need to spend.
5. The base case assumes that the capital needed would be funded from public money. However, funding through the Independent Trust Financing Facility (ITFF) or from the private sector has been assessed.

11.10.1. The level of activity at each site and associated capacity in number of beds needed

The level of activity and associated bed capacity has been tested to understand the impact on the base case levels to reflect that there may be factors which could change between the time of production of the PCBC and implementation. Two separate sensitivities have been run. The first to assess the impact of a change in bed numbers to increase or decrease by 4 beds at each of the sites

in the options. The second assesses the impact of changes to the average length of stay (ALOS). Both of these consider the impact on provider income and corresponding commissioner spend, the cost of the workforce, the capital costs and the linked depreciation and capital charges, the commissioner benefit and the change to the overall Net Present Value (NPV) by option.

To accommodate any potential variance in activity levels the first sensitivity assesses the impact of adjusting the number of beds required by site by +/- 4 beds at each site in each of the options. The rationale for running this sensitivity is there have been recent changes, and may well be other factors unknown at the time of the production of the PCBC that would change the number of beds at each site. For example, the recent improvements to the A21 are likely to impact the travel times for the populations in the Sevenoaks area and a review of historic activity from in this area suggested that these patients could go to a site in Kent and Medway as opposed to a hyper acute stroke unit (HASU) outside of Kent and Medway. The key findings are:

Plus 4 beds

- an additional 4 beds at each site, increases the capital required by between an additional £5.1 and £32.0m. The most significant increase is for option E as the additional beds mean that Darent Valley Hospital (DVH) require a new build and cannot accommodate these beds within existing facilities as in the base case;
- the provider position is worsened in one year by between £97k and £2.2m, depending on option. Although income increases due to the increase in activity, the increase in workforce and service on-costs and cost of capital is more significant. This worsening is also most significant for option E in which the increase in activity results in the need for increased consultants to cover rotas at 2 of the 3 sites. Additionally, the increased capital results in a large increase in cost of capital;
- the commissioner impact is improved in all options by c.£6m as the activity increases
- the overall system 20 year comparable position improves as the improvements in commissioner benefit are more significant than the worsened provider position, apart from in option E where the large increase in capital requirement worsens the NPV.

Less 4 beds

- decreasing each site by 4 beds reduces the amount of capital required by between £5.5 and £10.8m;
- the provider position is improved in one year by between £121k to £451k, depending on option. Although income decreases due to the decrease in activity, the decrease in workforce and service on-costs and cost of capital is more significant;
- the commissioner impact is worsened in all options by c.£5m as the number of patients which will benefit reduces and the commissioner savings less;
- the overall system 20 year comparable position improves slightly.

The second sensitivity on bed numbers needed assesses the impact of changes to the base case average length of stay (ALOS), the modelled ALOS is 13. As a sensitivity, an 11 day ALOS (3 day HASU and 8 day ASU) has been modelled as the future agreed aspiration for Kent and Medway. The current average Kent and Medway ALOS has also been considered at 15.6 days (3 day HASU and 12.6 days ASU). This has been assessed to understand the impact if the new model does not deliver the planned ALOS. As changing ALOS does not change the activity levels, there is no impact on the provider income and associated commissioner spend or the commissioner impact. However, changing the ALOS does have an impact on the number of beds required at each site and so impacts on workforce costs, the amount of capital required and associated depreciation and capital revenue costs. Key findings are:

- Increasing the ALOS to 15.6 days (from the basecase of 13) increases the capital required by between £4.2m and £34.1m (most significant for option E as this results in the need for a

new build at DVH). The overall provider position worsens by between £4.1 and £5.9m. This is because although income stays constant, workforce costs, service on-costs and cost of capital increases;

- Decreasing the ALOS to 11 days (from the basecase of 13) decreases the capital required by between £5.3m and £10.5m. The overall provider position improves by between £2.7 and £3.1m, because although income stays constant, workforce costs, service on-costs and cost of capital decrease.

11.10.2. The amount of commissioner benefit, based on the economic evaluation of the benefits following the implementation of stroke changes in London and Greater Manchester, and how much of this would be achieved in Kent & Medway, being a more rural geography

A length of stay sensitivity, although not directly quantified, has been assessed using the percentage of the potential commissioner benefit received. Current modelling assumes a commissioner benefit based on the economic appraisal of the impact of stroke service changes in London and Greater Manchester. This benefit is, in part, based on the new model reducing hospital length of stay, and therefore costs. For prudence, 50% of the financial benefit stated in the economic appraisal has been used in the modelling for Kent and Medway. The commissioner benefit has been tested to understand the impact to the financial case if a higher and lower benefit is realised (tested at 75%, 25% and 0% benefit received). The findings of this are that a positive commissioner impact is seen even if only 25% of the benefit is realised (the benefit outweighs the additional commissioner spend on Best Practice Tariff and the one-off transitional costs). Therefore the financial case still holds even if the anticipated level of benefit is not realised.

11.10.3. The ability to recruit to the workforce required and levels of bank and agency staff needed as the new model is implemented

The workforce costs have been tested to assess the impact on the financial positon for each of the options under consideration to different numbers of staff being paid at top of band than in the base case. This has been assessed at 0%, 50%, 75% and 100% of total WTEs paid at top of band salary. The impact of this is an additional c.£1m at £50%, c.£1.5m at 75%. and c.£2m at 100%. Paying at top of band significantly worsens the provider position under all options. As part of the transition, and to reflect the risk of not being able to recruit, the cost of paying all vacant posts at bank and agency premiums for the first year has been assessed. The impact of this is between £0.5m and £0.9m additional costs, depending on the option. Over 20 years, this does not have a material impact on the financial case.

11.10.4. The level of income the provider Trusts would receive and how quickly the full best practice tariff is payable once the new model is implemented and the corresponding change in the amount commissioners need to spend

Income levels have been tested in two ways; to assess casemix impact and to assess the impact of the best practice tariff (BPT) payments. Within stroke, there are varying levels of severity which has been recognised in changes to the national tariff in 2017/18 through the creation of five different price levels (as opposed to two previously). Ideally assessing the historic trend of the changes in casemix would be used to provide a basis for likely future changes. Given this recent pricing structure change, this is not possible to assess and therefore +/- 5% change in the proportion of activity paid in the highest tariff has been assessed. The impact of this is an additional £1.3m or £791k reduction in income. Under these scenarios, the financial case still holds. The BPT is assumed to be paid at 100% at full implementation in the base case and so assessment of not achieving this in year 1 of implementation has been determined by comparing current levels of achievement with the 100% and assuming year 1 achieves the mid-point of this. The impact of this is to reduce income in

year 1 by £1.1m in total across the provider Trusts (dependent on option). Over 20 years, this does not have a material impact on the financial case.

11.10.5. The base case assumes that the capital needed would be funded from public money. However, funding through the Independent Trust Financing Facility (ITFF) or from the private sector has been assessed

The capital requirement is assumed to be funded from a Treasury loan at 3.5% interest rate, being the national rate currently in place and taken on the reducing asset value. However, the source of funding may be via the ITFF (assumed full loan paid back over 20 years and 2.25% interest paid on remaining balance each year) or the private sector (assumed full loan paid back over 20 years with 2.5% interest on each instalment and 2.3% interest paid on remaining balance each year). The impact of this over 0 years (discounted figures given so present values stated) is an additional cost of between £17.3m to £21.6m with ITFF and between £17.9m and £22.3m with a private loan. Either of these scenarios would have a negative effect on provider position.

12. Implementing the proposals

12.1 Governance and ownership

Oversight of the implementation process will be the responsibility of the relevant governance groups within each of the Kent and Medway CCGs. The CCGs will report collectively to the Sustainability and Transformation Partnership (STP) Programme Board, which provides a co-ordination and advisory role but does not have any formal decision-making powers. A lead CCG will be agreed for the implementation phase of the Stroke Review.

A Stroke Programme Board was established in January 2015 and will oversee the development and implementation of the new model. Throughout implementation, it will meet monthly to provide direction, ensure effective co-ordination, resolve issues and manage risks and interdependencies. The Stroke Programme Board includes senior representatives from the CCGs and Hospital Trusts as well as leads for each of the workstreams, representatives from primary care, public health, the Stroke Association and Healthwatch.

A senior responsible officer for the Stroke Review has been appointed and will take on overall accountability for the implementation. They will be responsible for ensuring effective working relationships across Kent and Medway in planning and implementing the changes. A number of workstreams will be established to lead on both the planning and development required to support changes to service provision. Governance arrangements will have clear links with the CCG governance arrangements to ensure that implementation plans across sectors are aligned.

The Stroke Programme Board will maintain its own project work plan and risk register, which is included within the CCG's overall risk management arrangements. This will provide a framework for the management of risk through rigorous governance arrangements and regular review by the STP Programme Board. Performance metrics will be developed to track and manage progress against key milestones, while maintaining service safety and quality, and used by the Stroke and STP Programme Boards to monitor progress.

The implementation plans for changes to individual sites will be developed at site level with the Stroke Review providing an overarching coordination of dependencies and timelines. A critical part of the development of plans and management of implementation will be the clinical quality assurance that will run throughout the work.

Commissioning intentions include the expectation that services are able to deliver key targets including full implementation of the stroke model. All eight local Clinical Commissioning Groups (CCGs) are aligned in their local plans for stroke prevention and care. The commissioning of stroke services is moving towards whole pathway planning in order for stroke patients to receive optimum services in a timely manner and in the most appropriate setting with clear repatriation and discharge criteria.

The South East Coast Cardiovascular Network (which includes stroke) will support implementation, and delivery of improved stroke services across the south east is one of its key objectives for 2017-2019[57].

12.2 Initial implementation plans

Any decision to proceed with one of the proposed options is dependent on the outcome of the public consultation and any subsequent decisions taken by the JCCCG. With that in mind, the Stroke Review has developed a high-level implementation plan to show how the transition would take place. Further, more detailed implementation work will take place during consultation (on the basis of all options) and afterwards in the lead up to the JCCCG decisions.

Consultation will begin on 1 February 2018 (or at the next practical date thereafter in early February should any further amends need to be made to the consultation materials following outstanding HOSC and committee meetings in late January) for 10 weeks. During that period, the Stroke Review will continue to deliver consultation events and update materials. Throughout the consultation, the Stroke Review will listen and respond to feedback. Local clinicians and the Stroke Programme Board will continue to meet to consider emerging messages in response to issues raised during consultation and identify further work that is required to develop and refine the proposals.

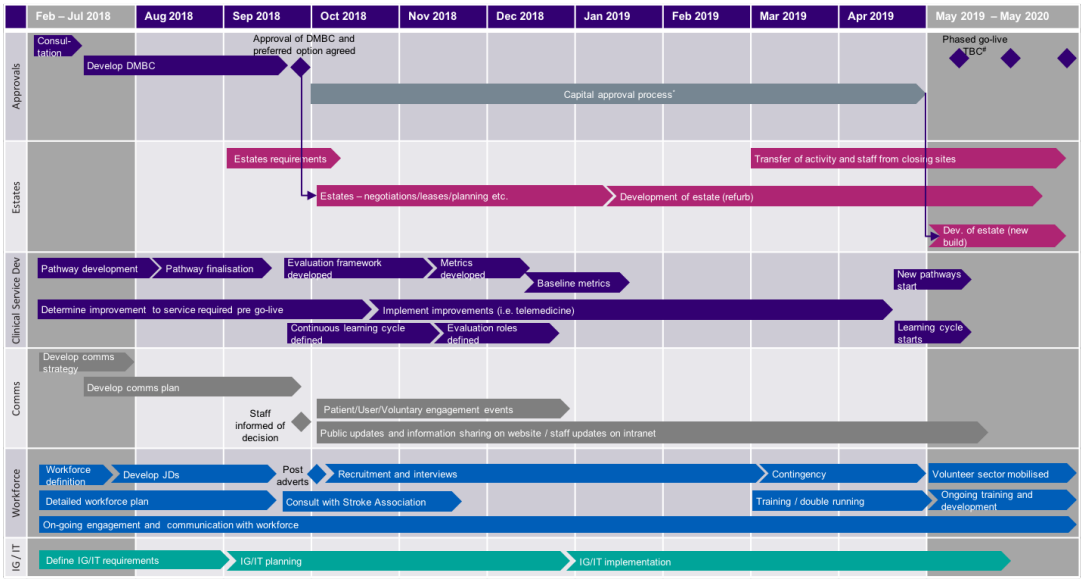
Alongside the public-facing work, more detailed implementation planning will start to take place across providers, CCGs and other key stakeholders. These plans will detail clear allocation of accountability as well details of activities and sequencing to deliver changes. Consideration of out-of-area service changes, such as the Sussex Stroke Review, will be reflected during planning.

Following decision/making, it is expected that some transition time would be required to set up governance arrangements and finalise plans to progress implementation. However, as much implementation planning as possible will be undertaken in advance of decision making as part of the testing and refinement of the proposals.

12.3 Implementation plan timeline

Following a final decision by the JCCCG and depending on the option chosen, more detailed and organisation specific implementation plans will need to be developed. At a generic level, however, the underlying activities that need to take place as part of implementation are known, as is the sequencing and timing of any proposed changes. A high-level timeline is therefore shown in Figure 58.

Figure 58: High level timeline



*Approval process dependent on level of capital required for each site in the preferred option

This is an ambitious timetable but experience elsewhere has shown that once a decision has been taken to change services, any sites identified as being affected and having services transfer are likely to be affected in the following ways:

- Vacancy rates begin to increase as it becomes difficult to recruit staff
- The service becomes less attractive to trainees
- Units could become increasingly unsafe as they find it difficult to recruit and retain staff
- Any improvement initiatives and capital developments are likely to be postponed or halted, with a consequent impact on quality of care and patient experience.

Accordingly, if changes are not made in a timely manner, there is a risk that they could need to be made in an urgent, unplanned way due to clinical safety issues (as has happened already at Kent and Canterbury Hospital). The high-level timetable has therefore been developed to help mitigate this risk.

As part of the overall approach to implementation, it is recognised that the Stroke Review will need to continue to have regard to the public sector equality duty. Further detailed information on the integrated impact assessment including the equalities impact assessment that has been undertake pre-consultation can be found in Section 13.3.

12.4 Enablers

12.4.1. Access to capital

Appropriate estate and facilities will need to be in place to absorb shifts in activity resulting from proposed changes in setting of care. In many cases capital will need to be secured to create additional capacity and gaining approval for capital bids will be part of the process of implementation. This will require a lengthy process of developing an outline business case (OBC), building on the PCBC, and a full business case (FBC) and then undertaking the actual build. Each

Trust will manage their internal programme to ensure capital is secured in a timely manner to enable change.

12.4.2. Transition costs

The impact of the proposals has been modelled to show that the changes are affordable across Kent and Medway. In the interim, as the changes are made, there will inevitably be some double-running costs and other costs associated with the transition. In the short term these factors are likely to add to the costs of the delivery of care and therefore a financial strategy will be developed to ensure that all providers and commissioners are able to achieve their financial targets in the short term as well as the longer term. The details of this transitional funding will be worked up as part of the development of the Decision Making Business Case.

12.4.3. Workforce strategy

The impact on staffing numbers and structures is potentially one of the most complex areas for transition and one likely to create significant concern amongst the current workforce. Policies for staff transition will be developed as part of implementation planning. It will be critically important to communicate plans quickly and comprehensively with any affected staff. Regular briefings, individual 1:1s and engagement events will be held with all staff likely to be affected by the proposed changes.

The changes will have a significant impact on the workforce in Kent and Medway stroke services, including:

- A requirement for training to develop new skills
- A requirement for staff to move to work on different sites and, potentially, for different employers
- Changes in the overall mix of skills / grades required
- Improved integrated working across organisational boundaries
- New roles development
- Greater number of roles requiring rotation between hospitals.

Following a JCCCG decision, a comprehensive programme of work will be developed to plan and manage these changes and developments across Kent and Medway; which will need to be led by commissioners and providers working collaboratively.

12.4.4. Digital

The Stroke Review will drive forward the use of technology to improve outcomes through robust, secure and seamless use of information and systems. This will include developing a shared patient record, developing eNavigation systems, supporting clinicians to access expert knowledge and promoting the use of telemedicine where appropriate.

12.4.5. Communications and engagement

The Stroke Review will continue to actively engage stakeholders in the detailed planning for, and during, implementation including the following groups:

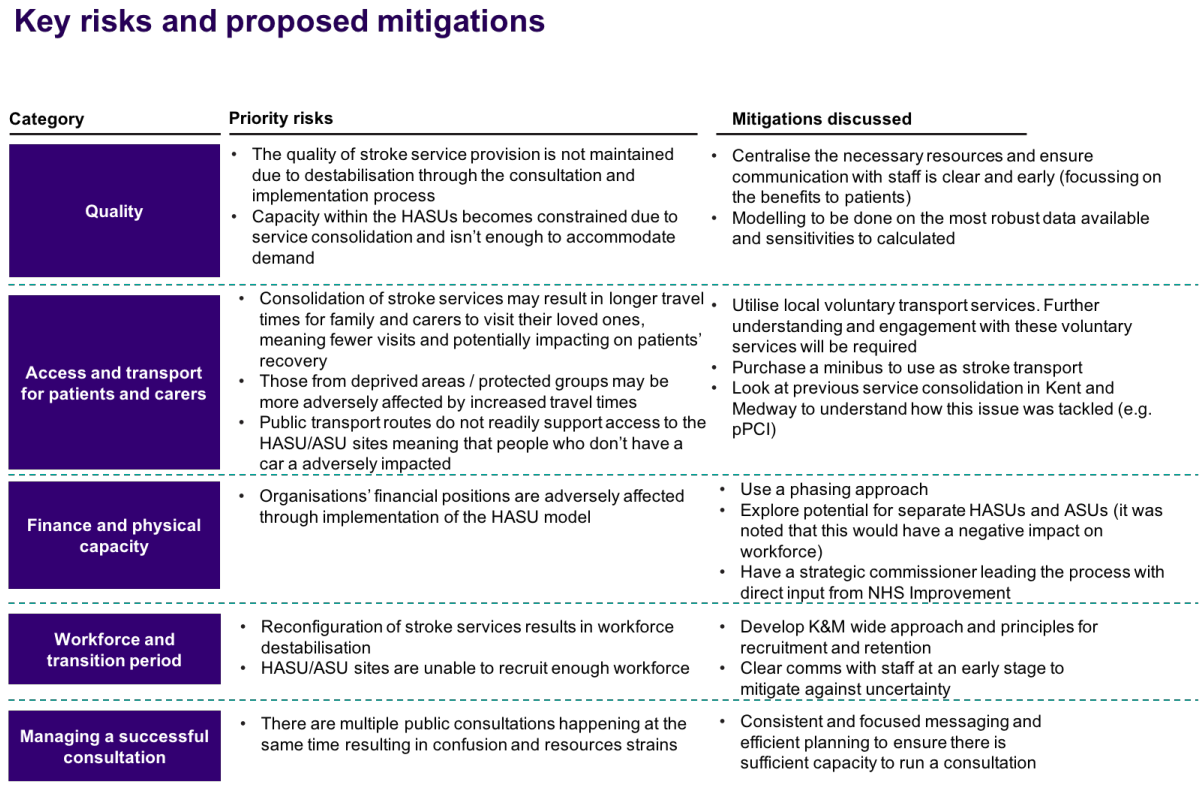
- Patients and public: to ensure that patients are well informed about what changes are proposed and how it will impact on them, and can contribute to co-design of the implementation plans as appropriate
- Providers: will be taking a lead in the planning and implementation of service change, particularly to support service change impacts that need to be implemented smoothly across multiple trusts

- NHS staff: to actively engage with affected staff to build awareness of the proposals and to consider and promote their central role in making these changes happen and so they can contribute to co-design of the implementation plans as appropriate
- Clinicians: will need to be actively involved in the planning and implementation of service change to ensure patient safety is not compromised as changes are made; and so they can contribute to co-design of the implementation plans as appropriate

12.5 Implementation risks and dependencies

The Stroke Programme Board and other groups regularly review risks to delivery. A workshop in November 2017 which was attended by the National Clinical Director for Stroke identified key issues and proposed mitigations. These were in the areas of quality, access, finance/estates, workforce and consultation. These are shown in Figure 59.

Figure 59: key risks and mitigations



A detailed risk register has been prepared which is regularly reviewed by the Stroke Programme Board, who are responsible for monitoring and managing risks associated with the Stroke Review.

13. Quality assurance

13.1 Background to quality assurance

The Stroke Review has sought to exceed its obligations in meeting the statutory requirements and assurance that accompany any major change to NHS services. Throughout the pre-consultation phase, the Stroke Review has:

- Had a clinically-led options development process where clinical, finance and commissioner expertise has been brought together to allow the Stroke Programme Board to make the recommendations on service options
- Actively engaged with patients and the public and their representatives
- Actively engaged with local authorities and their overview and scrutiny committees
- Actively engaged with providers to explain the options and proposals and ensure alignment with their plans and commissioners plans.

There have been a number of different forms of assurance that have been undertaken during the pre-consultation phase of the Stroke Review:

- South East Coast Clinical Senate reviews
- Integrated impact assessment including equalities impact analysis
- NHS England Oversight Group for Service Change and Reconfiguration review
- NHS England Investment Committee review
- Engagement with local authority overview and scrutiny committees
- Satisfying the requirements of the Secretary of State for Health's four tests and three conditions for service reconfiguration.

13.2 South East Coast Clinical Senate reviews

The South East Coast Clinical Senate has undertaken two reviews of the work of the Stroke Review:

1. June 2015: review of the case for change
2. January 2018: review of the care models and options appraisal

The Stroke Review has taken the recommendations of the South East Coast Clinical Senate and incorporated them into the proposals.

13.2.1. South East Coast Clinical Senate review of the case for change

The South East Coast Clinical Senate reviewed the case for change in June 2015 and published a formal report on their findings[58]. A copy of this report can be found at Appendix J.

The South East Coast Clinical Senate raised many important points on review of the case for change, which have been addressed as part of this PCBC.

Issue raised	Actions to address
1.1 Set the ambition. There should be a clear statement of the shared ambitions for providing outstanding stroke services in Kent and Medway, and for delivering an excellent patient experience	Further text has been added in Section 6.1 to clarify the vision**.** This ambition has been reviewed and agreed by clinicians (as part of the stroke Clinical

Issue raised	Actions to address
evidenced by specific patient-centred outcomes, high quality multi-professional working supported by ongoing training and education, and engagement in clinical research. This aspiration is not explicit enough, and would add to the power of the Case for Change, beyond just complying with service specifications and standards.	Reference Group, the STP Clinical Board and the CCG Governing Bodies), by patients and the public through the Patient and Public Advisory Group and by operational managers (as part of the Stroke Programme Board).
1.2 Demonstrate a patient-centred and clinical focus throughout the Case for Change. As the rationale for the Case for Change is ultimately about improving outcomes and the experience of patients with strokes (or TIAs), it would be beneficial to provide more evidence of a patient-centric perspective. In addition, its tone and language would benefit from clearer clinician input.	The stroke case for change has been updated and further developed, including an opening paragraph, and is shown in Section 5. This has been developed by clinicians and describes the challenges of meeting national clinical quality standards in Kent and Medway. The case for change shows that patients and carers are experiencing: • poorer health outcomes • longer lengths of stay • poorer long-term quality of life • increased likelihood of admission to residential or nursing homes • overwhelmed staff who are struggling to deliver services Patient stories have been added to show the case for change and the benefits of the proposals for patients (see Section 6.8.)
1.3 Consider the whole stroke and transient ischaemic attack patient pathways, not hyper acute stroke units (HASUs) in isolation. There should be a clear outline of the full stroke and TIA pathways, from the patient and carer as well as strategic perspective, starting from primary and secondary prevention, right through to pre-hospital, hyper-acute and acute care, rehabilitation and recovery in the community. This outline will ensure that the stroke networks are designed to maximise positive long term patient outcomes and experience, and will avoid unintended consequences of focusing on and prioritising just the acute elements of the pathway. Clinical commissioners, working with local authorities, should consider commissioning the whole stroke and TIA pathway to ensure that rational, co-ordinated and patient-centred care is delivered.	The agreed model of care covers the entire stroke pathway from prevention to rehabilitation, as shown in Section 6. This includes descriptions of the proposed pathway for TIA and rehabilitation (see Section 6.5.1). However, the focus of the options for service change in this PCBC is on the HASU/ASU section of the pathway because of the urgency in addressing the significant shortfalls in the current urgent hospital services. Further work is continuing across the STP on prevention, e.g. smoking and obesity strategy agreed (led by a Director of Public Health), primary care work on hypertension and atrial fibrillation (led by a CCG Chair) as well as on rehabilitation (led by the Programme Director and chaired by the Stroke Association). The rehabilitation

Issue raised	Actions to address
	workstream is working with the CCGs to commission the enhanced pathways as recommended in South East Coast Clinical Senate guidance, shown in Section 6.5.1.
1.4 Ensure that HASUs are configured, staffed and are of sufficient size to deliver their potential for optimal care. Whilst some HASUs achieve good results and outcomes with fewer than the nationally recommended minimum stroke activity of 600 confirmed cases per year, there should be a stated *aim* or any designated HASU in Kent and Medway to achieve this minimum activity, based on the wide range of clinical benefits seen in larger units, and the likely financial benefits resulting from economies of scale). Any designated HASU should be appropriately staffed to deliver high quality 24/7 and 7/7 specialist care (as required).	Minimum stroke activity at individual units was one of the hurdle criteria which meant that options with units below the minimum threshold were not considered further. The guidance on the minimum threshold was reduced in 2016 (after the South East Coast Clinical Senate did their review of the case for change) from 600 cases to 500 cases[59]. The more recent guidance of a minimum 500 cases was therefore used as the lower threshold (-10% to take account of data variability and year on year activity fluctuation). This analysis is shown in Sections 9.2 and 9.3. This approach means that all the new HASUs should see more than the minimum recommended stroke activity of 500 cases a year. The workforce appendix (Appendix K) of this PCBC describes the plans to provide consultant delivered stroke services, supported by the full range of other staff required to provide a 24/7 service.
1.5 Describe how HASUs and acute stroke units (ASUs) would be networked, and the inpatient pathways for patients with stroke mimic symptoms. The planned relationships between HASUs, where the first 72 hours of care should be delivered, and ASUs for ongoing inpatient care (whether in the same hospital, or local to the patient's home), should be clearly described. In addition, there should be explicit care pathways for patients transferred to HASUs who turn out not to have had a stroke (patients with 'stroke mimic' symptoms), particularly describing the consequences for either ongoing care within the HASU hospital, or onward transfer of clinical care to their local acute hospital.	It is proposed that HASUs and ASUs will be co-located in all cases, as described in Section 6.5. This will include physical co-location on each site, where possible. As shown in Section 6.5.1, it has been agreed that the pathway for mimic patients admitted to a HASU/ASU site would include the following (after investigation): a) If the condition does not require further hospital care, and the patient is stable, the patient would be discharged with appropriate community hospital follow up in the patient's local site c) If the condition requires further general hospital care they would be

Issue raised	Actions to address
	transferred within daylight hours (8-8/7): a. to the general team within the HASU hospital if the predicted LoS is <= 2 days b. to the general team at their local hospital site if the predicted LoS is >2 days
1.6 Detail the clinical co-dependencies of HASUs and ASUs. Inpatient stroke services are highly inter-dependent with a range of other clinical specialities and services and these should be described in detail as they have significant implications for the location of HASUs and ASUs, and for determining the required co-located or otherwise networked supporting services. In addition, there should be clearly defined referral pathways to tertiary centres for neurosurgery and neuroradiology intervention.	The clinical co-dependencies of HASUs and ASUs with other services has been discussed in detail by clinicians. The agreed co-dependencies are shown in Section 6.5.2. The co-dependencies formed part of the options appraisal as shown in Section 9.2 where options including hospitals without the required co-dependent services were excluded. Recommended co-adjacencies with other services were also used considered within the evaluation of the options as shown in Section 10.3.1. Pan-Kent and Medway agreed pathways for referral for neurosurgery, thrombectomy and other network support are being developed by the Clinical Reference Group and will be in place before implementation of the urgent stroke pathway changes.
1.7 Provide more detailed presentations of travel times, ambulance and transport issues. The issue of distance from home and time taken to travel to centralised specialist units, both for delivering timely hyper-acute care, and for visiting by family and friends, is a key consideration for the public. There should also be a clear summary of travel times to and between the various hospitals across Kent and Medway. Account should also be taken of population density variations. This information will explicitly set the context in which the networked arrangements between HASUs and ASUs, and inpatient rehabilitation, would work in delivering care closer to home as soon as clinically appropriate. The implications for the regional ambulance (SECAmb) are significant: for the appropriate clinical delivery of pre-hospital stroke care, for meeting the ambulance Clinical Quality Indicator of 60 minutes call-to-delivery to hospital, and for the onward transfer of patients	Travel times have been reviewed in detail as part of the options appraisal (see Section 9.6) and the evaluation of options (see Section 10.3.2). There are currently varied community and inpatient rehabilitation pathways across Kent and Medway. The rehabilitation programme is committed to increase Early Supported Discharge and ensure rehabilitation continues in the patient's home, or as close to home as possible. Preliminary work has been undertaken with South East Coast Ambulance Service to understand the impact of the proposals. It is recognised that there are increased travel times for ambulance crews and there are costs associated

Issue raised	Actions to address
between sites within the stroke network, and need to be articulated.	with this that are being further evaluated now that a smaller set of options is agreed. £1m per year has been included in the financial costing to account for increased costs for the ambulance service (see Section 11.9.3). This work is on-going.
1.8 Establish a clinically appropriate 'call to needle time' for the stroke networks. Whilst there are a number of time-specific standards and targets for the hyper-acute pathway, the key clinically relevant time for patients who would benefit from thrombolysis is that between the onset of stroke symptoms and the administration of the thrombolytic drug. The earlier thrombolysis is administered the better are the outcomes, with less than 90 minutes the ideal based on available evidence*. A new standard of a maximum of 120 minutes for the 'call to needle time' is recommended (and as soon as possible within that time frame),* which enables any longer travel times to HASUs resulting from centralisation of services, to be mitigated by a more rapid and efficient pre-referral response, and response on arrival at hospital (including immediate access to CT scanning). This new standard will require integration, coordination and agreement between the ambulance service, acute providers and commissioners, and responsibilities for the monitoring and reporting of the individual components of this overarching standard will need to be made explicit and shared across the system.	Kent and Medway have adopted the 120-minute call to needle time standard recommended by South East Coast Clinical Senate[60]. The evaluation of options for accessibility gives a higher evaluation to those with shorter travel times, to support the delivery of this standard (as shown in Section 10.3.2). A key part of implementation planning will be to ensure that the standard is reached.
1.9 Address in more detail the issues of the multi-professional stroke workforce, and its education and training needs working across the whole pathway. There are many workforce challenges to delivering high quality multi-disciplinary specialist stroke care across the whole stroke pathway, and across all provider organisations involved in the provision of care in the region, and these should be detailed. These include issues of available specialist manpower, recruitment and retention (medical and non-medical), and the need to deliver 24/7 and seven day services. In this context, there are significant benefits in concentrating the relevant specialists in fewer but larger HASUs. However, there are real risks to destabilising on-call rotas in non-HASU hospitals, particularly in Elderly Care, unless this is acknowledged and planned for. In addition, any new model needs to fully consider the education and training requirements of the workforce, as the	The workforce challenges to providing stroke services have been widely discussed by clinicians, patients, the public and operational managers. These are outlined in Section 5.4. A detailed workforce plan is being developed as part of implementation planning and will be included within the Decision Making Business Case. Health Education England (HEE) have been supportive of the development of HASU and discussions continue with the Postgraduate Dean. HEE are active members of the Workforce workstream working group.

Issue raised	Actions to address
consequences of different service configurations may materially impact on how these requirements are sustained. Commissioners should work closely with Health Education England on the required workforce plans and anticipated education and training needs, and include a review of potential new or extended roles of different staff groups. Particular consideration should also be given to the availability and training of interventional neuroradiologists in tertiary referral centres, given the potential large increase in demand for intra-arterial thrombectomy based on recent clinical trial results.	
1.10 Model future demand for stroke services, ensure an ongoing focus on prevention, and address existing health inequalities. Planning for stroke care across Kent and Medway needs to anticipate and meet the population needs over at least the coming ten to fifteen years (including for patients living outside the county who will utilise the services). There is value in modelling changes in activity over this time frame, taking account of factors that increase or decrease the incidence and subsequent prevalence of stroke. Prevention of cardiovascular disease in general needs to remain a key focus for health systems taking into account variations in socioeconomic status such as deprivation in the region and address their underlying causes. There should be a particular focus on the identification and prophylactic anticoagulation of patients with atrial fibrillation who meet treatment criteria. This modelling and planning work should be aligned with the Joint Strategic Needs Assessments and the Joint Health and Wellbeing Strategies of the health and wellbeing boards.	Stroke is a disease that is strongly associated with increased age. The demographics of Kent and Medway show an increase in elderly populations and so the number of strokes could be expected to increase. However, it is also known that the other risk factors for stroke (high blood pressure, high cholesterol, smoking and untreated atrial fibrillation) are all reducing. The combination of these two contradictory trends is shown in the national and local statistics that the incidence (number of new strokes per head of population) is reducing, as is the actual number of strokes (e.g. the Oxford Vascular Study showed a 40% reduction in age-specific incidence[61] and the GP Research Database showed a 30% reduction in incidence of stroke over 10 years[62]). This is also shown in Kent and Medway where despite demographic growth, there has been no increase in the number of strokes over the last three years (see Appendix L). Using hospital admission activity data for 2006/7 to 2014/15, Medway Council Public Health showed a statistically insignificant increase in the number of admissions for first stroke despite an ageing and increasing population during that time. This work concludes that, based on previous activity, the number of first stroke admissions are unlikely to significantly increase in the next ten

Issue raised	Actions to address
	years (based on CCG data, not taking into account inflows)[63]. Additional increases in population are also forecast due to new housing developments in Ebbsfleet, however these are expected to be predominantly younger populations (based on the new population in the 300 homes already built in Ebbsfleet)[64] where the incidence of stroke is low. Following discussion and review of the evidence, it was agreed it would be appropriate to model and plan for the current activity to continue. Therefore, as agreed by the Stroke Programme Board, no growth assumptions have been applied to the stroke activity baseline. To support this, work has been undertaken on the prevention model and various initiatives are planned to help prevent strokes. This is shown in Section 6.4 and has been aligned with the Joint Strategic Needs Assessments.

13.2.2. South East Coast Clinical Senate review of care model and options

The South East Coast Clinical Senate reviewed the care model and options in January 2018 and published a formal report on their findings[65]. A copy of this report can be found at Appendix E.

The South East Coast Clinical Senate raised many important points on review of the options, which have been addressed as part of this PCBC.

Issue raised	Actions to address
Recommendation 1: Make explicit the specific improvements in patient outcomes for the population of Kent and Medway that would stem from centralising stroke services.	Narrative has been added to link the vision section in the PCBC to the case for change and the anticipated outcomes and benefits from the new service model (see Section 6.2). Further work on fully quantifying the benefits of the proposals will be undertaken as part of the DMBC and implementation planning.

Issue raised	Actions to address
Recommendation 2: Specify the goals regarding future stroke service performance (using the SSNAP framework).	Narrative has been added to link the goals set out in the vision more explicitly to the SSNAP metrics set out in the case for change (see Sections 6.2 and 5.4).
Recommendation 3: Future stroke incidence modelling should take account of the projected population growth within Kent and Medway.	Stroke is a disease that is strongly associated with increased age. The demographics of Kent and Medway show an increase in elderly populations and so the number of strokes could be expected to increase. However, it is also known that the other risk factors for stroke (high blood pressure, high cholesterol, smoking and untreated atrial fibrillation) are all reducing. The combination of these two contradictory trends is shown in the national and local statistics that the incidence (number of new strokes per head of population) is reducing, as is the actual number of strokes (e.g. the Oxford Vascular Study showed a 40% reduction in age-specific incidence[66] and the GP Research Database showed a 30% reduction in incidence of stroke over 10 years[67]). This is also shown in Kent & Medway where despite demographic growth, there has been no increase in the number of strokes over the last three years (see Appendix L). Using hospital admission activity data for 2006/7 to 2014/15, Medway Council Public Health showed a statistically insignificant increase in the number of admissions for first stroke despite an ageing and increasing population during that time. This work concludes that, based on previous activity, the number of first stroke admissions are unlikely to significantly increase in the next ten years (based on CCG data, not taking into account inflows)[68]. Additional increases in population are also forecast due to new housing developments in Ebbsfleet, however these are expected to be predominantly younger people (based on the new

Issue raised	Actions to address
	population in the 300 homes already built in Ebbsfleet)[69] where the incidence of stroke is low. Following discussion and review of the evidence, it was agreed it would be appropriate to model and plan for the current activity to continue. Therefore, as agreed by the Stroke Programme Board, no growth assumptions have been applied to the stroke activity baseline.
Recommendation 4: The projected lack of growth in stroke incidence in the coming years is dependent on delivering effective preventative health programmes at scale for the known stroke risk factors. More detail is required of the increased investment commitment and programmes to deliver these preventative interventions.	Modelling undertaken by Public Health shows that the number of first strokes in Kent and Medway are likely to remain fairly constant based on previous trends[70]. This projected lack of growth is predicated on delivering prevention at scale to address population level risk factors for cardiovascular disease and supporting those with identified risk factors to manage these effectively. The STP will ensure outcomes for prevention are included in all NHS business cases in Kent and Medway. In particular, an investment case for local health services has been prepared and prevention is a core component of the local care model being developed. This investment case targets a shift of funding from hospital care to local care, which includes prevention.
Recommendation 5: The average length of stay in HASU/ASU beds is 13 days, not 18 days, using the modelling criteria stated. This should be corrected throughout the PCBC and its appendices.	This has been corrected in Appendix L. References in the PCBC are correct.
Recommendation 6: Effective discharge pathways and clear plans for ongoing care and rehabilitation are key to minimising length of stay, and the gaps in current capacity across Kent and Medway (including stroke rehabilitation beds for those requiring bedded care post-ASU) will need to be addressed to deliver on the ambitions for reduced length of stay in stroke units achieved in other health systems.	The agreed model of care covers the entire stroke pathway from prevention to rehabilitation, as shown in Section 6. This includes detailed descriptions of the pathway for rehabilitation. However, the focus of the options for service change in this PCBC is on the HASU/ASU section of the pathway because of the urgency in addressing the significant shortfalls in the current urgent hospital services.

Issue raised	Actions to address
	There are currently varied community and inpatient rehabilitation pathways across Kent and Medway. A working group was set up to consider the proposals for the rehabilitation care model in more detail; this group met three times in October and November 2017 and agreed to the adoption of the South East Strategic Clinical Networks recommended model of care[71]. The work on rehabilitation is on-going with an aim of agreeing commissioning principles, having an agreed service specification by the end of March 2018 and a business case for the implementation of the new model of care for rehabilitation by the end of June 2018. A gap analysis between current service delivery and best practice models is being undertaken. It should be noted that substantial benefits will be gained from the new urgent stroke model of care and so whilst there is a commitment to improve the whole stroke pathway, there is still an urgency to consult rapidly on site-specific change to urgent stroke services.
Recommendation 7: A bed occupancy rate of 85-90% would be more appropriate than the current modelling on 80%, which is considered unrealistic in the context of general pressures on acute hospital beds. HASU and ASU beds should be ring-fenced to ensure that new stroke patients have the required rapid access to the specialist stroke care that improves their outcomes.	The Clinical Reference Group reviewed the bed occupancy rates on 4 December 2017. They agreed an acute stroke unit (ASU) bed occupancy rate of 90% and to retain a hyper acute stroke unit (HASU) bed occupancy rate of 80% because of small bed numbers and the fluctuation in numbers of people presenting. The ambition is to have ring fenced beds for HASU/ASU. The resulting bed numbers have been updated throughout the PCBC.
Recommendation 8: A journey time to the stroke hospital of within 60 minutes is agreed as appropriate. However, in order to achieve the desired maximum call to needle time of 120 minutes, the time taken for ambulance response, on site assessment and departure, and for in-hospital assessment, scanning and initiation of thrombolysis (door to needle) must be minimised.	The agreed model of care supports direct access for FAST+ patients to the Emergency Department, which will support delivery of the 120-minute target (see Section 6.5.1). South East Coast Ambulance Service are also undertaking work to reduce the time

Issue raised	Actions to address
	spent with the patient before transfer to a HASU.
Recommendation 9: Travel time references should not be confused with call to needle time (which includes ambulance response and assessment times before journey initiation.	Additional clarification has been added to the PCBC, especially Section 10.3.2 to be clear that the travel time analysis refers to door-to-door travel. There is now consistency in reference to call to needle, door to needle, call to door etc.
Recommendation 10: Average travel times should be given in addition to the percentage of journeys falling within 60 minutes.	The average travel time to a hospital has been calculated and included within the summary slides of the five shortlisted options in Section 11.
Recommendation 11: There should be a formalised Kent and Medway stroke network that takes responsibility for overseeing the implementation and quality improvement of stroke services across the pathway.	The South East Coast Cardiovascular Network (which includes stroke) will support implementation, and delivery of improved stroke services across the south east is one of its key objectives for 2017-2019[72]. This has been referenced in Section 12.1.
Recommendation 12: Given the solid evidence base for thrombectomy for acute stroke, and the growing need for a centre in Kent and Medway that can provide this service 24/7, more detailed description of the likely demand, bed requirements, referral and repatriation pathways and the impact of this service on any centre that would provide the service, is advised. Higher levels of activity are to be expected at the designated thrombectomy HASU.	There is a national designation process for thrombectomy, so it is not currently known whether there will be a thrombectomy centre in Kent and Medway nor where a centre might be located. However, as part of the evaluation criteria, all sites have been evaluated against the necessary co-adjacencies for a thrombectomy centre and those with more co-adjacencies have been evaluated more highly (see Section 10.3.1).
Recommendation 13: The TIA pathway should be given greater prominence in the PCBC, including its required alignment with HASUs and ASUs.	Further detail on the TIA pathway has been added to the PCBC in Section 6.5.1. Clinicians in Kent and Medway have agreed a TIA pathway based on National Institute of Clinical Excellence (NICE) guidelines[73], as outlined in Section 6.5.1. It is intended that 7 day TIA clinics will be located on the same sites as the HASU/ASUs due to workforce constraints. For non-urgent cases, local provision of TIA clinics will be available and the provision of local clinics for more

Issue raised	Actions to address
	urgent cases is being explored; this will be kept under review during consultation and as part of implementation planning.
Recommendation 14: More detail of the patient pathway for stroke mimic patients should be provided in order to better understand the impact on the HASU hospital, and to ensure safe pathways of care are fully integrated with the proposed stroke models. Agreement on these pathways with the ambulance service will be required.	Further detail on the mimic pathway has been added to the PCBC in Section 6.5.1. Clinicians have agreed a pathway for mimics, as shown in Section 6.5.1. and a 25% uplift on confirmed stroke activity has been modelled for mimic patients. Those mimic patients requiring a stay of over two days would be transferred to their local hospital. It has been agreed that this would be an inter-hospital transfer provided by the patient transport service (PTS) rather than an ambulance transfer. South East Coast Ambulance service aim to 'upskill' paramedics to provide better assessment of potential mimics in the ambulance to ensure they are directed to the most appropriate place. Appropriate model(s), such as telephone interaction with clinicians whilst in the ambulance, will be explored and adopted based on the strength of clinical evidence to support the benefits and effectiveness.
Recommendation 15: Consultant job planning should ensure that all stroke-related direct clinical care (DCC) activities, which includes clinical administration and cross cover for annual leave are included in DCC PAs, and not SPA PAs. There should be a minimum of 2.0 SPAs in stroke consultant contracts, to ensure adequate time for quality improvement work, service management and development, teaching and training, research and CPD.	Clinical administration and cross cover for annual leave are included in DCC PAs not SPAs. This is covered in the modelling undertaken to date and has now been set out explicitly within the workforce appendix (Appendix K). A minimum of two SPAs is allocated for all stroke consultants.
Recommendation 16: The total DCC PAs required in stroke hospitals should be reviewed against the guidance provided in the BASP document 'Stroke Medicine Consultant Workforce Requirements 2011-2015', to confirm the PCBC modelling to date is accurate, and to ensure internal consistency within the document.	The BASP document recommendation suggests that the total required PAs was overstated. This was discussed at the Clinical Reference Group on 1st December where the importance of a viable and sustainable rota was noted, and it was agreed that the consultant PAs should be reviewed in this light.

Issue raised	Actions to address
	The consultant workforce modelling has been revised to reflect the clinical time required to cover the stroke service in totality, including prospective cover for Direct Clinical Care (DCC) PAs, as 48 PAs per week. This has been updated in the workforce appendix (Appendix K).
Recommendation 17: There should be greater recognition in the PCBC and in consultant workforce planning that not all consultants participating in stroke care need to be full time stroke physicians, even if they are required to participate in the on call rota. Ideally consultants should have CCT in stroke medicine or equivalent experience in thrombolysis. Enabling dual specialty consultants is likely to help with recruitment. There is also unlikely to be sufficient stroke PAs for six or more full time stroke consultants, even though at least six will be required on the on call rota.	The Stroke Review recommends recruitment of stroke specialists as opposed to consultants with dual specialities. However, the benefits of employing some members of the team with broader clinical specialism is recognised and will be considered to support the recruitment drive. The consultant workforce modelling has been revised to reflect the clinical time required to cover the stroke service in totality, including prospective cover for Direct Clinical Care (DCC) PAs, as 48 PAs per week.
Recommendation 18: There must be a major focus on the range of measures required to enhance the recruitment and retention of the stroke nursing workforce, in the face of high levels of vacancies and turnover in some of the hospitals, and national concerns about the future nursing workforce. Committees and groups at all levels working on future stroke plans for Kent and Medway must have senior nursing representation on them.	The Joint Committee of CCGs and the Stroke Programme Board both have senior nursing representation. The 'Leading Change, Adding Value' framework will be considered in developing the nursing workforce model, as part of the DMBC and implementation process. Other national programmes and guidelines to support recruitment and retention for nursing roles will be explored and leveraged as they emerge e.g. Nurse First.
Recommendation 19: Great accuracy and clarity about the therapies staffing requirement is needed, to appropriately plan the future workforce. Training programmes that help extend and share roles across the therapies services will maximise the effectiveness and efficiency of the workforce. Rotations across organisations and in to the community are likely to enhance the attractiveness of posts, and aid in recruitment and retention.	Therapy staff modelling is based on the South East Strategic Clinical Network stroke service specification clinical standards following the methodology as set out by the South East Coast Clinical Senate. This has been updated to account for the revised bed numbers (caused by the changes in occupancy rates noted above) and has been set in the workforce appendix (Appendix K).

Issue raised	Actions to address
	The option of rotating staff is being explored as part of the workforce strategy and will be considered in more detail as part of the implementation planning.
Recommendation 20: The expected annual stroke activity for each hospital should be updated to take account of any additional activity arising from agreed changes to patient flows, or continuation of current flows, that have not been included in the modelled HASU activity in the current PCBC. This is particularly important for Option C, D and E, where projected activity in one of the hospitals in each option is below the minimum national recommendations for annual confirmed stroke activity in a HASU of 500 cases.	Currently many of the patients in the Sevenoaks area, although modelled to flow to the PRUH in Bromley based on the shortest travel time, in practice actually flow to TWH. It is anticipated that the new dual carriageway on the A21 will also increase activity at Tunbridge Wells Hospital (TWH). Modelling has been undertaken around shortest travel time, in line with NHS England expectation, but actual historic activity shows a greater than expected activity volume than would be anticipated go to TWH. This should be taken into account and will increase the estimated volume of stroke activity at TWH in options D and E.
Recommendation 21: There must be clarity about which postcodes/LSOAs are within which HASU network. This is required so that acute trusts can have confidence in a catchment area that delivers enough stroke cases to warrant a HASU, and so that the ambulance service will convey stroke patients to the agreed and designated HASU hospital. There should be formalised agreements between neighbouring STPs and with the ambulance services on these stroke catchment areas.	Modelling has shown which LSOAs are within which HASU network based on travel time to nearest hospital. The Senate recommendation is that LSOAs should be assigned to each hospitals to guide ambulance conveyances. This effectively would direct patients to each hospital and establish the catchment areas and ensure they are above the required minimum activity. One of the Senate Panel members was able to outline how this had been applied in elsewhere and provided further details. This will be explored with providers and the ambulance service as part of the Decision Making Business Case.
Recommendation 22: Options that include HASUs where the expected stroke activity is less than 500 per annum after taking account of any proposed additional changes in HASU catchment areas are not recommended for inclusion, as they do not meet national guidelines to achieve the multiple benefits	Following analysis of potential changes to travel flows, as outlined in Section 9.3, it was agreed that some options with fewer than 500 cases per annum would be considered further, especially given the quality evaluation. Further work will be completed as part of the Decision

Issue raised	Actions to address
and patient outcomes that centralised stroke services can deliver.	Making Business Case to assess potential catchment areas and ensure that the chosen option delivers sufficient volume at all sites. If, after taking account of this as set out in recommendations 20-22, the numbers are still low then exclusion of the relevant options will be given further consideration.
Recommendation 23: Travel times from LSOAs to HASUs should be remodelled to take account of the upgrade to the A21 between Pembury and Tonbridge, and to determine its impact on HASU activity.	The updated travel times information is not yet available in Basemap (due to the changes on the A21 only just taking place). The modelling will be reviewed following consultation when the impact of the improved road network can be better evaluated.
Recommendation 24: When planning the siting of the HASU and ASU in designated hospitals, they should wherever possible be co-located to maximise operational efficiencies.	All HASU/ASU beds will be co-located at each site, where possible, as shown in Section 11.
Recommendation 25: The presentation of ambulance travel times from home to the nearest HASU would benefit from more granularity, in order to more explicitly show the range of travel times within the 60 minute requirement (which is being met within all options). Providing the proportion of travel times within 30 and 45 minutes would aid a better understanding of likely journey times.	This is included in the PCBC and was assessed as part of the evaluation process, as shown in Section 10.3.2.
Recommendation 26: For times when road transport is severely affected (such as by exceptional traffic or accidents), there should be contingencies in place to use the air ambulance service.	Road transportation is as fast as air ambulance for all but a small part of the population, hence air ambulance is not currently often used for stroke transfers. However, the air ambulance service is in place to be used, if required, following the usual protocols.
Recommendation 27: More clarity about the realistic date when the trusts' additional bed capacity would be in place will help sequence planning and recruitment to the posts, and help to align stakeholders' expectations with the likely implementation date.	A high-level plan is currently in this PCBC (see Section 12.3), and is being developed in more detail to inform the Decision Making Business Case.

13.3 Integrated impact assessment including equalities impact assessment

An integrated impact assessment for the proposals for acute stroke and urgent TIA services has been undertaken. A copy of this report can be found at Appendix Di. The purpose of the integrated impact

assessment is to explore the potential positive and negative consequences of the proposals. The following have been conducted as part of the integrated impact assessment:

1. Health impact assessment (HIA)
2. Travel and access impact assessment
3. Equality impact assessment (EqIA) (in which the impacts of the proposals on protected characteristic groups and deprived communities are assessed)
4. Sustainability impact assessment.

The following protected characteristic groups (per the Equality Act 2010) were found to be potentially impacted by the proposals and were therefore considered as part of the work: age, disability, pregnancy and maternity and race. Deprivation was also considered as there are some deprived populations within Kent and Medway, although it is not a protected characteristic.

The impact assessment concluded that the proposed changes will have a positive impact on patient outcomes and remove the variation currently experienced across Kent and Medway. The consolidation of workforce resources will support the three hyper acute and acute stroke units to sustainably achieve recommended workforce standards. Increased consultant presence is associated with positive outcomes for patients. While the changes will result in some patients having to travel further to access some stroke services, it is considered that this is offset by the quality benefits of having access to a streamlined and fully resourced hyper acute stroke unit on arrival.

However, with activity for stroke services being consolidated into fewer hospitals, there is a possible risk that capacity could become constrained within these units. This could, in turn, have a negative impact on the responsiveness, safety, and quality of patient care. It is also important to consider that if links between clinically dependent services across the wider STP programme are not appropriately maintained, this has the potential to negatively impact on the safety of patient care.

Whilst the proposed changes will create a more sustainable workforce for providing stroke care the reconfiguration of stroke services could bring challenges for some staff. This could result in negative impacts such as increased staff turnover and the loss of current expertise.

Across all of the proposed shortlisted options there is a reduction in accessibility within 30 minutes by blue light ambulance for patients currently accessing stroke services (including high risk TIA patients). However, the proposals are likely to provide positive health impacts including improved clinical outcomes, removal of bed blocking and overall service improvement. The transitional issues, related to service and geographical familiarity, in particular travelling to a new location and being treated by different healthcare professionals, are particularly likely to affect some protected characteristic groups.

For options B, C, D and E those from the most deprived quintile will be impacted in terms of travel and access, while option A shows no equality groups impacted. For options B, D and E those with a Limiting Long Term Illness (LLTI) will be impacted in terms of travel and access. For option D, those from a BAME background will be impacted in terms of travel and access.

Negative impacts associated with increased journey times for equality groups include increased stress and anxiety, increased costs associated with travel and lack of acceptable alternative transport methods. Despite the options having a potentially negative impact on the population in terms of increased travel time and access the disadvantaged population will benefit from a significant improvement in the quality of care received at each of the sites.

The assessment also considered the sustainability impact of each proposal. While all proposals are expected to increase emissions, option D would result in the lowest change in GHG emissions and option E the highest; over twice that of options A, C and D.

A detailed list of potential ways in which to enhance opportunities and to mitigate or reduce the effect of the potential negative impacts identified in the equality impact assessment has been developed against the key impacts identified across health outcomes, service impacts, implementation, communications and travel and access. These were discussed in depth by the Clinical Reference Group (health and travel and access impact) and an Integrated Impact Assessment Task and Finish Group (equalities and communication). Additional mitigations have been added to those proposed in the independent report. The Integrated Impact Assessment and the proposed mitigations have been reviewed and agreed by the Joint Committee of CCGs. These will be developed in more detail as part of the Decision Making Business Case and implementation phase of work.

A detailed list of the impacts and mitigations can be found in Appendix Diii.

13.4 Consultation with local authority overview and scrutiny committees

Stroke Review proposals have been shared with individual Health Overview and Scrutiny Committees (HOSCs) and the Joint Health Overview and Scrutiny Committee (JHOSC) as they have been developed. Further information on the involvement of the JHOSC and individual HOSCs can be found in Section 4 and Section 14.

13.5 NHS England assurance

The NHS England assurance process for the Stroke Review included:

- **Oversight Group for Service Change and Reconfiguration (OGSCR) formal review on 9 January 2018:** this was a formal review of the proposals, chaired by an out of area Chair
- **Investment Committee Review on 18 January 2018:** a review of the proposals by the NHS England which oversees the assurance of reconfiguration proposals on behalf of NHS England.

The information considered by both reviews included:

- an overview of the proposals
- a description of the model of care and options for sites
- an assessment against the four tests and three conditions
- a detailed consideration of the financial case

NHS England agreed that the four tests have been passed and that the condition for bed closures has been met (see 13.6 for details of the four tests and condition for bed closures and the evidence presented).

On this basis, NHS England have confirmed their support that the proposals for the reconfiguration of urgent stroke services in Kent and Medway should proceed to public consultation. The formal minutes of the meeting are being signed off and will be tabled at the meeting of the Joint Committee of Clinical Commissioning Groups on 31 January 2018.

13.6 Four tests and three conditions

The *NHS Operating Framework 2010-11* and the NHS Chief Executive letter of 29 July 2010 outline four tests for reconfiguration. These are that "current and future reconfiguration proposals must meet four new tests before they can proceed. These tests are designed to build confidence within the service, with patients and communities." The four tests are part of a wider external assurance process that includes reviews by NHS England and the South East Coast Clinical Senate. NHS England, on behalf of the Secretary of State, is tasked with assessing that reconfiguration proposals can meet the following tests:

1. Support from GP commissioners
2. Strengthened public and patient engagement
3. Clarity on the clinical evidence base
4. Consistency with current and prospective patient choice.

Reconfiguration proposals must meet the four tests before they can proceed. These tests are designed to demonstrate that there has been a consistent approach to managing change, and therefore build confidence within the service, and with patients and the public.

Since 1 April 2017, local NHS organisations have also had to show that significant hospital bed closures subject to the current reconfiguration tests meet one of three new conditions before NHS England will approve them to go ahead:

1. Demonstrating that sufficient alternative provision, such as increased GP or community services, is being put in place alongside or ahead of bed closures, and that the new staff will be there to deliver it.
2. Showing that specific new treatments or therapies will reduce specific categories of admissions.
3. Where a hospital has been using beds less efficiently than the national average, that it has a credible plan to improve performance without affecting patient care.

The proposals contained in this PCBC will result in the reduction of 7 beds (5% of modelled hospital stroke beds – from 134 beds currently to 127 beds in 2021[5]). This small reduction in beds will be achieved by reducing average length of stay for patients from 15.6 days to 13 days through higher quality care and greater efficiency during the hospital episode. This includes quicker access to diagnostics, thrombolysis and senior expertise, as outlined in Section 6.5.1. This reduction in average length of stay is evidenced by other areas that have introduced hyper acute stroke units; for example, in London where the development of hyper acute stroke units resulted in a decrease in median length of stay from around 16 days in May-July 2009 to around 11 days in May-July 2011[74]. Sensitivity analysis has also been undertaken to understand the financial impact of a higher average length of stay than planned, as shown in Section 11.10.

The Strategic Transformation Partnership (STP) has worked with NHS organisations, local authorities (including Health and Wellbeing Boards and Overview and Scrutiny Committees) and patient and public representatives to develop these proposals. This section of the PCBC describes how the work meets the four tests, and what will be done in the future to continue this work during and after the consultation period.

[5] Modelled beds have been used as stroke beds are not ring-fenced and cannot be "counted". Modelling beds using actual activity and average length of stay also ensures that beds numbers are comparable across providers.

Throughout this work the Stroke Review has worked to address the four tests. This section of the PCBC summarises for each of the four tests:

- The work undertaken to date
- Planned activities in the next stages of the Stroke Review.

13.6.1. Test 1 – Support from GP commissioners (and GPs)

This section describes how the Stroke Review has met the Secretary of State's test for GP Commissioner support. Each CCG has agreed the content of this PCBC with their Governing Body and each chair has signed the foreword to this PCBC.

Work undertaken to date

CCGs (chaired by GPs and with GP members) have led the Stroke Review from the outset:

- The eight Kent and Medway CCG Chairs, plus two neighbouring other CCGs with affected populations, are represented on the Stroke Programme Board, which manages the overall Stroke Review and makes recommendations to the JCCCG
- The eight Kent and Medway CCGs are represented on the:
  - STP Clinical Board - which provides clinical leadership to the Sustainability and Transformation Partnership and makes recommendations to the STP Programme Board
  - Finance Group – which brings together commissioner and provider finance leads to inform development of finance and activity modelling
  - Stroke Programme Board – which brings together a range of stakeholders to coordinate the development of detailed proposals
  - Clinical Reference Group – which makes recommendations to the Stroke Programme Board on clinical matters.

There has been regular briefing and engagement with CCG Chairs including through the Kent and Medway Commissioning Assembly (including CCG Chairs and Accountable Officers), attendance at CCG clinical meetings and Governing Body briefings. CCG Chairs have discussed the proposals with their own Governing Bodies (see Appendix B). All eight Kent and Medway CCG chairs signed up to a public endorsement of the Stroke Review's case for change during July and August 2015.

There has been engagement with GPs beyond the CCG Governing Bodies. This includes presentations at relevant meetings and GP bulletin newsletters. GPs are also encouraged to sign up for updates on the STP which includes stroke.

Planned activities in the next stages of the Stroke Review

As the Stroke Review moves towards the consultation phase, the following types of events and activities will be undertaken and these are outlined in more detail in the consultation plan. All public events will be promoted via local channels, networks, posters and online. CCGs and GPs will be specifically involved in the following:

- As ambassadors for the Stroke Review, attending roadshows, public events and as media spokespeople. A cohort of clinical spokespeople have been identified and trained, including stroke clinicians, GPs, senior medical leaders and ambulance staff.
- Provider-led events for staff. The aim of these will be to provide detailed information and to answer questions, to gather rich feedback on the benefits, concerns and issues in a structured and constructive way and to explain the proposals and enable leaders and clinicians to be questioned about them.

- Drop-in sessions for NHS staff, within hospitals and community settings.
- One-to-one meetings and correspondence - all requests for meetings and briefings will be considered and, within reason, accepted.
- Displays in key locations

As the Stroke Review continues, CCGs will lead on taking the plans forward. CCGs will remain part of the Stroke Programme Board and Clinical Reference Group, both of which will continue to meet during the consultation phase. During consultation, events focused purely on GPs will be held. Each event will be aimed at including all GPs, particularly those less actively involved in the leadership of CCGs. In addition to events and face-to-face meetings the usual, trusted communication and engagement channels with GPs will be used to raise awareness and to ask for feedback in response to the consultation.

In addition, the Stroke Review will:

- Hold GP network meetings in each CCG area
- Support CCG chairs in presenting proposals to local stakeholders
- Work with CCG chairs to support the development and delivery of implementation plans for these proposals

13.6.2. Test 2 – Strengthened public and patient engagement

This section outlines how the Stroke Review has met the Secretary of State's test for strengthened public and patient engagement. It describes how patients and the public have been involved in each stage of the Stroke Review, and the activities and communications that have strengthened engagement with public and patients in Kent and Medway and the surrounding areas in south east London and Sussex. This includes evolving relationships with local authorities, engagement with HOSCs and the JHOSC and work with Health and Wellbeing Boards. It also lists planned activities for the future, and how the public and patients have contributed to the direction of the Stroke Review.

A letter of support for the consultation has been received from Healthwatch Kent following a detailed independent review of the pre-consultation phase of engagement. Healthwatch has a clear process for acting as a critical friend on consultations. This is based on their Best Practice Guides on Consultations and Pre-consultation Engagement (available at http://www.patientpublicinvolvement.com/wp-content/uploads/2017/01/Healthwatch-Kent-Best-Practice-Guide-to-Engagement.pdf). This process was undertaken by Healthwatch Kent volunteers and based on the evidence of the activities and the planning and quality of what has been undertaken, from a lay person's view, informed by training from The Consultation Institute. The independent review found that there has been sufficient pre-consultation public engagement over the past two years and that Healthwatch Kent fully supports the robust process used by the Stroke Review. The full review is shown at Appendix Cii. A detailed list of public and patient engagement is shown in Section 4.

A letter of support has also been received from the Stroke Association and is shown at Appendix Ci.

Work undertaken to date

The Stroke Review has been established to put both the public and patients, and their carers, and their interests, at the heart of the process. Public and patient engagement is a core part of the Stroke Review structure. This is achieved through the Stroke Review governance structures and the following fora:

- the Patient and Public Advisory Group
- the Healthwatch network
- patient representatives at key meetings including the Stroke Programme Board and Clinical Reference Group
- engagement and involvement events and activities including focus groups, listening exercises, survey and public meetings
- updates and discussion at public CCG Governing Body meetings
- HOSC and JHOSC engagement

The Public Patient Advisory Group, which brings together patient representatives across Kent and Medway, meets regularly and has discussed the Stroke Review from the outset. The Chair sits on the STP Programme Board. Patients are represented at key meetings and Healthwatch is represented on Stroke Programme Board.

In early 2015, listening events took place in the eight CCGs in Kent and Medway to gather initial views. In November and December 2015, three deliberative events looked in detail at the case for change, and questioned and challenged the proposals for improving future stroke care. These included presentations from key spokespeople within the Stroke Review and facilitated round table discussions to capture views and insights. External clinicians such as the national lead for stroke, have also taken part in these events. A survey also took place in November 2015. Four engagement events took place across Kent and Medway in September 2016 to discuss proposals for change. Eight events took place in August 2017. Hosted by the Stroke Association, to discuss the evaluation criteria and process. The outputs of all these events have been incorporated into the proposals, as outlined in Section 4.8). Input from patients and public was also used to develop criteria for evaluating the options. The results of this are shown in Section 8.3.

Health and Wellbeing Boards have also been engaged. Medway Health and Wellbeing Board were presented information on the Stroke Review on 22 February 2017 and 27 June 2017. The Kent Health and Wellbeing Board was provided with information on the Stroke Review on 22 March 2017.

Senior Stroke Review members have attended local HOSC meetings whenever requested since the launch of the case for change, and proactive briefing sessions have been conducted with Kent and Medway HOSCs since the start of the review. The case for change was reviewed by Kent HOSC and Medway HOSC August and September 2015. In keeping with *Directions to Local Authorities - Overview and Scrutiny Committees, Heath Scrutiny Functions (2003)*, a Joint Health Overview Scrutiny Committee (JHOSC) was formed between Medway HOSC and Kent HOSC in 8 January 2016 and has met a number of times. Items discussed with this JHOSC include:

- Clinical models
- The Stroke Review's approach to evaluation
- Options for consultation
- Timeline for decision making
- Consultation plan
- Consultation document.

The Health Overview and Scrutiny Committees across county borders in East Sussex and in Bexley, south east London have also been engaged. Both these scrutiny committees have confirmed that the proposals constitute significant variation to current service provision for their residents, and therefore they have decided to form a Joint Health Overview and Scrutiny Committee with colleagues in Kent and in Medway. Engagement with members will continue and a new Joint HOSC (JHOSC) including Bexley and East Sussex representatives is being established.

In response to feedback from the Kent and Medway JHOSC, the appropriate consultation period was agreed to be 10 weeks. At the January meeting, which was attended by representatives from Bexley and East Sussex, the JHOSC was asked to review the consultation document and to advise the Stroke Review of significant areas where further detail is required. At this meeting, the JHOSC also reviewed and commented on the consultation plan.

Information has been presented in a clear, non-technical, user-friendly way and this has been a major focus in preparing for consultation. Q&A sessions at stakeholder events have been used to respond to questions from public and patients, and allow the Stroke Review to share these responses with a wider audience through the distribution of reports. Input and feedback from patients has been used to inform the development of the Stroke Review (for example, in the development of the evaluation criteria – see Section 8.3).

In addition to this, senior members of the Stroke Review have participated in a wide range of engagement activities including:

- Clinical Commissioning Group meetings
- Council meetings
- Health and Wellbeing Boards
- Local Medical Committees
- Meetings with local MPs
- Patient listening and deliberative events
- Patient focus groups

There has been widespread media coverage of the proposals, including newspaper, radio and TV coverage which is monitored by the communications and engagement leads for each CCG as well as the stroke Communications and Engagement lead.

During the pre-consultation phase, a Stroke Review webpage has been set up and hosted on the Dartford, Gravesham and Swanley CCG website, and more recently on the Strategic Transformation Partnership (STP) website. The website has been used to detail what the Stroke Review is about, who is involved, what events were taking place, update with news and developments as well as a source where Stroke Review and event materials could be viewed and downloaded.

Planned activities in the next stages of the Stroke Review

During consultation, different events and activities will be undertaken (these are outlined in more detail in Section 4. To support the consultation, the Stroke Review will:

- Hold twenty listening events across Kent and Medway and affected neighbouring areas
- Host hospital events primarily aimed at NHS staff but also open to patients
- Attend public meetings, both planned and hosted by others; for example, any local group meetings that the Stroke Review is invited to or any that might be proactively approached
- Focus on an outreach programme, particularly for 'hard to reach' groups and seldom heard voices
- Participate in clinical engagement events aimed at both GPs and provider staff
- Distribute consultation materials to public outlets including hospital sites involved in the consultation, and community spaces (and also offer them in alternative formats where required)
- Set up a consultation response unit to answer questions and deal with responses from stakeholders including members of public

- Continue to attend meetings with JHOSC, local authorities, MPs and other statutory bodies and consultees.

The public events will be heavily promoted via local channels, networks, posters and online via the STP website. The STP website will provide Stroke Review information, road show and event details, interactive consultation responses, feedback forums and news. It will be regularly updated with the latest news, information and documents to download. Digital and social media channels will also play a role in public engagement, with a more direct level of engagement with the audience developed before and during consultation.

After consultation, feedback from public and patients will continue to be used to inform the Stroke Review. A formal and independently analysed report of the consultation responses and feedback will be compiled for detailed consideration by the Joint Committee of the CCGs. After consultation, the progress of the Stroke Review will be updated through the STP website, newsletters and other consultation materials produced, and by hosting and participating in meetings with stakeholders. Engagement and involvement activities will be ongoing, and will re-focus into support and co-design for implementation planning for any changes that are agreed.

13.6.3. Test 3 – Clarity about the clinical evidence base

This section outlines how the Stroke Review has met the Secretary of State's test for clarity about the clinical evidence base. It describes how clinical evidence informed the case for change, vision, service models and options evaluation for the Stroke Review. More detail about the clinical evidence base used is shown in Sections 5.4 and 6.

Clinicians across Kent and Medway have given input to the Stroke Review's proposals. External input from the national Stroke Director and the independent chair of the Clinical Reference Group has been sought. The South East Coast Clinical Senate tested the evidence and have given feedback on the proposals.

Work undertaken to date

The Stroke Review proposals have built upon work taken forward over several years by local clinicians. In December 2014, CCGs in Kent and Medway commissioned a review of hospital stroke care which published a case for change in July 2015. Following extensive clinical discussion and stakeholder engagement, the service models were agreed in February 2017 with options formulated and agreed during 2017.

Using the latest evidence and research, clinicians identified that there are significantly improved outcomes for patients and improved patient experiences when hospital stroke services are centralised onto fewer sites. This is because it allows a greater throughput of activity and consolidation of the scare workforce to provide access to specialist skills and equipment 24 hours a day, seven days a week. Clinicians found that the seven hospital sites in Kent and Medway currently providing hospital stroke services were not meeting clinical quality standards, had insufficient staff with high vacancy rates, and (except at one site) did not see sufficient numbers of patients.

As a first step in transforming hospital services, local clinicians, supported by patients and their representatives, the public, commissioners and providers developed a vision and a model of care for stroke care. This vision covered quality improvements to preventing stroke; caring for people who are having a stroke; and post-stroke rehabilitation. Clinicians also considered co-dependencies with other urgent services such as acute medicine and diagnostics and agreed that hyper acute and acute stroke units should be co-located as this makes better use of the scarce workforce. A separate

working group was set up to consider the proposals for the rehabilitation care model in more detail; this group met three times in October and November 2017 and agreed to the adoption of the South East Strategic Clinical Networks recommended model of care[75].

Quality and clinical evidence are at the heart of the options appraisal for the location of the co-located hyper acute and acute stroke units. This included a consideration of:

- Minimum and maximum levels of activity in each unit
- The ability of services and the availability of the workforce to deliver standards
- Clinical co-dependencies
- Rapid access to thrombolysis
- Patient experience and safety
- Clinical co-adjacencies including with trauma units, pPCI and vascular as described by the South East Coast Clinical Senate
- Clinical co-adjacencies to develop Keogh major emergency centres
- The development of mechanical thrombectomy
- Service operating times
- The time to, and ease of, delivering clinical and quality benefits

The Stroke Review was designed from the outset to be clinically led. The Stroke Review structure includes medical representation in its groups, and medical leadership is provided by the independent chair of the Clinical Reference Group and the co-Chairs of the STP Clinical Board.

In addition, all clinical proposals are developed through discussion at the stroke Clinical Reference Group which has senior representatives for each provider and CCGs. The stroke Clinical Reference Group has considered detailed evidence at each stage before making recommendations to the Stroke Programme Board. The Sustainability and Transformation Partnership Clinical Board has provided guidance and challenge; this Board includes provider Medical Directors, CCG Chairs, Directors of Public Health, Directors of Social Services and representatives of the ambulance service.

The case for change, service model and quality standards are based on sound local and national clinical evidence. A robust, evidence-based process has been used for developing and appraising options for change that have been shared with stakeholders at every stage of its development; working in particular with senior local clinicians and external clinical advisors to ensure any options selected are clinically sound.

The Clinical Reference Group reviewed a wide body of evidence in determining the care model and quality standards for Kent and Medway. The core documents include:

- National Sentinel Stroke Clinical Audit (rolling programme)
- 2016 National Clinical Guideline for Stroke, Royal College of Physicians
- Stroke and transient ischaemic attack in over 16s: diagnosis and initial management, clinical guideline [CG68], July 2008 (last updated, March 2017)
- South East Strategic Clinical Networks. Stroke rehabilitation in the community: commissioning for improvement. 2016
- South East Coast Clinical Senate, Kent and Medway stroke services review report, June 2015
- South East Coast Clinical Senate, Review of Stroke Services in Sussex, December 2015
- South East Coast Clinical Senate, Hospitals without acute stroke units - implications and recommendations, January 2016

- South East Coast Clinical Senate, The clinical co-dependencies of acute hospital services: a Clinical Senate review, 2014
- NICE, Stroke Rehabilitation in Adults, 2013

Proposals have been tested with many other clinicians to ensure they are robust:

- Engagement events, such as the Kent and Medway clinical engagement event in November 2015 have provided an opportunity for clinicians to give feedback to help shape the development of the Stroke Review.
- The proposals have also been tested twice (at case for change and at options) with the South East Coast Clinical Senate, whose role and responsibilities are to provide expert clinical steer on proposals and ensure Stroke Review clinical proposals are robust. These reports validate that there is a case for change to deliver better care more effectively and that the proposed care models follow best practice. See Sections 13.2.1 and 13.2.2 for more information.
- The national director for stroke services, Professor Tony Rudd, has supported the development of the proposal throughout the Stroke Review and has given on-going guidance and support.
- The independent chair of the Clinical Reference Group has ensured that discussions and proposals follow best practice guidelines and ensured the impartiality of proposals.

Planned activities in the next stages of the Stroke Review
The structure that is already in place will be maintained; providing clinical leadership, and ensuring that the clinical evidence base underpins the programme of work.

The stroke Clinical Reference Group will continue to meet to test and explore in more detail the implementation implications of the Stroke Review's proposals. As part of this work, this group will take forward the additional work recommended by the South East Coast Clinical Senate in its report including around stroke rehabilitation and mechanical thrombectomy[76]. The Clinical Reference Group will also provide information and recommendations to the Stroke Programme Board to support the finalisation of proposals for change post decision making and it is expected that they will continue to support and inform implementation planning.

As new clinical evidence, recommendations and best practice emerges, this will be used to inform the Stroke Review's proposals.

CCGs, as the leaders for commissioning services, will work together across Kent and Medway to deliver care that meets the strokes clinical standards. All providers will be held to account against these standards and local GPs in their clinical commissioning groups are putting in place processes to ensure they are delivered. A clear clinician-led system based around peer review will be key to ensuring that performance is transparent. In addition, a system, led by clinicians, will be put in place to manage performance, so that benefits for patients can be delivered.

13.6.4. Test 4 – Patient choice

This section outlines how the proposals may affect patient choice in accessing care. The changes proposed by this Stroke Review aim to improve service delivery. To achieve this, it is proposed that hyper acute and acute stroke units are developed, which will impact on the sites currently offering hospital stroke services. Accessibility and the quality and safety of a service have been taken into account when considering patient choice. Quality of service is ranked highest by local patients and clinicians and, for patients, closely followed by access.

Work undertaken to date

The NHS Constitution outlines patients' rights: "You have the right to make choices about your NHS care and to information to support these choices. The options available to you will develop over time and depend on your individual needs.". Patient choice is of particular importance for non-emergency services. Within the stroke patient pathway, choice will be a key consideration for rehabilitation services, which people will want access as close to home as possible. However, the presumption of choice is not required for non-elective services, as speedy access to diagnosis and treatment is paramount [77]. For this reason, the Stroke Review has focussed on developing proposals that will deliver safe, high quality care, and developing a more centralised service to do this where necessary.

Planned activities in the next stages of the Stroke Review

Patient choice will continue to be a considered by the Stroke Review, and will continue to inform the proposals where it is relevant (for example, for rehabilitation services). Once final proposals have been agreed for urgent stroke services, the assessment of the impact of proposals on patient choice will be re-visited, testing for any adverse impacts and recommending any mitigating actions, if required.

14. Undertaking consultation

14.1 Purpose of undertaking consultation

Under section 242(1) of the NHS Act 2006, the NHS has a duty to ensure that service users are involved in the development and consideration of proposals for change in the way services are provided.

In addition, the NHS is required to consult with local Health Overview and Scrutiny Committees (HOSCs) in respect of substantial developments or variations in health services in areas of Local Authorities where patients are impacted. These Local Authorities are required to form a Joint HOSC for purposes of consultation on such proposals.

Through public consultation, the aim is to obtain a broad range of views on the proposals whilst they are still in development to help identify the optimal solution for Kent and Medway.

The public consultation on the proposals developed by local clinicians is guided by the principles for all stakeholder engagement (set out in Section 4.2.2). Alongside these, there are specific objectives for the way the consultation is run:

- **Consulting with people who may be impacted by the proposals:** achieve meaningful engagement across Kent and Medway and those neighbouring areas that may also be affected by these proposals.
- **Consulting in an accessible way:** ensure all materials are accessible, and translatable on request.
- **Consulting well through a robust process:** ensure the process, scope and scale of the consultation is of a sufficient level to be legally robust and demonstrate all other legal and other statutory tests have been met
- **Consulting collaboratively:** work collaboratively with individuals, stakeholders and partner organisations to deliver the agreed consultation principles with information relevant to local groups.
- **Consulting cost-effectively:** ensuring the consultation budget is spent wisely and used effectively in terms of reach and response, delivering good value for money throughout.
- **Consulting for feedback:** monitor and evaluate the consultation process consistently and in a systematic way with independent analysis of the feedback.

Across the population in Kent and Medway, plus those in surrounding affected areas (Bexley and High Weald, Lewes and Haven), the consultation aims to engage as effectively as possible with the following groups:

- Patients and the public – Healthwatch, residents' associations and the wider community including local residents and those not always actively engaged with health services
- Traditionally under-represented/seldom heard groups – minority groups, those with protected characteristics, people with learning disabilities, young people, faith groups, those with long term conditions, refugee /undocumented communities, Black and Minority Ethnic (BME), the 'working well' and women.
- Clinicians and staff – clinicians, unions and those working in social care, mental health and other parts of the health and social care service, Heath Education England

- Partners and providers – local providers of stroke services, community and mental health providers, voluntary organisations
- Political stakeholders – JHOSC, individual HOSCs, Health and Well-Being Boards, Members of Parliament, local councillors and Cabinet members
- Media – local, regional, national and trade
- Local and national government and regulators – local Councils, South East Coast Clinical Senate, NHS Improvement, NHS England and professional bodies.

Consultation activity will therefore stretch across ten CCG geographies, reaching out to residents in Kent, Medway, High Weald Lewes and Haven and Bexley. Information will also be shared with statutory health and care organisations and key stakeholders in neighbouring Bromley. The aim is to reach 1% of the affected population, with a stretch target of 5%, gaining a minimum of 5,000 responses.

14.2 Consultation methods

Consultation methods will recognise the different ways in which various stakeholder groups might choose to participate, allowing for differing levels of engagement or interest. By using a range of different consultation methods, a wide range and breadth of feedback will be generated. A wide range of consultation methods will be utilised during the public consultation phase of the Stroke Review. All these methods are being incorporated to give the widest reach possible to local people, staff and other interested stakeholders.

Activity will take place at two levels:

1. **Activity that takes place at a Kent and Medway level (including affected populations in London and Sussex):** this will include briefings and meetings with groups and stakeholders at county level (e.g. JHOSC, MPs, some patient and voluntary groups, regulators, partners, professional associations, Clinical Senate, etc), generation and clearance of core content, production and distribution of consultation materials, planning and delivery of a launch event, responses to correspondence, freedom of information (FoI) requests, media requests and digital engagement.
2. **Activity that takes place at a CCG level:** CCGs have dedicated plans tailored to their areas allowing them to consider the specific local opportunities, networks, channels and mechanisms, supported by the core consultation team and consistent core consultation materials, as appropriate.

Figure 60 is a summary of the different methods that will be used during the consultation.

Figure 60: consultation methods to be used

Consultation method	Details
Media	Information will be conveyed either as editorial that is free, and via local media adverts that is paid for and controlled. Free editorial will be the preferred option; however, paid adverts will be considered to promote the consultation if it is felt this is required due to limited media coverage or limited responses from target areas. Regular media releases will be issued throughout the consultation period to local newspapers, local radio and community magazines.

Display	Displays in key locations will promote the opportunity to respond to the consultation. This will include displays at the acute hospitals and in other public areas.
Listening events, roadshows and public meetings	As part of the consultation, a range of different face-to-face events and opportunities for engagement will be organised. There will be a series of public meetings / listening events, which local people can attend. These will focus on explaining the options for consideration, sharing information and answering questions to increase understanding, and inviting feedback and formal responses to the consultation questionnaire. There will be two listening events in each of the 10 CCG areas. There will be 'roadshow' type events, for example, presence in town centres and shopping centres, to raise awareness of the consultation. There will also be attendance at pre-existing meetings, for examples those held by county, borough and parish councils, community groups, patient and health reference groups.
Discussion groups	Discussion groups are guided conversations with smaller groups of people. These groups will be used primarily to seek feedback on proposals with small targeted groups and specific user groups – especially those who may find it difficult to engage in other consultation methods such as people with learning difficulties or communications impairments.
Questionnaire	The consultation questionnaire will be used to ask people for their feedback on our proposals for change and their views on the consultation options, and to gather opinion and feedback on issues, concerns, and areas of support so that these can be understood, and taken account of, including mitigating where possible, in terms of decision-making and implementation of that decision. The consultation document will be sent out by email to a wide range of stakeholders, will be available online via the Kent and Medway STP website and signposted from partner websites, and hard copies will also be made available widely in the community.
Drop–in sessions	Drop-in sessions are informal methods which invite people to take part in discussions on a one-to-one or very small group basis. This will allow for more detailed conversations about specific topics of interest. Sessions will be held at each of the hospitals, in community spaces, and with NHS staff.
Patient and carer groups	Specific groups that currently use, or have used, stroke services in CCG areas will continue to be engaged to ensure that their views and feedback is captured on the proposals and consultation options. In line with the results of the Integrated Impact Assessment, additional targeted opportunities will be identified to engage with groups who have a higher incidence of stroke, and/or who have been identified as potentially more impacted than others by the proposed consultation options.
Focus groups	As a way to make sure people are reached beyond those who are already engaged and views are gathered from a representative sample

	of our consultation population, 10 focus group discussions will be held, with invited/recruited representative members of the population, one in each CCG area, during the consultation. As well as an opportunity for the general public to give their views, these focus groups will be used to explore views and to consider what underlies the views of respondents within the nine protected characteristics. These will enable rich data to be gathered about the views of these particular groups covered by the equalities legislation on the proposals.
Telephone in-depth interviews	In-depth telephone interviews will be commissioned with members of the public who have been cited as at a particular risk of stroke by the Integrated Impact Assessment.
Events for health and social care staff	The aims of the events will be to provide detailed information and to answer questions, to gather rich feedback on the benefits, concerns and issues in a structured and constructive way and to explain the proposals and enable leaders and clinicians to be questioned about them.
One-to-one meetings	Key stakeholders will be written to proactively and meetings offered. All requests for meetings and briefings will be logged and considered and, within reason where possible, accepted.
Digital communications	The approach to digital communications will be via the website, social media making full use of video and animation.

It is essential to ensure the needs of seldom heard groups and others with special requirements are targeted. These groups include, for Kent and Medway and in neighbouring CCG areas, for example: the young, the working well, those in deprived communities, those in more rural communities, migrants, those with learning disabilities and those from BAME groups. Views on the proposals will also be sought from those representing the nine protected characteristics, informed by the Integrated Impact Assessment (see Section 13.3). In addition to the consultation activity outlined in Figure 60, the following will be produced:

- an 'Easy Read' version of the consultation document and response form
- materials in different print formats and languages on request
- 'further information' documents in plain English

14.3 External assurance of consultation plan and materials

The Patient and Public Advisory Group have reviewed and fed back on the consultation plan, and consultation document. PPAG members have formed a small sub-group who are acting as an advisory group on the final consultation materials and detailed plans.

The consultation plan was discussed with the Kent and Medway JHOSC, and will be discussed futher with colleagues from the East Sussex HOSC on 25 January 2018, and with Bexley HOSC on 30 January 2018. The Kent and Medway JHOSC also reviewed and provided feedback on the draft consultation document.

Finally, the consultation document has been tested with a wide group of internal and external stakeholders, Patient and Public Advisory Group members and with an external research company, who have advised on the consultation questions to help ensure questions are clear, non-leading and will generate useful feedback.

All stakeholder feedback has been taken into account in finalising these materials.

14.4 Handling responses

It is vital that patients, the public, staff and other stakeholders feel that their feedback is valued and that they can give feedback easily and directly. The mechanisms for response will include:

- freepost address for return of the consultation questionnaire and other written correspondence
- generic 'info@' email address
- web form
- a freephone telephone number

A dedicated response and enquiries unit will be in place for the consultation period. The response unit will work closely with the communications team and Freedom of Information leads to ensure that responses that require a reply, and any other enquiries relating to the consultation, will be actioned in good time.

14.5 News and media

A media strategy has been put in place to cover the public announcement of the options for consultation, the consultation launch, and ongoing planned and reactive media communications throughout the consultation period. An approvals process is in place to allow a quick reaction to articles. A media protocol is in place between communications leads across Kent and Medway to support joined-up working where appropriate. To ensure local, specialist and national media are effectively managed and treated as an important key stakeholder group, there will be:

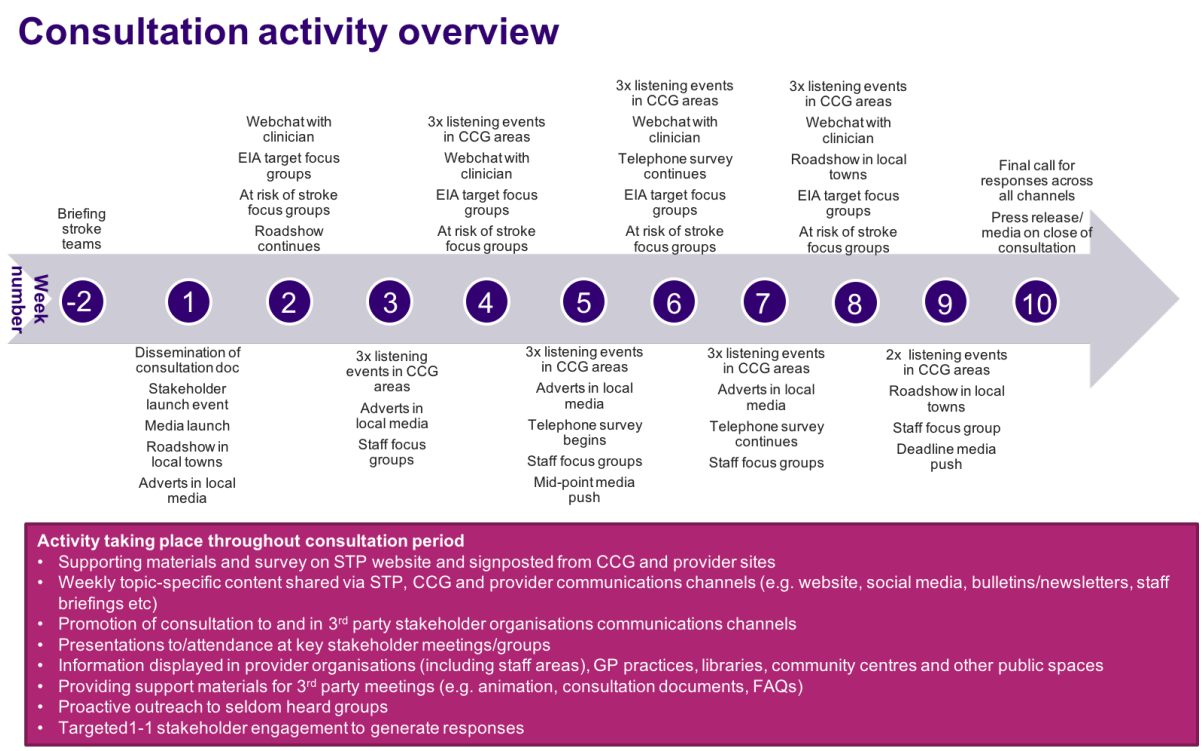
- a press office service managed by the media lead, including arrangements for dealing with any enquiries that may come in out of hours
- detailed Frequently Asked Questions published on our website
- media lists and contacts who can be reached quickly to rebut/challenge any inaccurate stories
- comprehensive media monitoring, locally and nationally and on social media.

Specific media handling plans including key messages, detailed Q&As, targeted media and offers of interviews will be created for significant milestones throughout the consultation.

14.6 Consultation plan

An initial plan for consultation has been prepared, as shown in Figure 61.

Figure 61: high level consultation plan



14.7 Monitoring other programmes of work

As the consultation and decision-making will last for a number of months, it is possible that other developments will take place during that time that will affect the Stroke Review. For example, work is being undertaken to review stroke services in Surrey and Sussex. The Kent and Medway Stroke Review will maintain close links with any relevant programmes or initiatives which might impact upon this Stroke Review, working with partners as their programmes develop and adapting the plans where required.

15. Approval process

15.1 Process

In line with the Stroke Review governance arrangements (see Section 3.4), the approval process for confirming the reconfiguration proposals for formal consultation can be summarised as follows:

- Recommendations made by the Stroke Programme Board to the Joint Committee of Clinical Commissioning Groups. The Stroke Programme Board was supported by the stroke Clinical Reference Group, the STP Finance Group and the STP Clinical Board in making these recommendations).
- Consideration and decision-making by the Joint Committee of Clinical Commissioning Groups.

15.2 Recommendations made by the Stroke Programme Board

The role of the Stroke Programme Board was to provides oversight and steer to the work of the Stroke Review, and based on the results of this process, made recommendations to the Joint Committee of CCGs of what should be taken to public consultation.

The Stroke Programme Board recommended that Options 3, 5, 8, 10 and 11 (re-named as A, B, C, D and E) should be put forward to public consultation.

Letters of support of the recommendation to go to consultation were received from the provider Trusts in affected organisations[6]. These can be found at Appendix Ci.

15.3 Approval by the JCCCG

This PCBC is being submitted to the JCCCG (comprised of the eight CCGs in Kent and Medway plus two neighbouring CCGs with substantially affected populations, Bexley CCG and High Weald Lewes Havens CCG) on 31 January 2018 for approval.

[6] The letters of support from the DVH, MTW and EKHUFT were received in November and December 2017. The information in the PCBC was updated following the receipt of these letters and now addresses the issues raised in the original letters of support by DVH and EKHUFT respectively.

16. Conclusion and next steps

Throughout the 10 weeks of consultation, the Stroke Review will respond to questions raised by the public, NHS staff and other stakeholders. Once consultation is complete, a full report on the response to consultation will be created and submitted to the JCCCG for consideration.

In the months after consultation, further work will be done to refine proposals covering:

- Additional analysis based on questions raised during consultation
- Further detail on options still under consideration (and potentially any additional options that emerge from the consultation)
- Any additional impact analysis requested by the JCCCG.

This analysis will be brought together into a refreshed business case, which will be submitted to the JCCCG to enable it to take any final decisions on hospital stroke service configuration for Kent and Medway.

Appendices

A. Glossary
B. Stakeholder engagement log
C. Stakeholder engagement:
    i. Letters of support
    ii. Healthwatch review of patient and public engagement
D. Integrated impact assessment:
    i. Integrated impact assessment report
    ii. Integrated impact assessment supporting annex
    iii. Integrated impact assessment mitigations
E. South East Coast Clinical Senate report on options for change
F. Stroke Review case for change (published July 2015)
G. Kent and Medway Public Health Observatory evidence review
H. Current stroke services in Kent and Medway
I. List of quality standards
J. South East Coast Clinical Senate report on case for change
K. Workforce modelling
L. Bed and capacity modelling
M. Long list to medium list pack
N. Medium list to shortlist pack
O. Stakeholder event feedback report (evaluation criteria)
P. Travel modelling
Q. Catchment area modelling
R. Finance case
S. Sensitivity analysis

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